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Remedial Investigation
Tidal Area Sites 2, 9, and 11

Naval Weapons Station Seal Beach Detachment Concord
Concord, California

GSA.106.00010

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August 8, 2003

Engineering Field Activity West
Naval Facilities Engineering Command
Daly City, California

TETRA TECH EM INC.

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August 8, 2003

Prepared for

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ACRONYMS AND ABBREVIATIONS

µg/kg	Micrograms per kilogram
µg/dL	Micrograms per deciliter
µg/L	Micrograms per liter
^{224}Ra	Radium-224
^{226}Ra	Radium-226
^{40}K	Potassium-40
^{60}Co	Cobalt-60
AOI	Area of Investigation
Army	U.S. Department of the Army
Atm-m^{-3}/mol	atmosphere-cubic meter per mole
ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	Ambient water quality criteria
BAF	Bioaccumulation factor
BERA	Baseline ecological risk assessment
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
Cal/EPA	California Environmental Protection Agency
CCCMADVC	Contra Costa County Mosquito Abatement District Vector Control
CDFG	California Department of Fish and Game
CDWR	California Department of Water Resources
CEC	Cation exchange capacities
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-term Environmental Action Navy Contract
CLP	Contract Laboratory Program
cm/s	Centimeter per second
cm^2	Square centimeter
COC	Chain-of-custody
COPC	Chemical of potential concern
CSM	Conceptual site model
CTO	Contract Task Order No.
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
DNAPL	Dense nonaqueous-phase liquid
DQO	Data quality objective
DTSC	Cal/EPA Department of Toxic Substances Control
E&E	Ecology and Environment, Inc.
EFA West	Naval Facilities Engineering Command, Engineering Field Activity West
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
ERA	Ecological risk assessment
ER-L	Effects range-low

ER-M	Effects range-medium
ER-M_q	Effects range-median quotient
FFSRA	Federal Facility Site Remediation Agreement
FS	Feasibility study
FSP	Field sampling plan
FWS	U.S. Fish and Wildlife Service
gpd	Gallons per day
GSA	General Services Administration
HHRA	Human health risk assessment
HI	Hazard index
HMW	High molecular weight
H_o	Null hypothesis
HpCDD	1,2,3,4,6,7,8-heptachorodibenzo-p-furan
HpCDF	1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin
HQ	Hazard quotient
IAS	Initial assessment study
IRIS	Integrated Risk Information System
IRP	Installation Restoration Program
IT Corporation	International Technology Corporation
I-TEF	International toxicity equivalent factor
K_{oc}	Organic carbon partition coefficient
K_{ow}	Octanol water partition coefficient
L/min	Liters per minute
LCS	Laboratory control sample
LMW	Low molecular weight
LNAPL	Light nonaqueous-phase liquid
m	Meter
ME	Maximum exposure
meq/100g	milliequivalents per 100 grams
mg-iron/day	Milligrams of iron per day
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day
mg/L	Milligrams per liter
mg/soil-day	Milligrams of soil per day
mg-iron/kg-soil	Milligrams of iron per kilogram in soil
MS	Matrix spike
MSD	Matrix spike duplicate
msl	Mean sea level
NAPL	Nonaqueous-phase liquid
NAVFAC	Naval Facilities Engineering Command
Navy	U.S. Department of the Navy
NCEA	National Center for Environmental Assessment

ACRONYMS AND ABBREVIATIONS (Continued)

NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ND	Nondetect or nondetected
NFA	No further action
NOAA	National Oceanic and Atmospheric Administration
NRC	National Research Council
NTU	Nephelometric turbidity units
OC	Organochlorine
OCDD	Octachlorodibenzo-p-dioxin
PAH	Polycyclic aromatic hydrocarbons
PARCC	Precision, accuracy, representativeness, completeness, and comparability
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxin
PCDF	Polychlorinated dibenzofuran
PCE	Tetrachloroethene
pCi/L	Picocuries per liter
PCP	Pentachlorophenol
PID	Photoionization detector
PRC	PRC Environmental Management, Inc.
PRG	Preliminary Remediation Goal
PVC	Polyvinyl chloride
QA	Quality assurance
QAPP	Quality assurance project plan
QC	Quality control
QCSR	Quality control summary report
QEA	Qualitative ecological assessment
RBSL	Risk-based screening level
RCRA	Resource Conservation and Recovery Act
RDA	Recommended dietary allowance
Redox	Oxidation-reduction (process)
RER	Relative error ratio
RFA	RCRA Facility Assessment
RfD	Reference dose
RI	Remedial investigation
RME	Reasonable maximum exposure
ROD	Record of decision
RWQCB	San Francisco Bay Region Water Quality Control Board
SBD	Seal Beach Detachment
SDG	Sample delivery group
SF	Slope factor
SI	Site investigation
SLERA	Screening-level ERA
SQL	Sample quantitation limit
SVOC	Semivolatile organic compound

ACRONYMS AND ABBREVIATIONS (Continued)

SWMU	Solid waste management unit
SWRCB	State Water Resources Control Board
TM	Technical Memorandum
TCA	Trichloroethane
TCDD	2,3,7,8-Tetrachlorodibenzo-p-dioxin
TDS	Total dissolved solids
TEF	Toxicity equivalent factor
TEQ	Toxic equivalency
TOC	Total organic carbon
TPH	Total petroleum hydrocarbons
TPH-e	Total petroleum hydrocarbons as extractable
TRV	Toxicity reference value
TSS	Total suspended solids
TtEMI	Tetra Tech EM Inc.
UCL_{95}	95th percentile upper confidence limit on the arithmetic mean
USCS	Unified Soil Classification System
UST	Underground storage tank
VOC	Volatile organic compound
WESCO	Western Ecological Services Company
WET	Waste Extraction Test
WOE	Weight of evidence
WP	Work plan
WRS	Wilcoxon Rank Sum

EXECUTIVE SUMMARY

The U.S. Department of the Navy (Navy), Naval Facilities Engineering Command, Engineering Field Activity West (EFA WEST), issued GSA Contract No. GS-10F-0076K Delivery Order 106.00008 to Tetra Tech EM Inc. (TtEMI) to perform a revised draft final remedial investigation (RI) at three Tidal Area sites at the Naval Weapons Station Seal Beach Detachment (SBD) Concord, California (Figures 1-1 and 1-2). The previous RI work was initiated under Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Nos. N62474-94-D-7609 (CLEAN II) and N62374-88-D-5086 (CLEAN I).

PROJECT BACKGROUND

As part of the Installation Restoration Program (IRP), the Navy is conducting investigations to evaluate the nature and extent of contamination at the Tidal Area sites (see Figure 1-2). The lead agency is the Navy, and the U.S. Environmental Protection Agency (EPA) is the lead support agency at Naval Weapons Station SBD Concord. This revised draft final RI includes information on the following sites and an additional area of investigation (AOI):

- Site 1, Tidal Area Landfill (hereinafter referred to as the Landfill)
- Site 2, R Area Site
- Site 9, Froid and Taylor Road Site
- Site 11, Wood Hogger Site
- Otter Sluice, an AOI adjacent to Sites 2 and 11

Although this revised draft final RI includes background information on the history and geology of the Landfill, it is the subject of a separate response action. Information about the Landfill is included in this report because the R Area, which lies adjacent to the Landfill, is evaluated based on some potentially migrating chemicals from the Landfill. Comprehensive data on the Landfill are included in the draft final feasibility study (FS) for the Landfill (TtEMI 1998c) and the revised draft final record of decision (ROD) (Navy 2003b)

This RI for the Tidal Area sites was planned and conducted in cooperation and close coordination with the EPA, the California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC), the Cal/EPA San Francisco Bay Regional Water Quality Control Board (RWQCB), the U.S. Fish and Wildlife Service (FWS), the National Oceanic and Atmospheric Administration (NOAA), the California Department of Fish and Game (CDFG), and other appropriate regulatory agencies, as specified in the Federal Facility Site Remediation Agreement , signed in September 1992. In 1994, the

installation was listed on the federal National Priorities List, and as a result, the Navy and EPA signed a Federal Facility Agreement to govern all investigation and site remediation activities under the IRP at the Tidal Area sites on June 14, 2001 (Navy and EPA 2001). Under the FFA, the Navy became the lead agency, and the EPA became the lead support agency. Although Naval Weapons Station SBD Concord is currently an active base, it has been placed into a reduced operating status.

SUMMARY OF INVESTIGATION AND REPORTS

Based on recommendations in the initial site investigation (SI) of the Tidal Area for further investigation (International Technology Corporation [IT Corporation] 1992), the Navy developed work plans (WP) (PRC Environmental Management, Inc. [PRC] 1994b, 1995a) and a field sampling plan (FSP) (PRC 1995c) to provide the framework and rationale for the RI, consistent with available EPA guidance (EPA 1988, 1992a). The first round of field work was conducted in 1995, and a draft RI report was submitted in 1997 (PRC 1997a). In response to the more focused guidance issued during the review process (DTSC 1996; EPA 1997), the Navy agreed to augment the draft RI data set with additional field data. An FSP addendum was submitted (TtEMI 1998a), and additional field data were collected in June 1998 at the Tidal Area sites and Otter Sluice. The four-volume draft final RI (TtEMI 1999) included an ecological risk assessment (ERA) and a human health risk assessment (HHRA). Based upon agency review and comments, the Navy agreed to revise the ERA and RI. The revised draft final ERA was prepared separately and submitted to the agencies in January 2002 (TtEMI 2002). The Navy provided final responses to agency comments on the revised draft final ERA (Navy 2003a). The responses to comments are also included in Appendix A of this RI document. The remainder of the draft final RI, including the HHRA, constitutes this report, which is referred to as the revised draft final RI.

TIDAL AREA SITES

The following paragraphs provide a brief description of each site and the reason the area was identified for environmental investigation.

Tidal Area Landfill (Site 1)

Located along the western side of Johnson Road, just north of Froid Road (see Figure 1-2), the Landfill covers about 13 acres and served as the major disposal area for Naval Weapons Station SBD Concord from about 1944 to 1979. Solvents, acids, paint cans, creosote-treated timbers, asphalt, concrete, asbestos, and ordnance materials, including inert munitions, were reportedly deposited in this area. Based on this site history, the following chemicals were determined to be of concern: volatile organic compounds (VOC), semivolatile organic compounds (SVOC), organochlorine (OC) pesticides and polychlorinated

biphenyls (PCB), inorganic compounds, explosive constituents, and total organic carbon (TOC). Groundwater, surface water, soil, and sediment samples were collected at the Landfill.

In 1993, Montgomery Watson (under contract to PRC) conducted a Tidal Area sites confirmation study to confirm the presence of chemicals detected during the SI and subsequently, a FS prepared in 1998 used the EPA presumptive remedy approach to evaluate three remedial alternatives considered appropriate for landfills.

The proposed plan for the Landfill, which identified the Navy's preferred alternative, was made available to the public on June 8, 1999. The revised draft final ROD (TtEMI 2001) identified a soil cap with a low-permeability barrier layer as the selected remedy for the Landfill; however, the EPA invoked informal dispute with that version of the ROD, which was essentially resolved by the Navy's agreement to further assess site groundwater and address it separately. Currently, a new revised draft final ROD for the Tidal Area Landfill (Site 1) has been issued to the regulatory agencies for review (Navy 2003b). It summarizes the three proposed remedies described in the 1998 FS and identifies a low-permeability soil cap that meets the State's regulatory requirements for a standard prescriptive cap as the selected remedy. The selected remedy also includes groundwater and landfill gas monitoring as well as institutional controls as necessary.

R Area Site (Site 2)

The R Area Site consists of a mosaic of brackish and salt marsh habitat seasonally inundated and completely surrounded by berms (see Figure 1-2). From the late 1940s until about 1976, the area adjacent to the eastern side of Baker Road, between the Segregation Area (R Buildings) along Froid Road and the Inert Storage Area (S Buildings) along Pickett Road, was used for disposal of materials generated during the segregation of conventional munitions returned from Pacific operations. In 1992, the DTSC performed a Resource Conservation and Recovery Act facility assessment (RFA), which resulted in the designation of a solid waste management unit (SWMU) consisting of buildings R1, R2, R3, and R4, collectively known as the "R Area buildings" (SWMU 47) or "the segregation area.."

During the RI, segregation waste, including metal munitions casings and cans, were observed on the ground surface and submerged beneath the water along Baker Road. In addition, piles of asphalt paving, metal casings, and mattress springs were seen on the ground surface. The amount of debris decreased with distance from Baker Road, except along the northern site boundary, where metal containers were observed along Pickett Road. Based on the history of the R Area Site, the following chemicals were determined to be chemicals of potential concern (COPC): VOCs, SVOCs, OC pesticides and PCBs, inorganic

compounds, and explosives. Groundwater, surface water, soil, and sediment samples were collected at the R Area Site.

Froid and Taylor Roads (Site 9)

The Froid and Taylor Roads Site is an area about 800 by 300 feet that is bisected by Froid Road (see Figure 1-2). Aerial photographs taken in 1939 indicate little activity in the vicinity of the Froid and Taylor Roads Site (see Figure 2-1).

A piece of ordnance was found on the shoulder of Froid Road, near its intersection with Taylor Boulevard. This piece of ordnance was later identified by explosive ordnance disposal personnel as a spent, 5-inch, white phosphorus rocket round. An investigation of the surrounding area revealed scrap metal and other debris in the area south of the intersection of the two roads. Although no specific incidents of hazardous materials disposal were linked directly to this site, its proximity to the other sites made it an area of concern during the IAS (Ecology and Environment, Inc. 1983).

Based on the site history, the following were determined to be COPCs: VOCs, SVOCs, OC pesticides and PCBs, inorganic compounds, and explosive compounds. Groundwater, surface water, soil, and sediment samples were collected from Froid and Taylor Roads Site.

Wood Hogger (Site 11)

The Wood Hogger Site is bordered by Otter Sluice to the west and south, Froid Road to the north, and an unnamed dirt and asphalt road to the east (see Figure 1-2). Historically, the Wood Hogger Site was used as a dunnage (padding to support and protect ship cargo) and wood scrap storage area. In 1939, before Navy ownership, aerial photographs indicate little activity within the present Wood Hogger Site (see Figure 2-1). From the early 1950s to the early 1970s, an incinerator was used to burn wood at the southwestern corner of the Wood Hogger Site. The concrete foundation of the incinerator remains on site. Between 1969 and 1973, dunnage and other wood scrap from Tidal Area operations were chipped using a “wood hogger”, an equipment devise to shred wood. Some of the wood scraps chipped at the site came from ordnance crates returned from Vietnam and were suspected to contain pentachlorophenol.

The storage yard was identified as SWMU 37 during the RFA investigation in 1992 conducted by DTSC. Locations adjacent to this SWMU were investigated as part of the RI to assess it as a potential source of site chemicals. Based on the history of the site, the following chemicals were determined to be COPCs: VOCs, SVOCs, OC pesticides and PCBs, inorganic compounds, and explosive compounds.

Otter Sluice (Area of Investigation)

Otter Sluice has not been identified as an RI site because there is no record of direct contaminant spills or releases. It was evaluated in this RI as an AOI because it borders the R Area Site and Wood Hogger Site and because contaminated surface water or suspended sediment may have migrated from those sites to Otter Sluice (see Figure 1-2). Otter Sluice is the only significant perennial body of surface water in the Tidal Area Sites.

REMEDIAL INVESTIGATION OBJECTIVES

The RI included several methods of investigation to meet the following objectives:

- Describe the general environmental features and operational history of the Tidal Area sites that would contribute to identifying sources of contamination and chemicals associated with these sources
- Describe the field and laboratory investigation methods
- Characterize the geology and hydrogeology of the Tidal Area sites
- Assess the nature and extent of soil, sediment, surface water, and groundwater contamination at each site
- Conduct an HHRA and ERA, including data collection and laboratory methods to assess exposure and toxicity effects, including wildlife and wetland surveys, tissue collection, and toxicity testing.
- Assess the fate and transport of chemical constituents found to present a potential risk to human health or the environment
- Develop conclusions and recommendations on the need of a response action that would be addressed in a FS

CONCLUSIONS AND RECOMMENDATIONS FOR TIDAL AREA (SITES 2, 9, 11, AND AREA OF INTEREST)

R Area Site (Site 2)

Naval Weapons Station SBD Concord is an active naval base and is not scheduled to close; future land use at R Area Site is not expected to change from current use, and future development in the area would require placement of fill materials over the existing surface. Base personnel are not routinely present at the site, so the risk estimates for the commercial/industrial worker provide upper-bound estimates of potential risks to individuals intermittently exposed under current and likely future land use conditions. Estimated cancer risks under an industrial scenario are mainly attributable to ambient arsenic concentrations in site soil, not a site-related source. The cancer risks from PAHs are at the lower end of the risk management range. The hazard index (HI) is less than 1, and reasonable maximum exposure

(RME) concentrations of lead in soil are less than the EPA Region 9 preliminary remediation goals (PRG) for industrial soils.

EPA guidance recommends a risk management decision for calculations that lie within the risk management range. Considering the low likelihood that this site would ever be developed into a residential community without burial of the existing surface under imported fill, the Navy recommends a risk management decision of no further action (NFA) at the R Area Site.

The ERA indicated no significant risk to ecological receptors at this site; therefore, a risk management decision of NFA at the R Area Site is recommended.

Froid and Taylor Roads Site (Site 9)

Naval Weapons Station SBD Concord is an active naval base and is not scheduled to close; therefore, future land use at the Froid and Taylor Roads Site is not expected to change from current use, and future development in the area would require placement of fill materials over the existing surface. Base personnel are not routinely present at the site, so the risk estimates for the commercial/industrial worker provide upper-bound estimates of potential risks to individuals intermittently exposed under current and likely future land use conditions. Cancer risks under an industrial scenario are at the lower end of the risk management range. The HI is less than 1, and RME concentrations of lead in soil are less than the EPA Region 9 PRG for industrial soils.

EPA guidance recommends a risk management decision for calculations that lie within the risk management range. Considering the low likelihood that this site would ever be developed into a residential community without burial of the existing surface under imported fill, the Navy recommends a risk management decision of NFA at the Froid and Taylor Roads Site.

Risk to ecological receptors at the Froid and Taylor Roads Site is spatially limited. Alpha-chlordane, gamma-chlordane, and dichlorodiphenyltrichloroethane were detected in sediment from Location FTSSL102 at concentrations greater than the effects-range medium (ER-M). The ERA characterized this site as wetland habitat to distinguish it from the upland habitat north of Froid Road; however, Location FTSSL102 is outside of the channelized portion of the wetland and is dry for much of the year. No inorganic chemical exceeded its ER-M at this location, but the combined effect of pesticides at this location may pose some risk to benthic invertebrates during periods of inundation. No other elevated concentrations of chlordane were detected at the Froid and Taylor Roads Site wetland habitat, indicating that this chemical is not being transported from the area of origin. Additionally, chlordane was not present in fish and amphipod tissues at concentrations sufficient to cause adverse effects to their avian

predators. No significant risk to receptors outside of the small area represented by Location FTSSL102 is indicated at Froid and Taylor Roads Site.

The ERA indicated no significant risk to ecological receptors at the site; therefore, a risk management decision of NFA at the Froid and Taylor Roads Site is recommended.

Wood Hogger Site (Site 11)

Concord is an active naval base and is not scheduled to close; future land use at Wood Hogger Site is not expected to change from current use. Base personnel are not routinely present at the site, so the risk estimates for the commercial/industrial worker provide upperbound estimates of potential risks to individuals intermittently exposed under current and likely future land use conditions. Estimated cancer risks under an industrial scenario are the within the risk management range. HIs are less than 1, and RME concentrations of lead in soil are less than the EPA Region 9 PRG for industrial soils. HHRA results indicate that no action is warranted at Wood Hogger Site. Although the calculated human health risk associated with potential carcinogens is in the upper end of the risk range, it is highly unlikely that people could ever be exposed to RME concentrations as assumed in the residential risk exposure scenario. This is because the Wood Hogger Site is generally on low-lying lands that would require the placement of fill soils before a change in land use to a residential type of development.

EPA guidance recommends a risk management decision for calculations that lie within the risk management range. Considering the low likelihood that this site would ever be developed into a residential community without burial of the existing surface under imported fill, the Navy recommends a risk management decision of NFA at the Wood Hogger Site.

Risk to benthic invertebrates was indicated at a single location (WHSSB022) in the southwestern corner of the Wood Hogger Site. The NOAA toxicology benchmark effect range medium hazard quotient ($ER\text{-}M_q$) at the Wood Hogger Site is 2.75. The $ER\text{-}M_q$ used to evaluate potential toxicity of chemical mixtures was attributed solely to mercury, with a hazard quotient of 26.06. Additionally, Location WHSSBB05, within the boundary of SWMU 37, was designated as medium to high priority because of mercury. These isolated sediment samples do not constitute a significant risk to ecological receptors at the Wood Hogger Site.

The ERA indicated little or no significant risk to ecological receptors in the site; therefore, a risk management decision of NFA at the Wood Hogger Site is recommended.

Otter Sluice (Area of Investigation)

Naval Weapons Station SBD Concord is an active naval base and is not scheduled to close; therefore, future land use at Otter Sluice is not expected to change from current use. Base personnel are not routinely present at the site, so the risk estimates for the commercial/industrial worker provide upperbound estimates of potential risks to individuals intermittently exposed under current and likely future land use conditions. Estimated cancer risks under an industrial scenario are mainly attributable to ambient concentrations of arsenic in site sediment, not a site-related source. The HI is less than 1, and RME concentrations of lead in sediment are less than the EPA Region 9 PRG for industrial soils. HHRA results indicate that no action is warranted at Otter Sluice.

EPA guidance recommends a risk management decision for calculations that lie within the risk management range. Considering the low likelihood that this AOI would ever be developed into a residential community, the Navy recommends a risk management decision of NFA in Otter Sluice.

Chemical concentrations in Otter Sluice pose little to no risk to ecological receptors. The only detected concentration of mercury in Otter Sluice was near the southwestern corner of the Wood Hogger Site, in a single surface water sampling station (WHSSW002), where mercury was detected at 0.00024 milligram per liter (mg/L) above the Ambient Water Quality Criteria (0.000025 mg/L). It is possible that individual aquatic organisms exposed to this particular location may be at risk from exposure to mercury, but no population-level effects are indicated by the data. Other than that one location, sediment and surface water data do not indicate any significant risk to benthic invertebrates or fishes in Otter Sluice.

The ERA indicated no significant risk to ecological receptors in this AOI; therefore, a risk management decision of NFA at Otter Sluice is recommended.

GROUNDWATER CHARACTERIZATION

The Navy characterized groundwater in the draft RI and provided additional details in the confirmation groundwater sampling technical memorandum. Groundwater quality is discussed only briefly in this RI report because no complete groundwater exposure pathways exist to human or ecological receptors.

Groundwater flows radially towards the center of the R Disposal Area from all directions, where phreatophytic pumping discharges groundwater to the atmosphere. Evidence that this process is occurring in the R Area Site is substantiated based on potentiometric surface maps, groundwater salinity measurements, and stable isotopic studies. Groundwater is not considered potable since it does not meet

California State Water Resources Control Board conditions for potable use (municipal or domestic supply) or the federal groundwater classification criteria.

TIDAL AREA SITES REMEDIAL INVESTIGATION SUMMARY

Decisions for a Comprehensive Environmental Response, Compensation, and Liability Act site, such as the Tidal Area, reflect input by all parties involved in the risk assessment process, including the Navy, EPA, DTSC, RWQCB, FWS, CDFG, NOAA, and the public. The Navy recommends that the R Area Site, Froid and Taylor Roads Site, and the Wood Hogger Site proceed to a single NFA. In addition, NFA is recommended for Otter Sluice.

Additional groundwater assessment is planned for the Tidal Area Landfill (Site 1) as part of that response action, although the details have not yet been established.

1.0 INTRODUCTION

The U.S. Department of the Navy (Navy), Naval Facilities Engineering Command, Engineering Field Activity West (EFA West), issued General Services Administration (GSA) Contract No. GS-10F-0076K Delivery Order No. N62474-03-F-4015 to Tetra Tech EM Inc. (TtEMI) to perform a remedial investigation (RI) for the Tidal Area sites at the Naval Weapons Station Seal Beach Detachment (SBD) Concord, California (see Figure 1-1). The work was initiated under the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract No. N62474-94-D-7609 (CLEAN II), as well as, under Contract No. N62474-88-D-5086 (CLEAN I), Contract Task Orders (CTO) 0232 and 0281.

1.1 PROJECT BACKGROUND

As part of the Installation Restoration Program (IRP), the Navy is conducting investigations to evaluate the nature and extent of contamination at the Tidal Area sites (see Figure 1-2). The lead agency is the Navy and the U.S. Environmental Protection Agency (EPA) is the lead support agency at Naval Weapons Station SBD Concord. The Navy and EPA signed a Federal Facilities Agreement that governs all investigation and site remediation activities under the IRP at the Tidal Area sites (Navy and EPA 2001). This revised draft final RI includes information on the following sites and an additional area of investigation (AOI):

- Site 1, Tidal Area Landfill (hereinafter referred to as the Landfill)
- Site 2, R Area Site
- Site 9, Froid and Taylor Road Site
- Site 11, Wood Hogger Site
- Otter Sluice, an AOI adjacent to Sites 2 and 11

This revised draft final RI includes background information on the history and geology of the Landfill. However, the Landfill is the subject of a separate response action. Comprehensive data on the Landfill are included in the draft final feasibility study (FS) for the Landfill (TtEMI 1998c) and the revised draft final record of decision (ROD) (TtEMI 2003).

The proposed response action for the Landfill consists of constructing a landfill cap. The ROD for the proposed response action has not been signed, but EPA and California Environmental Protection Agency (Cal/EPA) are in agreement that the Landfill requires a landfill cap. The specific design alternative for the cap has not been selected. The EPA has nearly completed the review and is prepared to sign the ROD, indicating their agreement with the terms of the ROD and approval of the selected remedy. Although the

Landfill remedy described in the ROD does not include a groundwater remedy, the EPA and Cal/EPA regulators agree that further evaluation of groundwater is appropriate and the Navy has agreed to perform this additional evaluation. After a separate evaluation of the groundwater has been completed and depending upon the results of the study, the Landfill may require a separate FS and ROD to facilitate the selection of an appropriate remedy for groundwater. Groundwater will be evaluated as a distinct operable unit so that potential groundwater impacts from the Landfill can be determined and addressed, as necessary.

This RI for the Tidal Area sites was planned and conducted in cooperation and close coordination with the EPA, the Cal/EPA Department of Toxic Substances Control (DTSC), the Cal/EPA San Francisco Bay Regional Water Quality Control Board (RWQCB), the U.S. Fish and Wildlife Service (FWS), the National Oceanic and Atmospheric Administration (NOAA), the California Department of Fish and Game (CDFG), and other appropriate regulatory agencies, as specified in the Federal Facility Site Remediation Agreement (FFSRA), signed in September 1992 and the Federal Facility Agreement signed June 14, 2001 (Navy and EPA 2001). Under the FFSRA, RWQCB was named lead regulatory agency for the Tidal Area investigation. Naval Weapons Station SBD Concord is currently an active base, but has been placed into a reduced operating status.

1.2 SUMMARY OF INVESTIGATION AND REPORTS

Based on recommendations in the initial site investigation (SI) of the Tidal Area for further investigation (International Technology Corporation [IT Corporation] 1992), the Navy developed project plans incuding work plans (WP) (PRC Environmental Management, Inc. [PRC] 1994b, 1995a) and a field sampling plan (FSP) (PRC 1995c) to provide the framework and rationale for the RI, consistent with available EPA guidance (EPA 1988, 1992a). The first round of field work was conducted in 1995, and a draft RI report was submitted in 1997 (PRC 1997a). In response to the more focused guidance issued during the review process (DTSC 1996; EPA 1997), the Navy agreed to augment the draft RI data set with additional field data. An FSP addendum was submitted (TtEMI 1998a), and additional field data were collected in June 1998 at the Tidal Area sites and Otter Sluice. The four-volume draft final RI (TtEMI 1999) included an ecological risk assessment (ERA) and a human health risk assessment (HHRA). Based upon agency review and comments, the Navy agreed to revise the ERA and RI. The revised draft final ERA was prepared separately and submitted to the agencies in January 2002 (TtEMI 2002). The Navy provided final responses to agency comments on the revised draft final ERA (Navy 2003a). The Response to Comments are also included in Appendix A of this RI document. The

remainder of the draft final RI, including the HHRA, constitutes this report which is referred to as the revised draft final RI.

The WPs and FSPs were designed to meet specific objectives of the RI for the Tidal Area sites, as follows:

- Characterize the nature and extent of soil, sediment, surface water, and groundwater contamination at each site for the purpose of developing and evaluating effective remedial alternatives.
- Characterize the geology, hydrology, and hydrogeology for each site.
- Identify potential contamination migration pathways and associated receptors for each site, and evaluate the extent, nature, and rates of contaminant migration from each site.
- Gather data for a baseline HHRA and for the ERA at the four sites.

This RI report was prepared with these objectives in mind and in accordance with the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and EPA's guidance for conducting an RI/FS under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (EPA 1988).

The draft RI report submitted in April 1997 (PRC 1997a) summarized the nature and extent of contamination in tidal area soils, sediments, and surface water, but did not address groundwater quality. The Navy and regulatory agencies agreed to postpone addressing groundwater quality issues until after reviewing data from soils, sediments, and surface water. Based on the results presented in the draft RI, the Navy and regulatory agencies agreed to perform a confirmation groundwater sampling to evaluate groundwater quality and address data gaps regarding groundwater in the tidal area. The confirmation groundwater sampling in the Tidal Area Sites performed in September and October 1997 is the subject of a groundwater technical memorandum (TM) prepared by the Navy (hereafter the Confirmation Groundwater Sampling TM [TtEMI 1998b]), This RI presents a summary of the groundwater conditions at the site. Details regarding the confirmation groundwater sampling are incorporated into this report and are found in the Navy's responses to agency comments on the groundwater confirmation sampling (Navy 2003a). The Navy's responses to agency comments on the Confirmation Groundwater Sampling TM are also presented in this document in Appendix A.

1.3 OVERVIEW OF THE REPORT

This RI is organized as follows:

- Section 1.0, Introduction, introduces the project and presents background information.

- Section 2.0, Facility Background and Setting, describes the location, land use and transportation, facility history, current operations, environmental setting, flora and fauna, and history of the sites.
- Section 3.0, Investigation Methods, describes investigation reconnaissance activities; soil, sediment, and surface water investigations; field quality assurance (QA) and quality control (QC) procedures; tidal survey; deviations from the investigation proposed in the FSP; the analytical program; and the data validation process.
- Section 4.0, Geology, Hydrology, and Hydrogeology of the Tidal Area Sites, discusses the geologic and hydrologic findings of the RI field investigations.
- Section 5.0, Chemical Characterization of the Tital Area Sites, discusses the chemical findings of the RI field work and assesses the nature and extent of detected chemicals for the Tidal Area sites.
- Section 6.0, Revised Human Health Risk Assessment, presents data evaluation, exposure assessment, toxicity assessment, and risk characterization for the Tidal Area sites.
- Section 7.0, Ecological Risk Assessment Summary, presents data evaluation, exposure assessment, toxicity assessment, and risk characterization for the Tidal Area sites.
- Section 8.0, Contaminant Fate and Transport and Conceptual Site Models, presents an assessment of the fate and transport of chemicals in the soil, sediment, and surface water at the Tidal Area sites.
- Section 9.0, Conclusions and Recommendations, presents site-specific conclusions and recommendations for each of the three Tidal Area Sites and AOI.
- References, provides a complete list of literature cited in the RI.
- The following appendices are included after References:
  - Appendix A comprises Navy responses to agency comments (Navy 2003a) on the revised draft final ERA (TtEMI 2002)
  - Appendices B through F contain analytical data tables for various sites within the Tidal Area
  - Appendix G provides boring logs
  - Appendix H comprises the quality control summary report (QCSR)
  - Appendix I identifies ambient values
  - Appendix J provides data from the tidal influence survey
  - Appendix K contains HHRA tables
  - Appendix L provides historical groundwater sample data

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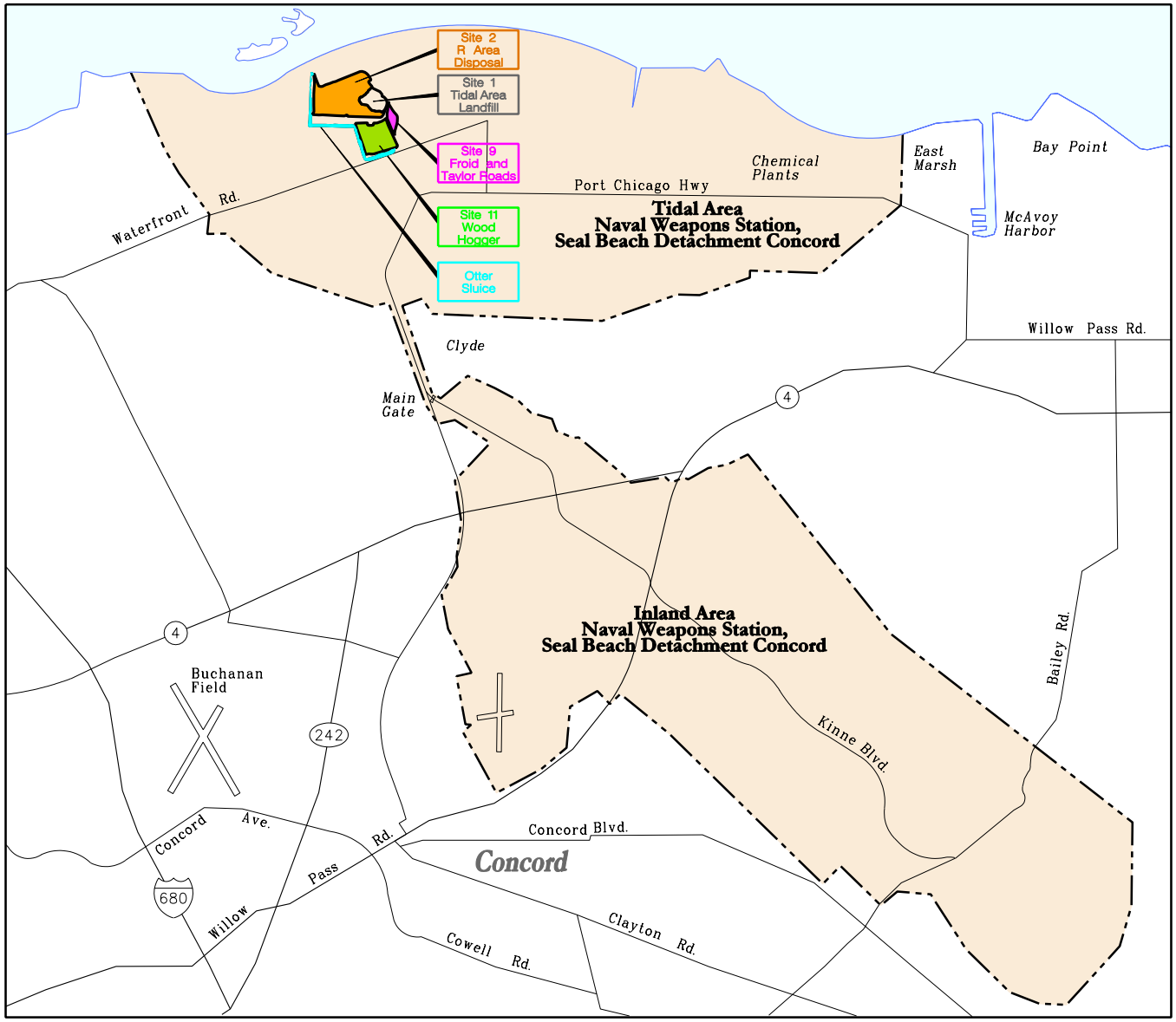
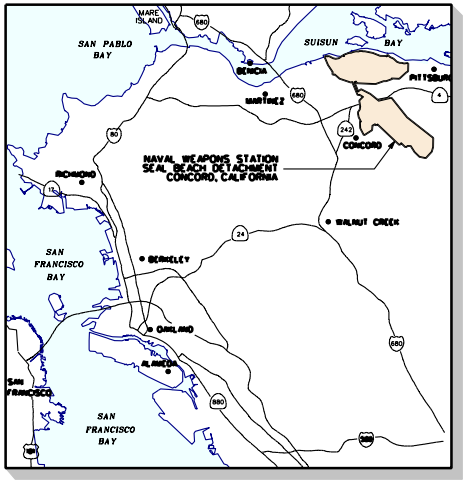
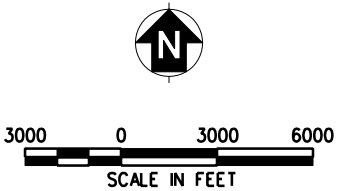






TIDAL AREA
NAVAL WEAPONS STATION SEAL BEACH
DETACHMENT CONCORD, CALIFORNIA

FIGURE 1-1
REGIONAL MAP

Figure 1-2

This detailed station map has been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

2.0 FACILITY BACKGROUND AND SETTING

The following sections describe the location, land use, transportation, facility history, current operations, environmental setting, flora and fauna, and Tidal Area site history of Naval Weapons Station SBD Concord.

2.1 LOCATION

Naval Weapons Station SBD Concord is located in the north-central portion of Contra Costa County, California, about 30 miles northeast of San Francisco. The facility, which encompasses about 13,000 acres (approximately 20 square miles), is bounded by Suisun Bay to the north and by the city of Concord to the south and west (see Figure 1-1). Currently, the facility contains three main separate land holdings: the Inland Area, the Tidal Area, and a radiography facility in Pittsburg, California.

The Inland Area of Naval Weapons Station SBD Concord encompasses about 6,200 acres. The Inland Area is separated from the Tidal Area by the towns of Clyde and Los Medanos Hills. A Navy-owned road and rail line link the two areas. Seal Creek (also known as Mt. Diablo Creek) flows through the Inland Area, roughly paralleling Kinne Boulevard, into Hastings Slough in the western portion of the Tidal Area, where it drains into Suisun Bay.

About 6,800 acres in the Tidal Area are primarily wetland habitat, with areas of fill. The term "Tidal Area sites" pertains to Sites 1, 2, 9, and 11. The revised draft final RI includes information about the Landfill, the three Tidal Area sites (R Area Site, Friod Road and Taylor Boulevard Site, and Wood Hogger Site) within of an area of approximately 100 acres, and an additional AOI (Otter Sluice).

The Landfill is located adjacent to the R Area Site (see Figures 1-1 and 1-2). The Landfill is mentioned briefly in this revised draft final RI but is not included in the HHRA or ERA because it is the subject of a separate response action. For details regarding the Landfill, please refer to the draft final FS (TtEMI 1998c) and the revised draft final ROD (TtEMI 2001). Information about the Landfill is included in this report because the R Area Site lies adjacent to the Landfill and because the HHRA and ERA evaluate risk in the R Area Site from chemicals that may have migrated from the Landfill.

The locations of the R Area Site, Froid and Taylor Road Site, Wood Hogger Site, and Otter Sluice are also illustrated Figures 1-1 and 1-2.

2.2 LAND USE AND TRANSPORTATION

Land use in the vicinity of Naval Weapons Station SBD Concord is diverse, characterized by a mixture of industrial and residential areas, rangeland, and open space. The county-protected land use plan is intended to guide any future development of each of the Tidal Area sites (Naval Facilities Engineering Command [NAVFAC] 1978). The Navy retains ownership of the Tidal Area (including the Litigation Area); however, as of 1999, an indefinite use permit has been issued that allows the U.S. Department of the Army (Army) to conduct operations in the area. The Army currently manages munitions and equipment loading activities.

Los Medanos Hills separates the Tidal and Inland Areas of Naval Weapons Station SBD Concord. This land is privately owned and is leased to the Pacific Gas and Electric Company and ranchers for cattle grazing. The City of Concord operates a water treatment plant and the Mallard Reservoir, about 1,500 feet west of Port Chicago Highway.

Land north of State Route 4 (see Figure 1-1) and west of Naval Weapons Station SBD Concord is zoned for industrial development. Several industrial firms have been located there, particularly along Port Chicago Highway, near the main gate of Naval Weapons Station SBD Concord. Tosco Avon Refinery and Monsanto Chemical Company have facilities along Solano Way near Waterfront Road, west of Naval Weapons Station SBD Concord.

Access to Naval Weapons Station SBD Concord is through guarded gates, which are limited to authorized personnel. No organized public transportation system is available at the station. Access to the Tidal Area is through a gate off Port Chicago Highway, west of the main entrance to the Inland Area.

2.3 HISTORY

Naval Weapons Station SBD Concord Tidal Area, originally named Bay Point, comprises the site originally occupied by the Pacific Coast Shipbuilding Company; the shipping yard occupied the area north of the present R Area Site. At that time, Johnson Road was the only major road into the Tidal Area. In 1927, the Navy chose the site for naval ordnance operations because of its remoteness from populated areas and the presence of three major rail lines. In January 1942, construction on the waterfront handling facilities began, and in April, the facility was commissioned as Naval Magazine Port Chicago, changing the name from Bay Point to Port Chicago. Since then, the Inland Area, located in the Diablo Creek Valley, was acquired and linked to the Tidal Area by the Port Chicago and Clayton Railroads.

Available aerial photographs document the transformation of the Tidal Area from the time of Navy acquisition in 1942 to recent years. Maps based on these photographs are presented as Figures 2-1 through 2-7. The change in site features over time illustrates the surface impact of the Navy activities on the wetlands. In addition, the surface features of the site affect the potential surface and subsurface transport of chemicals from the sites. These site features are discussed in the geology and hydrology, chemical characterization, and fate and transport sections (see Sections 4.0, 5.0, and 8.0, respectively).

On July 7, 1944, two munitions ships docked along a pier by the Tidal Area exploded. Both ships and the pier were destroyed, and 320 people were killed. Nearby residents of the town of Port Chicago were injured. To protect the civilian population, Congress gave the Navy the authorization to acquire all land within a 2-mile radius of the loading piers. Between 1968 and 1972, the towns of Port Chicago and Nichols were purchased and demolished by the U.S. Government to provide a safety zone. The former sites of these two towns are now part of the Tidal Area.

Accounts of a copper smelter operation were reported in Restoration Advisory Board meetings held June 20, 1996 and August 28, 2001 and in an unpublished working draft document dated May 12, 1996, by Dean L. McLeod (Navy 1996). The copper smelter was described as being located at Seal Bluff in Section 1 Township 2 north, Range 2 west and along the shoreline. This area is north of the R Area Site, in the general location of building foundations and piers. The construction activities reportedly involved construction of an 87-foot-long wharf over a water depth of 19 feet. The copper smelter apparently operated in about 1902, processing 200 tons of ore per day, but closed between 1905 and 1908. The copper smelter allegedly operated as the Pacific Coast Refining and Smelting Company (or Pacific Coast Smelter Works), which may have been a subsidiary of Copper King Mine, Ltd., of Fresno, California.

2.4 CURRENT OPERATIONS

Naval Weapons Station SBD Concord is a major explosive ordnance transshipment facility, providing storage, maintenance, and technical support for ordnance operations. Most station facilities located in the Tidal Area are dedicated to ordnance operations. The 17,000 linear feet of waterfront contains three explosives-handling piers, a barge pier, lighter moorings, and a tug basin. Barricaded rail car siding, rail car classification yards, and a large, unbarricaded truck holding lot are inland from the waterfront area and about 1,000 feet east of the Landfill.

In addition to the pier facilities, ordnance has been handled in the segregation complex (immediately south of the R Area Site) and in two transfer facilities. Most of the land in the Tidal Area is encompassed by explosive separation-quantity distance arcs required as safety perimeters by ordnance operations.

2.5 ENVIRONMENTAL SETTING

Sections 2.5.1 through 2.5.4 describe the regional environmental setting of Naval Weapons Station SBD Concord, including physiography and topography, geology, hydrology, hydrogeology, and climate.

2.5.1 Physiography and Topography

Contra Costa County consists of four general physiographic regions: the highlands of the Coast Range, the inter-mountain valleys, the San Francisco Bay depression, and the Sacramento-San Joaquin Delta. The intercoastal highlands (Diablo Range) are smooth, rolling hills and relatively rugged mountains, ranging from about 100 feet above mean sea level (msl) along the San Francisco Bay depression to 3,849 feet above msl at Mt. Diablo. The intermountain valleys and San Francisco Bay depression consist of early, flat, flood plains and low terraces, with gently rolling fans, and old terrace remnants adjacent to the uplands. Naval Weapons Station SBD Concord lies about 10 miles west of the confluence of the Sacramento and San Joaquin Rivers. This confluence forms the Delta region, which contains over 600 miles of interconnected and meandering tidal waterways. Low-lying, river-delta lands in the area have been reclaimed by construction of dikes and drainageways to form islands ranging from 30 to 7,000 acres in size. Drainage from Naval Weapons Station SBD Concord is exclusively into Suisun Bay.

The Tidal Area originally consisted of three distinct land formations: salt wetlands along the shore of Suisun Bay, upland colluvial slopes, and sandstone hills farthest from the water. A large section of the wetlands was modified by the addition of large amounts of fill material when Naval Weapons Station SBD Concord was originally constructed. Almost all existing Naval facilities were built on these filled areas (IT Corporation 1992). Between the Tidal Area and Los Medanos Hills is a band of colluvial slope material that is about 0.5 mile wide. This colluvial slope is the most suitable terrain for development because of its higher elevation and gentle slope. The Los Medanos Hills are characterized by steeply sloping terrain, beginning at the 100-foot elevation and rising to more than 600 feet.

2.5.2 Regional Geology

The information presented in this section is based on data provided in the Tidal Area site investigation report (IT Corporation 1992), geotechnical borings obtained from the Navy, and available published material. The description of bedrock geology is largely derived from a guidebook published by Bray and others (1996).

Naval Weapons Station SBD Concord is located within the geologically complex and tectonically active California Coast Ranges, approximately 30 miles east of San Francisco Bay. The geologic setting of the

site is characterized by a blanket of unconsolidated sediments resting on an eroded and deformed bedrock surface, which is cut by faults. The Tidal Area of Naval Weapons Station SBD Concord is located within the southern part of a structural trough that is partially occupied by Suisun Bay. The trough is partially filled with a significant thickness of unconsolidated late Pleistocene and Holocene sediments. Glacial advances and retreats during the Quaternary Period have caused sea level fluctuations and changes to the depositional sedimentary environment. Historically, glacial advances caused the sea level to drop 300 to 400 feet below its present level. The drop in sea level resulted in the disappearance of estuarine depositional environments, such as the current Suisun Bay, and the incision of the Sacramento River Valley. In contrast, during times of glacial retreats, such as current glacial conditions, the sea level rose high enough to flood Suisun Bay, forming an estuary. As a result, sediments beneath Suisun Bay consist of estuarine sediments deposited during high sea level stands, alternating with alluvial and fluvial sediments that were deposited during low sea level stands. These Quaternary sediments underlie the Bay Mud and younger alluvium, and outcrop in a few areas in the vicinity of Naval Weapons Station SBD Concord, as shown in Figure 2-8. Depositional environments of the Bay Mud and alluvium are discussed in Section 2.5.3.

The primary bedrock structure at Naval Weapons Station SBD Concord is a layered bedrock block that strikes west-northwest and dips about 35 degrees to the northeast. An outcrop of this bedrock block forms Los Medanos Hills. The bedrock block is cut by the northwest-trending Clayton Fault, which runs roughly parallel to the base of Los Medanos Hills. Dibblee (1980) has interpreted vertical displacement along the Clayton Fault.

The bedrock stratigraphic sequence at Naval Weapons Station SBD Concord consists of (in order of decreasing age) the Markley Formation, the Kirker Formation, the Cierbo Formation, the Neroly Formation, Pliocene volcanics, and the Wolfskill and Montezuma Formations.

The Markely Formation is a thick, turbidite sequence that consists primarily of marine graywackes and Middle Eocene mudstones. The Markely Formation is about 1,075 meters (m) (3,500 feet) thick and forms many of the hummocky hills visible south of Highway 4 (Los Medanos Hills).

The Kirker Formation is an Oligocene-aged sandstone that unconformably overlies the Markley Formation. The unit consists of a thin, basal conglomerate overlain by sandstone that contains increasing amounts of volcaniciclastic materials toward the top of the section. At its thickest point, the Kirker Formation is about 100 m (330 feet) thick. The Kirker Formation is not present west of the Kirker Pass Fault.

The Cierbo Formation is a Miocene-aged estuarine sandstone that attains thicknesses up to 120 m (400 feet). The Neroly Formation is a dark gray fluvial sandstone and mudstone unit that overlies the Cierbo Formation. The base of the Neroly is well cemented, and the basal sandstone members of the formation produce prominent bluffs. The Neroly Formation attains a thickness of 180 m (590 feet). The Neroly and Cierbo sandstones are very productive aquifers but produce poor-quality water that contains high levels of concentrations of dissolved solids and sulfur compounds.

Late Tertiary volcanism is reflected by two volcanic units at Naval Weapons Station SBD Concord, the Lawlor Tuff, and unassigned basaltic lava flows. The Lawlor Tuff consists of a 50-foot-thick, 165-foot sequence of rhyolitic breccias and angular fragments of pumice in a pumiceous matrix that unconformably overlies the Neroly Formation. A sample of the Lawlor Tuff collected just east of the Tidal Area has been dated at 4.1 million years (Pliocene), using potassium-argon dating methods (Sloan and Wagner 1991). The unassigned lava flows are discontinuous and appear as isolated outcrops. The lava flows have been dated at 4.5 million years, but structural relationships suggest that they may be younger.

The Lawlor Tuff is overlain by a mixed assemblage of weakly indurated, nonmarine claystones, siltstones, sandstones, and pebbly gravels of Pliocene and Pleistocene age. This poorly stratified unit comprises the Wolfskill and Montezuma Formations, which are known locally as the Tehama Formation (Dibblee 1980). The Wolfskill Formation is present along the northeastern edge of Los Medanos Hills. The total thickness of these formations at Naval Weapons Station SBD Concord is not known.

Several active or potentially active major faults are present in the vicinity of Naval Weapons Station SBD Concord and are shown in Figure 2-8. The Concord fault is a northwest-trending, right-lateral, strike-slip fault, located about 1 mile southwest of the Inland Area of Naval Weapons Station SBD Concord. The fault is interpreted to be the northward extension of the Calaveras Fault, which is a major branch of the San Andreas Fault system (La Voilette and Wigginton 1983; Weaver and Hill 1979). The fault displays surface creep (Sharp 1973; Galehouse and others 1982) and reportedly experienced a magnitude 5.5 earthquake in October 1955. The Clayton Fault lies within the Inland Area of Naval Weapons Station SBD Concord, near the southwestern base of Los Medanos Hills. The fault generally strikes northwest, dips northeast, and is interpreted to have significant dip-slip separation (Dibblee 1980, 1981; Simms and others 1973). No major earthquakes are known to have occurred on the Clayton Fault; however, this fault has been interpreted to be the northwestern extension of the Greenville Fault, which has shown geomorphic evidence of Holocene displacements and experienced an earthquake with surface rupture in the eastern part of the Livermore Valley in January 1980 (Earth Science Associates 1982). The Antioch Fault is a northwest-trending fault located about 10 miles east of Naval Weapons Station SBD Concord.

No documented, significant earthquakes have occurred on the fault; however, the 1889 Collinsville earthquake may have produced surface rupture in the City of Antioch (Toppozada and others 1981).

2.5.3 Regional Hydrology and Hydrogeology

The generalized regional and local hydrologic and hydrogeologic environments of the Tidal Area at Naval Weapons Station SBD Concord are discussed in this section. The hydrologic data are derived from various subsurface field investigations and are based on geologic maps, information from various subsurface field investigations in the Suisun Bay and Carquinez Strait area, and available published material.

2.5.3.1 Hydrologic and Hydrogeologic Setting

Groundwater conditions in the Tidal Area sites are detailed in a Confirmation Groundwater Sampling TM (TtEMI 1998b) and are briefly summarized in this section.

The Tidal Area of Naval Weapons Station SBD Concord is characterized by an irregular, piezometric surface and very thin (or absent) vadose zone. Surface water features in the Tidal Area act as local groundwater recharge and discharge zones. Regionally, groundwater flows northward from Los Medanos Hills through the low-lying Tidal Area toward Suisun Bay. Surface water flows northward from Los Medanos Hills toward Suisun Bay in natural creeks, artificial ditches, canals, and culverts.

Groundwater at the Naval Weapons Station SBD Concord Tidal Area sites occurs in a shallow, unconfined water-bearing zone that is predominantly composed of silty clays. As Naval Weapons Station SBD Concord developed, site drainage was modified by digging drainage channels and filling both natural and manmade channels with fill materials.

Tidally influenced natural sloughs in the lowlands near Suisun Bay convey Bay water to and from the Tidal Area. Hastings Slough, located in the western portion of the Tidal Area, extends from Suisun Bay to the Tosco Avon Refinery in Martinez, California. Mount Diablo Creek (also called Seal Creek within the Naval Weapons Station SBD Concord property) drains into Hastings Slough. Belloma and Cunningham Sloughs are two smaller sloughs in the central portion and east of the Tidal Area (see Figure 2-9).

Otter Sluice is a manmade channel that flows along the western and southern sides of the Tidal Area sites at Naval Weapons Station SBD Concord. The sluice provides surface water drainage from the R Area Site and Wood Hogger Site to Suisun Bay.

Water levels in the natural and manmade channels fluctuate in response to tides in Suisun Bay. A tidal influence study has shown that groundwater elevations at Naval Weapons Station SBD Concord are locally influenced by tidal fluctuations in Otter Sluice and the natural sloughs (see Section 4.2.1).

A network of manmade channels drains surface water from the Tidal Area sites. As discussed in Section 4.2, the channels strongly affect the dynamics of surface water movement at the site. Otter Sluice is the main surface water channel at the Tidal Area sites. A tide gate is located at the junction between Otter Sluice and Suisun Bay. Operationally, the tide gate does not fully prevent tidal inflow, and the culverts from the R Area Site appear clogged. Before the Navy acquired the Tidal Area, a manmade drainage channel or sluice drained what is now the Tidal Area Landfill and the R Area Site (see Figure 2-1). The southern and eastern branches of the old sluice were backfilled prior to 1950, and the western branch was incorporated into Otter Sluice after the Navy acquired the Tidal Area (see Figures 2-2 through 2-6). A natural slough meandered through the Tidal Area sites prior to Navy ownership and was partially backfilled after 1939 (see Figures 2-1 through 2-6).

Exploratory borings drilled during the Confirmation Groundwater Sampling TM (TtEMI 1998b) have shown that the backfilled manmade sluice and natural channels are not continuously filled with coarse-grained fill material and that the water table is below the base of the backfill during the dry season. Therefore, it is considered unlikely that the filled manmade sluice and filled slough are hydrologically connected with Suisun Bay.

Groundwater is a few feet below grade throughout the year. Groundwater elevations are higher at the margins of the Tidal Area sites, indicating that groundwater flows from the edges of the Tidal Area sites toward the center. During both wet and dry seasons, groundwater flows radially toward depressions in the water table in the R Area Site. Groundwater does not appear to discharge to Suisun Bay through subsurface flow or groundwater and surface water interaction, although tidal influence studies have shown that limited groundwater and surface water interaction occurs along a narrow strip adjacent to Otter Sluice. The groundwater hydrology and hydrogeology features are discussed in greater detail in Section 4.0.

The most probable cause of the closed depressions in the water table at the center of the R Area Site is the alteration of the site by placement of fill, which prevents some of the surface water drainage from the area during low tides. Because water gets trapped in the area, it is subject to evaporation. Surface water evaporation and evapotranspiration of groundwater from wetland plants removes water from the area. The phenomenon of evapotranspiration from wetland plants is known as phreatophytic pumping. Phreatophytic pumping is a common feature of wetlands in semiarid climates that allows groundwater to

discharge directly to the atmosphere (Freeze and Cherry 1979). As evaporation and evapotranspiration occur, only water vapor is lost to the atmosphere and dissolved solids are left behind. Therefore, residual surface water and groundwater become enriched in dissolved solids. Evaporation and phreatophytic pumping account for elevated dissolved solids concentrations that have been measured in the R Area Site.

2.5.3.2 Lithology and Distribution of Hydrogeologic Units

Four geologic cross sections were constructed to evaluate the hydrogeology of the Tidal Area. The plan view locations of the cross-sectional transects are shown in Figure 2-9. In general, five major hydrogeologic units are identified within about 100 feet beneath the Tidal Area. The five units are (1) artificial fill, (2) Bay Mud (clay with sand and peat stringers), (3) Yerba Buena Mud (clay with minor sand lenses), (4) recent alluvium (including sands, silts, and clays), and (5) fluvial or estuarine sediments (predominantly micaceous sands). The composition of the artificial fill and sediments, relative thickness, and distribution of each unit are described below.

Artificial Fill

Artificial fill has been used throughout the Tidal Area to construct road and railroad beds, channel levees, structural pads, and protective revetments and to backfill sections of the natural sloughs and artificial sluices. Approximately one-half of the Tidal Area is overlain by fill material. Because the original surface of the tidal marsh was probably 2 to 3 feet above msl, almost all of the material that is currently elevated more than 2 to 3 feet above msl is likely to be fill material. Fill material underlies all of the roads, railroad tracks, and buildings near the Tidal Area sites and much of the Wood Hogger Site. The fill material is typically a mixed lithology that contains varying proportions of clay, silt, sand, and gravel. Wood chips were used as fill material over large portions of the Wood Hogger Site. Clean gravels were imported and used as fill in some areas. Artificial fill materials, consisting of soil, household refuse, facility waste, construction debris, and metal debris, have been detected locally in the Tidal Area sites. Artificial fill attains a maximum thickness of about 30 feet at the explosion deflection berms. The nature and extent of artificial fill at the Tidal Area sites is discussed further in Section 4.0.

Bay Mud

Bay Mud is currently being deposited within the San Francisco Bay estuary system. These deposits typically consist of three different lithologies:

- Silty Clay – Silty clay is the predominant lithology of the Bay Mud. Bay Mud silty clays contain organic matter and are typically dark gray to black and soft. These silty clays typically

have very low permeabilities and tend to retard groundwater migration. Permeabilities of the Bay Mud typically range from 10-5 to 10-7 centimeters per second (cm/s).

- Peat – Some facies of the Bay Mud contain appreciable amounts of peat, which is composed of partially decayed plant material deposited in a marsh environment. Hydrogeologic properties of the peat-rich portions of the Bay Mud vary with the amount of clay present in the peat. In areas where the peat contains little or no clay, it normally has a relatively high permeability and commonly acts as a preferred path for groundwater movement.
- Sand – Some portions of the Bay Mud consist of fine- to coarse-grained sand lenses that were deposited in beach areas or in the channels of streams or rivers near the edge of the Bay. Sand bodies within the Bay Mud typically have relatively high permeabilities and could act as preferred pathways for groundwater movement. However, the sand bodies typically are not laterally extensive.

Stratigraphic relationships shown in the geologic cross sections (see Figures 2-10 through 2-13) indicate that the silty clay facies of the Bay Mud is the predominant lithology observed within the Tidal Area. The predominance of silty clay is consistent with expected conditions, because the Tidal Area is located in a low-energy aquatic environment at a distance from the high-energy environment of the main channel through Suisun Bay. Cross sections across the Tidal Area show that the Bay Mud, with occasional peat lenses, is the dominant lithology on the western portion of the Tidal Area. The eastern portion of the Tidal Area is predominantly peat-rich, and sand lenses are observed in a few places.

Based on available borehole data, the Bay Mud reaches a maximum thickness of about 40 feet in the northern part of the Tidal Area, as shown in Figures 2-10 and 2-11, and thins southward toward Los Medanos Hills. In general, the Bay Mud is absent in the southern part of the Tidal Area.

Yerba Buena Mud

The Yerba Buena Mud (commonly called Older Bay Mud) typically consists of a medium stiff to very stiff clay that is gray, blue, or green in color and contains significant organic matter (Sloan 1992). The Yerba Buena Mud was deposited during the last interglacial period of high sea level, between about 120,000 and 125,000 years ago, in the estuary that existed before the current San Francisco Bay (Sloan 1992). The Yerba Buena Mud generally acts as an aquitard and is laterally extensive as a result of deposition in a large estuary.

Previous studies by Treasher (1963) show that the Yerba Buena Mud is present at depths between 20 and 40 feet below msl in the northern part of Naval Weapons Station SBD Concord. The Yerba Buena Mud varies from a maximum thickness of about 50 feet in the vicinity of Pier 4 to about 10 feet in the vicinity of Pier 2. Locally, it contains silty or clayey lenticular sands that are typically less than 5 feet thick.

The distribution of the Yerba Buena Mud inland from Suisun Bay is shown in Figures 2-10 through 2-13. The Yerba Buena Mud appears to be absent at the western and southern portions of the Tidal Area, where it is replaced by very stiff to medium stiff, predominantly brown and yellow-brown clays locally interbedded with thin sands. These brown and yellow-brown clays are interpreted to be alluvial in origin or may represent a localized facies change within the Yerba Buena Mud. The depositional relationship between the Yerba Buena Mud and the alluvial clays and silts is not known.

Alluvium

Brown and yellow-brown clays and thin, interbedded, fine-grained alluvial sands are present at the southern and western portions of the Tidal Area and probably represent alluvium originating from the surrounding hills. The alluvium contains sparse organic matter and has a relatively low permeability. Sands in these alluvial deposits typically are interbedded at multiple horizons with clay or silt beds. Locally, the clay and silt beds are absent, providing pathways for groundwater migration from shallow to deeper sand horizons.

The Tidal Area cross sections show a stiff, yellow-brown to brown clay at elevations between about 10 feet above to 60 feet below msl that is interpreted to be alluvial clays and silts. Borehole data indicate that the thickness of the alluvial clays and silts varies from about 10 feet to 70 feet. Borings did not penetrate beyond the bottom of the unconsolidated material; therefore, their maximum thickness of alluvium is unknown. The interbedded alluvial sands vary from a maximum thickness of about 5 feet near the Los Medanos Hills to about 1 to 2 feet in various sand stringers within the alluvial clays and silts.

Fluvial or Estuarine Sediments

A thick sand unit is present beneath both the Yerba Buena Mud and the alluvium below an elevation of about 50 to 70 feet below msl (see Figures 2-10 through 2-13). This sand is typically brown or gray-green in color, fine- to medium-grained, and locally contains sparse gravels. Data from boring logs identify the unit as both a well and poorly sorted micaceous sand, with thin interbedded clay strata. Borehole logs indicate that a clay stringer exists within the sand at a depth of about 85 feet below msl in the vicinity of Pier 2 (Woodward-Clyde Consultants 1978a, 1978b). The maximum observed thickness of the sand is 60 feet. As demonstrated from borehole data, the estuarine sands are laterally extensive beneath the Tidal Area.

The presence of a significant percentage of mica suggests that the source of the sand is the granitic rocks of the Sierra Nevada. Assuming that this interpretation is accurate, the sand would have been deposited by the Sacramento River rather than by local streams. The lateral continuity and thickness of the unit also

suggest that the sand is an estuarine fluvial sediment that was deposited by the Sacramento River. The sand may have been deposited in an environment similar to that currently found in the main channel of Suisun Bay that existed during the early stages of the sea level rise, after the last period of glaciation and just before deposition of the Yerba Buena Mud.

2.5.3.3 Surface Water Hydrology

The large-scale, physical modifications of the Tidal Area have created a complex hydrological environment, as presented in the following section. The Tidal Area physical environment consists of low-lying areas interrupted by elevated features constructed of artificial fill, such as levees, road beds, building pads, and disposal areas. These elevated features act as barriers to surface flow and create closed basins with limited surface water drainageways. Surface water is present at all sites during the rainy season. Surface water is also present in some areas of the R Area Site and the Wood Hogger Site during the dry season.

Three natural surface water bodies are located within or adjacent to the Tidal Area at Naval Weapons Station SBD Concord: Suisun Bay, Hasting Slough, and Belloma Slough. Suisun Bay is located immediately north of the Tidal Area sites under investigation. The distance between the Bay and the Tidal Area sites ranges from 550 feet (R Area Site) to 3,000 feet (Wood Hogger Site). Hasting Slough is located 2,200 feet west of the R Area Site, and Belloma Slough is 3,300 feet east of the Froid and Taylor Road Site. Hastings and Belloma Sloughs are not connected to any drainage from the three sites and were not investigated as part of this RI. Prior to Navy ownership, a natural slough meandered through all Tidal Area sites (see Figure 2-1). Portions of the slough were filled, and the direct connection of the slough to Suisun Bay was severed when Navy roads and facilities were constructed in the Tidal Area at Naval Weapons Station SBD Concord.

The main, channelized surface water feature at the Tidal Area sites is Otter Sluice, which was constructed to drain water from the wetlands to Suisun Bay. A one-way flow gate at the mouth of Otter Sluice is designed to allow water to drain from the sluice during low tides but to prevent water from entering the sluice during high tides. However, the tide gate is not completely effective, and bay water does enter the sluice; surface water levels in Otter Sluice are strongly influenced by tidal variations in Suisun Bay.

Two culverts beneath Baker Road connect Otter Sluice to the western edge of the R Area Site, allowing bay water to enter the R Area Site during high tides. During extreme tidal events (for example, when spring tides coincide with storms), surface water from Otter Sluice also flows across Baker Road into the R Area Site, draining back into Otter Sluice through the two culverts. This exchange of surface water

between the R Area Site and Otter Sluice is most prevalent during the rainy season. Tidal inundation of the R Area Site during the dry season is limited to a small area near the western edge of the site. During a site visit in February 2002, the culverts were observed partially below water, but flow was not observed, indicating the culverts were probably clogged and thus not optimally operational.

Surface water from Otter Sluice also enters the northwestern and southern portions of the Wood Hogger Site. These low-lying areas form semipermanent wetlands, with water level variations controlled by Otter Sluice. Although Otter Sluice is not directly connected with the Froid and Taylor Road Site during most of the year, extreme wet season tides can bring water through a relic channel into the Froid and Taylor Road Site.

2.5.3.4 Hydrogeologly of the Tidal Area

The hydrogeology of the Tidal Area of Naval Weapons Station SBD Concord is characterized by a thick accumulation (about 30 to 80 feet) of low-permeability clays and silts overlying a relatively coarse-grained, higher-permeability sand layer.

The low-permeability clays and silts consist of several units, including the Bay Mud, the Yerba Buena Mud, and alluvial clays and silts. Interpretation of data from geologic logs suggests that the Bay Mud, Yerba Buena Mud, and alluvial clays and silts form a laterally continuous, relatively thick aquitard. The Bay Mud is the uppermost unit of the aquitard. In the western portions of the Tidal Area, the Bay Mud contains localized horizons of peat. In the eastern portions of the Tidal Area, the Bay Mud is richer in peat and presumably more permeable. The lower unit of the aquitard is composed of the Yerba Buena Mud that grades laterally into alluvial clays and silts.

A laterally continuous and relatively thick, coarse-grained sand layer underlies the aquitard. This unit is interpreted to be fluvial or estuarine in origin and was deposited in an ancient channel of the Sacramento River. Groundwater quality in the fluvial or estuarine sands would not be affected by potential shallow contamination in the Tidal Area of Naval Weapons Station SBD Concord, because groundwater in the overlying aquitard is expected to have slow vertical groundwater flow rates and high rates of natural attenuation because of the high organic carbon content of the soil.

2.5.4 Climate

Contra Costa County normally experiences dry, warm summers and cool, moderately wet winters. The mean annual precipitation for Naval Weapons Station SBD Concord is 15.54 inches (Western Regional Climate Center 2001), with about 84 percent of the rainfall occurring from November through March.

Throughout the region, rainfall may vary from 13 inches in the eastern portion of Contra Costa County to over 30 inches on the upper slopes of Mt. Diablo.

The average local temperature varies from 45 °F in January to 75 °F in August. Record highs and lows of 106 and 16 °F have been recorded near Naval Weapons Station SBD Concord.

Prevailing winds blow from the west through the wind gap formed by the San Francisco Bay and Carquinez Strait, particularly during the summer months. As a result, the Pacific Ocean and Suisun Bay have a moderating effect on the microclimate of Naval Weapons Station SBD Concord and the surrounding vicinity. These westerly winds are particularly dominant during the summer months and minimal from November through February. Wind directions and speed are monitored at a Pacific Gas and Electric power plant in Pittsburg, a few miles east of the facility. The wind blows from southwest to west-northwest at a mean wind speed of 12 miles per hour 65 percent of the time.

The geographic and urban settings of Naval Weapons Station SBD Concord make the area prone to urban air pollution. Temperature inversion (an increase in ambient temperature with altitude) is a common occurrence. Temperature inversion prevents airborne pollutants from dispersing vertically into the upper atmosphere, causing concentrations at ground level to rise. The most common pollutants are sulfur dioxide, carbon monoxide, and particulates. During periods of increased temperatures, Contra Costa County fails to meet federal Clean Air Act guidelines for carbon monoxide, particulates, and opacity (haze effect).

2.6 TIDAL AREA FLORA AND FAUNA

A complete discussion of the ecological and biological resource information related to the Naval Weapons Station SBD Concord Tidal Area sites is provided in the ERA (TtEMI 2002).

2.7 TIDAL AREA SITE HISTORIES

The Contra Costa County Mosquito Abatement District-Vector Control (CCCMADVC) has conducted mosquito abatement activities at the Tidal Area sites since the 1930s, at times assisted by the Navy; however, the exact historical activities and chemicals used are unknown.

CCCMADVC uses a commercially available, petroleum-based product containing hydrotreated light naphthionic distillate (Golden Bear 1111). CCCMADVC personnel describe the product as diesel or kerosene, with the volatile components removed (PRC 1996). The product is applied to surface water bodies at a rate of about 5 gallons per acre to control mosquito larvae. This product has been applied to

standing water in the Tidal Area for the last 8 to 10 years in quantities determined by the development stage and density of mosquito larvae. CCCMADVC personnel indicated that the dry portions of the Tidal Area are never sprayed; however, mosquito-producing areas are sprayed at least once or twice a year and weekly during some seasons.

The following sections provide description, operational history, and results of previous investigations for each site.

2.7.1 Tidal Area Landfill (Site 1)

This section presents a brief history of operations at the Landfill and the results of previous environmental investigations. For additional details regarding the Landfill, please refer to the draft final FS (TtEMI 1998c) or the revised draft final ROD (TtEMI 2001).

2.7.1.1 Site Description and Operational History

The Landfill is located along the western side of Johnson Road, just north of Froid Road (see Figure 1-2). The Landfill covers about 13 acres and reportedly contains about 33,000 tons of waste (IT Corporation 1992). The landfill served as the major disposal area for Naval Weapons Station SBD Concord from about 1944 to 1979. Historical aerial photographs indicate that based on the growth of the landfill perimeter, most of the waste was deposited in the landfill between 1959 and 1974. Household garbage from Naval Weapons Station SBD Concord and surrounding communities was disposed of at the landfill. In addition, the landfill reportedly received solvents, acids, paint cans, creosote-treated timbers, asphalt, concrete, asbestos, and ordnance materials, including inert munitions (Ecology and Environment [E&E] 1983). Shipboard wastes are reported to have been buried in the landfill (E&E 1983). The tritanol filler from one 750-pound general purpose bomb was also reported to have been buried in the landfill (E&E 1983), but the source of this report is unknown and the disposal could not be confirmed.

Historical photographs indicate that the Landfill was created by the progressive disposal of soil and debris outward from Johnson Road. The soil and debris was placed on native soil; and excavation activities were not conducted prior to waste disposal. A waste thickness of up to 10 feet was estimated from topographic evaluation; however, the waste may be unevenly distributed, and the undocumented ratio of waste to soil cover in the fill may be variable (IT Corporation 1992). There is no record of the degree of landfill subsidence from consolidation or displacement of the underlying Bay Mud. The origin of the soil cover, where present, is unknown. Presently, the edge of the landfill along Johnson Road is bordered by a

fence. Metal and wood debris protrude from the surface at some locations. Differential subsidence has resulted in a highly uneven surface.

2.7.1.2 Results of Previous Investigations

The following sections discuss the results of previous investigations at the Landfill.

Initial Assessment Study

E&E conducted an initial assessment study (IAS) at the site in 1983. The IAS consisted of an historical records search, a visual inspection of the site, and interviews with Naval Weapons Station SBD Concord personnel. Based on the historical information, E&E recommended the site for further study (E&E 1983).

Site Investigation

IT Corporation conducted the field SI of the Tidal Area Landfill from April 1988 to January 1991 and produced an SI report of the Tidal Area (IT Corporation 1992). The purpose of the SI was "to confirm or deny the presence of contamination, and to make a preliminary evaluation of potential risk to human health and the environment, and to collect data to characterize potential contamination for initiation of the RI/FS, and remedial alternatives, if warranted" (IT Corporation 1992). Based on the site history, the following chemicals were determined to be of concern: volatile organic compounds (VOC), semivolatile organic compounds (SVOC), organochlorine (OC) pesticides and polychlorinated biphenyls (PCB), inorganics, explosive constituents, and total organic carbon (TOC). Groundwater, surface water, soil, and sediment samples were collected at the Landfill. The Landfill boundary defined in the SI report, was larger than the current site boundary shown in Figure 1-2. As a result, many of the SI Landfill sampling locations are located within the currently defined R Area Site boundary.

Much of the analytical data obtained during the SI were qualified as "estimated," according to IT Corporation review procedures and protocols. Data qualified as estimated indicated that the reported concentration was estimated and not definitive. The common qualifier "J," indicating that a result was estimated, was assigned to all types of QC problems and did not identify whether the problem was a result of interferences in the analytical measurements or from chemicals detected in QA/QC samples. In addition, IT Corporation did not evaluate whether the chemicals detected were actually present in samples below the quantitation limit or resulted from laboratory or sampling contamination. Furthermore, during the limited confirmation sampling performed by PRC in 1993 (James M. Montgomery Consulting Engineers, Inc. 1993), most of the "J"-qualified detected chemicals reported by IT Corporation were not detected (TtEMI 1999). This result indicates that most of the chemicals qualified as "J" were likely due

to laboratory or sampling contamination. Because IT Corporation qualified the SI data in this manner, it is only of qualitative use. The SI data is summarized below. Because the landfill is proposed for capping using the EPA recommended presumptive remedy approach under a separate response action, this report does not make use of the landfill specific analytical data nor does it include a HHRA for the landfill in Section 6.0.

Seven shallow monitoring wells (14 to 18 feet below ground surface [bgs]) were installed in the R Area Site, around the perimeter of the Landfill, during the SI. Groundwater from the wells was sampled for four quarters (April-May, July, and October 1990 and January-February 1991). During the four quarters of sampling, 11 SVOCs were detected in groundwater at estimated concentrations up to 59 micrograms per liter (µg/L). Nine of the 11 SVOCs were detected only once and mostly during the first quarter of sampling. Four of the six inorganics detected were at concentrations greater than ambient values, which were estimated by IT Corporation using samples collected off site. Except for zinc, these inorganics were found in most of the wells surrounding the landfill. Zinc was found only in the three wells along the eastern boundary of the landfill (IT Corporation 1992).

Surface water samples were collected from two locations, adjacent to the landfill's western side, during April 1988, May 1989, and April 1990. Surface water samples were filtered with a 0.45-micron filter prior to analysis for metals to be more reflective of dissolved concentrations. In April 1988, concentrations of iron and manganese were greater than concentrations during subsequent sampling events because of the low pH of the surface water (IT Corporation 1992). In April 1988, surface water pH values from 1.6 to 2.5 were measured in ephemeral pools. The decrease in pH was attributed to the evaporation and accumulation of salts and infrequent flushing of the surface water at those two locations (IT Corporation 1992).

Twenty-five borings were drilled and sampled during September and November 1989 in and around the Landfill. Sixty-two soil samples were collected at depths ranging from 0.2 to 10 feet bgs. Thirty-one organic compounds were detected in the soil at the Landfill. These organic chemicals were primarily VOCs and SVOCs, although the pesticide dieldrin (an estimated 34 micrograms per kilogram [µg/kg]), the PCB Aroclor 1260 (an estimated 1,800 µg/kg), and the nitroaromatic explosive compound nitrobenzene (an estimated 1.1 µg/kg) were detected in single, separate samples. Six VOCs, 1,1,1-trichloroethane (TCA), 2-butanone, acetone, carbon disulfide, methylene chloride, and toluene, were detected at estimated concentrations ranging from 1 to 1,600 µg/kg. Most of these compounds were detected in the central and northwestern portions of the Landfill. TCA and toluene were detected at concentrations ranging from 1 to 25 µg/kg in soil from the central and southern portions of the Landfill. Twenty-two SVOCs were detected; the highest concentrations were in samples from the northwestern and southern edges and in the central

portion of the Landfill. Phthalates were detected in samples collected along the northwestern edge of the landfill, and polycyclic aromatic hydrocarbons (PAH) were detected along the southern edge and central portion of the Landfill. Seven inorganics were detected at concentrations above ambient values estimated for the site by IT Corporation. Six of these inorganics were found in samples from the western portion of the Landfill. Lead was found in samples from the central and eastern portions of the Landfill.

In April 1990, four sediment samples were collected from two low-lying areas, adjacent to the southwestern corner of the Landfill, near surface water sampling locations. VOCs and inorganics were the only chemicals detected in the sediments. Six VOCs were detected in these samples; however, all compounds, except total xylenes (an estimated 4 µg/kg) and carbon disulfide, are common laboratory contaminants; carbon disulfide occurs naturally in bay environments. Arsenic and mercury were detected at concentrations above ambient concentration ranges estimated for the site by IT Corporation.

Tidal Area Sites Confirmation Study

The purpose of the Tidal Area Sites Confirmation Study was to confirm the presence of chemicals detected during the SI and to evaluate the laboratory practical quantitation and detection limits that were achievable for soil and water samples (James M. Montgomery Consulting Engineers, Inc. 1993). Samples collected during the Tidal Area Sites Confirmation Study conducted by PRC in 1993 consisted of one soil sample from the northwestern edge of the Landfill, two groundwater samples from wells east (TLWMW001) and north (TLWMW003) of the Landfill, and one sediment sample southwest of the Landfill. No VOCs or SVOCs were detected in these samples.

Groundwater Confirmation Study Technical Memorandum

The purpose of the Confirmation Groundwater Sampling TM was to evaluate groundwater and geologic conditions in the vicinity of the Tidal Area sites and to determine if groundwater contamination conditions at the site warrant additional study.

Feasibility Study

The FS utilized the EPA's presumptive remedy approach in identifying and evaluating remedial alternatives (TtEMI 1998c). The presumptive remedy approach was considered to be appropriate for the Landfill. Three remedial alternatives were developed and evaluated in the FS; these included a no action alternative and a native soil and a multiplayer cap, both of these cap alternatives also included institutional controls and groundwater and gas monitoring.

Record of Decision

The proposed plan for the Tidal Area Landfill (Site 1), which identified the Navy's preferred alternative, was made available to the public on June 8, 1999. A notice of the availability of the proposed plan was published in the Contra Costa Times on June 8, 1999. The revised draft final ROD of 2001 (TtEMI 2001) identified a soil cap with a low-permeability barrier layer as the selected remedy for the Landfill; however, the U.S. EPA invoked informal dispute with that version of the ROD which was essentially resolved by the Navy's agreement to further assess site groundwater and address it separately. Currently, a new revised draft final ROD for the Tidal Area Landfill (Site 1) (Navy 2003b) has been issued to the regulatory Agencies for review. It summarizes the three proposed remedies described in the FS (TtEMI 1998c), and identifies as the selected remedy a low-permeability soil cap that meets the State's regulatory requirements for a standard prescriptive cap. In addition the selected remedy includes, as necessary, groundwater and landfill gas monitoring, as well as institutional controls.

2.7.2 R Area Site (Site 2)

The R Area Site consists of a mosaic of brackish and salt marsh habitat that is seasonally inundated and completely surrounded by berms (see Figure 1-2). Culverts allow a small amount of surface water to pass between Otter Sluice and the R Area Site. During a site visit in February 2002 it appeared that one of the culverts was clogged, blocking surface water flow. During periods of heavy rainfall, the R Area Site may fill with water, which gradually drains through the culverts to Otter Sluice and Suisun Bay. During extreme high tides, water may flow in the opposite direction, from Otter Sluice into the R Area Site. During the dry season, most of the marsh surface remains dry and water remains only in a few brackish ponds in a remnant tidal slough, on the western side of the R Area Site. This section presents a brief history of operations at the R Area Site and the results of previous environmental investigations.

2.7.2.1 Site Description and Operational History

In 1939, prior to Navy ownership, a meandering, east-west-trending slough flowed across the wetlands and marshlands of the present R Area Site, as well as through the current Froid and Taylor Road Site and Wood Hogger Site (see Figure 2-1). A manmade sluice was constructed to channel water from the R Area Site to Suisun Bay. During construction of Naval Weapons Station SBD Concord, the sluice, now known as Otter Sluice, was backfilled and rerouted around the Wood Hogger Site and R Area Site (see Figures 2-3 and 2-6).

From the late 1940s until about 1976, the area adjacent to the eastern side of Baker Road, between the Segregation Area (R Buildings) along Froid Road and the Inert Storage Area (S Buildings) along Pickett

Road, was used for disposal of materials generated during the segregation of conventional munitions returned from Pacific operations (E&E 1983). The term "segregation" refers to a process of grouping and repackaging munitions, rather than dissembling the munitions themselves. Typical wastes associated with munitions segregation are expected to include wood packing crates, munitions containers, steel banding, paint waste, and wood debris.

The area used for disposal was reported in the IAS to be a 10-foot-wide, 5-foot-deep strip of debris along the east side of Baker Road (E&E 1983). It appears that the segregation waste was actually disposed of in small, isolated piles of debris rather than as a continuous, 5-foot-deep strip. During the RI, segregation waste, including metal munitions casings and cans, were observed on the ground surface and submerged beneath the water along Baker Road. In addition, piles of asphalt paving, metal casings, and mattress springs were seen on the ground surface. The amount of debris decreased with distance from Baker Road, except along the northern site boundary, where metal containers were observed along Pickett Road.

In order to investigate the entire area of potential contamination, the R Area Site boundary was enlarged during the planning of the RI. The revised R Area Site encompasses the entire wetland area bounded by Baker Road, Pickett Road, Johnson Road, and Froid Road, to the western boundary of the Tidal Area Landfill (see Figure 1-2).

2.7.2.2 Results of Previous Investigations

The following sections discuss the results of previous investigations at the R Area Site.

Initial Assessment Study

E&E conducted the IAS at the site in 1983. The IAS consisted of an historical records search, a visual inspection of the site, and interviews with Naval Weapons Station SBD Concord personnel. Based on the historical information, E&E recommended the site for further study (E&E 1983).

Site Investigation

IT Corporation conducted an SI at the R Area Site in 1992 and presented the results in an SI report of the Tidal Area (IT Corporation 1992) (see also draft for borings and other raw data results in IT Corporation 1990). Based on the history of the R Area Site, the following chemicals were determined to be chemicals of potential concern (COPC): VOCs, SVOCs, OC pesticides and PCBs, inorganics, and explosives. Groundwater, surface water, soil, and sediment samples were collected at the site. The SI data qualifier problems described in Section 2.7.1.2 are also applicable to the R Area Site. Because of the extensive use

of data qualifiers, the SI data are of qualitative use only and are not used in the HHRA calculation (see Section 6.0).

During the SI, seven shallow monitoring wells were installed around the perimeter of R Area Site at depths ranging from 14 to 22 feet bgs. Groundwater was sampled for four quarters (April-May, July, and October 1990 and January-February 1991). During the four quarters of sampling, five SVOCs were detected in the groundwater at estimated concentrations of less than 230 µg/L. During the first quarter of sampling, 2-nitroaniline and n-nitroso-diphenylamine were each detected at estimated concentrations of up to 11 µg/L in groundwater collected from a well in the southeastern portion of the site. Phthalates were detected in water collected from two widely separated wells during three quarters at concentrations up to 34 µg/L. During the first quarter of sampling, the pesticide aldrin was detected at 0.15 µg/L (estimated) in samples collected from a well in the northeastern portion of the site. Some inorganics were present at concentrations above IT Corporation estimated ambient concentrations. These inorganics were detected in groundwater samples collected from wells located along the western site boundary, with the exception of zinc, which was found in all groundwater samples collected in the R Area Site.

A total of 18 surface water samples were collected in April 1988, May 1989, and April 1990 from six locations around the site perimeter. Five SVOCs, including phthalates, PAHs, and n-nitroso-diphenylamine, were detected in the surface water, along the western side of the site, at concentrations up to 15 µg/L (estimated). Surface water samples were filtered with a 0.45-micron filter prior to analysis for metals. Cadmium, chromium, and zinc were detected in samples collected from the southwestern corner of the site during the first quarter of sampling at concentrations above IT Corporation estimated ambient concentrations.

Twenty borings were drilled at the R Area Site during the SI. Fifty-two soil samples were collected from September 1989 to March 1990 at depths ranging from 0.2 to 10 feet bgs. Twenty-seven organic compounds were detected in the soil at the R Area Site, primarily VOCs and SVOCs. Eight VOCs (carbon tetrachloride, ethylbenzene, xylenes, 2-butanone, acetone, carbon disulfide, methylene chloride, and toluene) were detected at concentrations ranging from 1 to 2,800 µg/kg. Four of these VOCs (methylene chloride, 2-butanone, and carbon tetrachloride) are common laboratory contaminants, and carbon disulfide occurs naturally in bay environments. The remaining VOCs were detected at concentrations ranging from 1 to 35 µg/kg in soil from the central and southern portions of the site. Nineteen SVOCs were detected in soil at sporadic locations and depths throughout the site. These SVOCs included 4-methylphenol, PAHs, benzoic acid, phthalates, and phenol at estimated concentrations ranging from 38 to 3,600 µg/kg. One pesticide, 4,4'-dichlorodiphenyltrichloroethane (DDT), was detected once in the northeastern area of the site

at an estimated concentration of 17 µg/kg. Four inorganics were detected at concentrations above IT Corporation estimated ambient concentrations in the northern and central portions of the site.

In April 1990, 12 sediment samples were collected from six areas throughout the site. Five VOCs were detected in these samples; only total xylenes (an estimated 6 µg/kg) was neither a common laboratory contaminant nor a naturally occurring compound in bay environments. Thirteen SVOCs were detected in the sediment along the western border of the site. These SVOCs included 2,4,6-trichlorophenol; 2-nitroaniline; 4-bromophenyl phenyl ether; 4-chlorophenyl phenyl ether; benzoic acid; PAHs; phthalates; hexachlorobenzene; and N-nitrosodiphenylamine at concentrations ranging from 110 to 3,500 µg/kg. The explosives compound 2,6-dinitrotoluene was detected in one sample, along the western side of the site, at an estimated concentration of 290 µg/kg. Lead, mercury, and zinc were detected along the western site boundary at concentrations above IT Corporation estimated ambient concentrations.

Resource Conservation and Recovery Act Facility Assessment

The State of California DTSC conducted a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) at Naval Weapons Station SBD Concord in July 1992. The purpose of the RFA was to identify and evaluate solid waste management units (SWMU) for historic and potential releases of hazardous waste to the environment. In addition, the RFA made preliminary determinations on the need for further corrective actions as part of the Naval Weapons Station SBD Concord hazardous waste operating permit (DTSC 1992a).

Buildings R1, R2, R3, and R4, collectively known as the "R Area buildings" or the "segregation facilities," are located on Froid Road, along the southern boundary of the R Area Site. The segregation facilities sort and inspect conventional ammunition off-loaded from ships. Once inspected, the ammunition is designated for disposition and transferred to a magazine or holding yard (DTSC 1992a). Exterior maintenance, such as painting, stenciling, renovation, and packaging of weapons, is done at the segregation facilities. This routine maintenance generates waste paint cans and adhesives, which may contain hazardous constituents that are stored in Building R-3. The R Area buildings (R-1 through R-4) were designated as "SWMU 47," part of the RFA (see Figure 1-2 for location). During the site visit, the only hazardous waste observed at the R Area buildings was a drum of used aerosol paint cans. The RFA concluded that there was not history of releases at SWMU 47 and that corrective actions were not needed for the site (DTSC 1992a).

Tidal Area Sites Confirmation Study

The purpose of the Tidal Area Sites Confirmation Study was to confirm the presence of chemicals detected during the SI and to evaluate the laboratory practical quantitation and detection limits that were achievable for soil and water samples. Samples collected during the Tidal Area Sites Confirmation Study conducted by PRC in 1993 (James M. Montgomery Consulting Engineers 1993) consisted of one groundwater sample from Well RADMW005, along the northern site boundary; one surface water sample from the southeastern corner of the site; and two sediment samples along the eastern site boundary. No VOCs, SVOCs, or OC pesticides and PCBs were detected in these samples. During the first quarter SI sampling, cadmium, chromium, and zinc were detected in the southwestern corner of the site at concentrations above IT Corporation estimated ambient concentrations. During the Tidal Area Sites Confirmation Study, cadmium and chromium were not detected and zinc was detected at a lower concentration than that reported in the SI.

2.7.3 Froid and Taylor Road Site (Site 9)

The Froid and Taylor Road Site consists of an area about 800 by 300 feet that is bisected by Froid Road (see Figure 1-2). The site is bordered by Taylor Boulevard on the east, the Wood Hogger Site on the southwest, and an unnamed dirt and asphalt road on the northwest. A small, upland area north of Froid Road is vegetated by nonnative grasses. The area south of Froid Road contains a ponded area surrounded by a small wetland, which is the remnant channel of Otter Sluice before it was channelized in the 1940s by the Navy. This site receives tidal inflow only during very high tides, followed by a gradual decrease in surface water and an increase in salinity (to more than 50 parts per thousand in July 1994) through evaporation. High turbidity and low dissolved oxygen are typical of late summer periods of dry down (Western Ecological Services Company [WESCO] 1995). This section presents a brief history of operations at the Froid and Taylor Road Site and the results of previous environmental investigations.

2.7.3.1 Site Description and Operational History

The Froid and Taylor Road Site has changed significantly from 1939 to the present, with the development of Naval Weapons Station SBD Concord. Aerial photographs taken in 1939 indicate little activity in the vicinity of the Froid and Taylor Road Site (see Figure 2-1). By 1950, the site was encompassed by Taylor and Froid Roads (see Figure 2-2). One small road that cut through the Froid and Taylor Road Site is apparent from 1950 aerial photographs and can still be observed on the site. The natural slough that once passed through the Tidal Area sites was partially filled in the vicinity of the Froid and Taylor Road Site to construct roads and buildings. A curved portion of the slough can still be seen (see Figure 2-7), and a

maximum tidal fluctuation of 2 inches was measured during the tidal influence study conducted in July 1994 (see Section 4.2.1).

During the IAS, a piece of ordnance was found on the shoulder of Froid Road, near its intersection with Taylor Boulevard. This piece of ordnance was later identified by explosive ordnance disposal personnel as a spent, 5-inch, white phosphorus rocket round. An investigation of the surrounding area revealed scrap metal and other debris in the area south of the intersection of the two roads. The IAS also noted that the site was subject to tidal action; however, it presented no information to justify this statement. Although no specific incidents of hazardous materials disposal were linked directly to this site, its proximity to the other sites made it an area of concern during the IAS (E&E 1983).

2.7.3.2 Results of Previous Investigations

The following sections discuss the results of previous investigations at the Froid and Taylor Road Site.

Initial Assessment Study

E&E conducted an IAS at the site in 1983. The IAS consisted of an historical records search, a visual inspection of the site, and interviews with Naval Weapons Station SBD Concord personnel. Based on the historical information, E&E recommended the site for further study (E&E 1983).

Site Investigation

IT Corporation conducted an SI at the Froid and Taylor Road Site in 1992 and presented the results in the SI report for the Tidal Area (IT Corporation 1992). Based on the site history, IT Corporation determined the following to be COPCs: VOCs, SVOCs, OC pesticides and PCBs, inorganics, and explosive compounds. Groundwater, surface water, soil, and sediment samples were collected from Froid and Taylor Road Site. The SI data qualifier problems described in Section 2.7.1.2 are also applicable to Froid and Taylor Road Site. The SI data are therefore of qualitative use only and are not used in the HHRA calculations (Section 6.0).

Five shallow monitoring wells (14 to 18 feet bgs) were installed around the perimeter of the Froid and Taylor Road Site during the SI. Groundwater was sampled for four quarters (April-May, July-August, and October-November 1990 and January 1991). Four SVOCs were detected in groundwater over four quarters of sampling at estimated concentrations up to 21 µg/L. Most of the detections occurred during the first sampling event, indicating that the wells may not have been properly developed or purged prior to sampling. Diphenylamine was detected during two sampling events at concentrations of 2.2 and 0.002 µg/L. Five of the six inorganics were detected at concentrations above IT Corporation estimated

ambient concentrations. The inorganic parameters measured by IT Corporation appeared to be elevated, probably reflecting brackish-saline groundwater (IT Corporation 1992).

Six surface water samples were collected from two sampling locations in April 1988, May 1989, and April 1990. Surface water samples were filtered with a 0.45-micron filter prior to analysis for metals. Zinc and arsenic were the only two inorganics detected in the surface water samples from the site; however, concentrations were below IT Corporation estimated ambient concentrations. IT Corporation noted elevated concentrations of inorganic analytes and attributed these concentrations to salts that may have accumulated from infrequent inundation of tidal water and on-site drying conditions.

Five soil borings were drilled and sampled at the site during September and November 1989 (see Appendix G). Seventeen soil samples were collected at depths ranging from 0.2 to 6 feet-bgs. Concentrations of tetrachloroethene (PCE) up to 3 µg/kg were detected in three soil samples collected from the northern part of the site. The SVOC pentachlorophenol (PCP) was detected at a concentration of 130 µg/kg in the 0.2-foot-bgs soil sample collected from a boring located along the eastern edge of the site, adjacent to the Wood Hogger Site. PCP was also detected at the Wood Hogger Site. Several other SVOCs were detected in soil samples from locations across the site, although nearly all concentrations were estimated (J-qualified). Chromium, copper, zinc, and selenium were detected in samples collected from Boring FTS-3 at concentrations above IT Corporation estimated ambient concentrations.

Four sediment samples, ranging in depth from 0.2 to 1.0 feet bgs, were collected from two low-lying areas of the site. Phthalates were detected at two sampling locations at estimated concentrations up to 2,000 µg/kg. Cadmium, copper, and zinc were detected in samples collected along the western boundary of the Froid and Taylor Road Site at concentrations above IT Corporation estimated ambient concentrations.

Tidal Area Sites Confirmation Study

The purpose of the Tidal Area Sites Confirmation Study was to confirm the presence of chemicals detected during the SI and to evaluate the laboratory practical quantitation and detection limits that were achievable for soil and water samples. Two soil samples and two groundwater samples from Wells FTSMW002 and FTSMW003 were collected during the Tidal Area Sites Confirmation Study conducted by PRC in 1993 (James M. Montgomery Consulting Engineers 1993) to confirm the presence of PCE and SVOCs (particularly PCP in Boring FTS-3). None of these chemicals were detected in the samples.

2.7.4 Wood Hogger Site (Site 11)

The Wood Hogger Site is bordered by Otter Sluice to the west and south, Froid Road to the north, and an unnamed dirt and asphalt road to the east (see Figure 1-2). The center of the Wood Hogger Site is a rectangular-paved and nonvegetated area surrounded by upland habitat. Emergent wetland habitat occurs at the border of the Wood Hogger Site, with Otter Sluice to the west and south. Areas of ponded surface water occur intermittently in the southern portion of the site, generally following heavy rains that coincide with high tides. In the Wood Hogger Site, large areas were previously filled with silty clay, sands, and other fill materials. The boundaries of the wetland and upland habitat were defined in 1994 (WESCO 1995) at the limits of fill (see Figure 1-2). Typical soil properties and criteria, such as low chroma, mottling, and other characteristics of hydric soils, may not be valid indicators of current hydric and nonhydric conditions in these filled areas. This section presents a brief history of operations at the Wood Hogger Site and the results of previous environmental investigations.

2.7.4.1 Site Description and Operational History

Historically, the Wood Hogger Site was used as a dunnage (padding to support and protect ship cargo) and wood scrap storage area. In 1939, prior to Navy ownership, aerial photographs indicate little activity within the present Wood Hogger Site (see Figure 2-1). A major slough, trending from east to west, channeled through the present areas of the R Area Site, the Landfill, and Froid and Taylor Road Site and into the Wood Hogger Site. During construction of Naval Weapons Station SBD Concord, the slough was backfilled and Otter Sluice was constructed around the Wood Hogger and R Area Sites to channel water to Suisun Bay. By 1950, (with ongoing Naval Weapons Station SBD Concord development) the fill was extended across the Wood Hogger Site from the northeastern corner to the southwestern corner, forming the storage yard at the Wood Hogger Site (see Figure 2-2). Aerial photographs were used to identify the extent of fill areas. Section 4.1.4 presents the geology across the site based on RI soil borings.

From the early 1950s to the early 1970s, an incinerator was used to burn wood at the southwestern corner of the Wood Hogger Site. The incinerator is shown in 1952 and 1959 aerial photographs. The concrete foundation of the incinerator remains on site. According to the aerial photographs from 1952 and 1959, a conveyor system was used to move scrap and dunnage material from the storage yard to the incinerator.

Between 1969 and 1973, dunnage and other wood scrap from Tidal Area operations were chipped using wood hogging equipment (IT Corporation 1992). Until about 1972, the chips were sold to the Fiberboard Company in Antioch, California (E&E 1983). When a market for the chips ended, the chips were

deposited on the ground adjacent to the hogger. The chips were estimated to cover a 10-acre area at a thickness of up to 3.5 feet (IT Corporation 1992).

Some of the wood scraps chipped at the site came from ordnance crates returned from Vietnam. Most ammunition shipping crates used by the Marines in Vietnam and some crates used by the Army were treated with PCP, a wood preservative that has since been identified as a COPC. The total amount of PCP-treated wood that may have been chipped and disposed of at the site was estimated at 20 tons (E&E 1983). Assuming that the disposed wood chips had a density of 45 pounds per cubic feet, 20 tons of wood chips occupies a volume of about 20 cubic yards. The estimated total weight of PCP-treated wood disposal is based on the difference between the munitions shipped from and returned to Naval Weapons Station SBD Concord during the time that PCP-treated wood was used (E&E 1983). The Wood Hogger Site was identified in the IAS because of the on-site burial of wood chips, which were suspected to contain PCP. The burning of wood chips was not expected because the incinerator most likely did not require the wood to be chipped first and the wood hogger was not known to have operated simultaneously with the incinerator. No ash was observed during characterization of the soil and wood chip fill.

Currently, the yard is not actively used. In the recent past it was used on an intermittent basis as a storage yard for scrap metal, wood, and portable wood hoggers. The wood hogger machinery was used from 1969 to 1973 (shown in Figure 2-5); it is no longer in operation and has been removed from the site. Concrete foundations from the wood hogger and incinerator have not been removed and are visible at the site. The location of the machinery foundations is illustrated on Figures 2-5 through 2-7. No treated or preserved wood is currently stored or handled at the site.

The site consists of a paved dunnage or materials storage yard aligned from southwest to northeast across the site, with unimproved, open areas (that is, unpaved and with no constructed roads) north and south of the storage yard. A railroad spur is located at the northern edge of the storage yard. Aerial photographs from 1952 show this storage yard in use, with railroad tracks providing access to the storage yard from the northeastern corner of the site. Historical photographs and first-hand site observation indicated that a variety of wood and metal materials have been stored in sections of the yard at various times. The storage yard was identified as SWMU 37 during the RFA investigation in 1992 (see Section 2.7.4.2). Locations adjacent to this SWMU were investigated as part of the RI to assess it as a potential source of site chemicals.

The open areas north and south of the storage yard consist of bare soil covered by intermittently sparse and dense vegetation. Bare soil areas near the asphalt pavement contain some debris, the result of stored materials that were windblown or deposited in these areas.

The open area to the south is bordered by the former Scott Road, and Otter Sluice runs parallel to the southern side of the road. This open area was observed to drain to the south into a location north of the road; this location is apparently a permanent pond that is directly connected to Otter Sluice by a culvert. Small fish and birds were observed at ponds and channels in the southeastern corner of the open area.

The northern, open area appears to drain toward the west to Otter Sluice. In April 1993, standing water was observed in the northern open area, along the eastern side of the levee separating Otter Sluice from this area. A culvert connects the sluice and the standing water ponds; the presence of a water flow control mechanism, such as a culvert gate between the sluice and ponds, was not identified (see Figure 2-7). Several large carp (about 18 inches long) were observed in these ponds during the April 1993 visit.

2.7.4.2 Results of Previous Investigations

The following sections discuss the results of previous investigations at the Wood Hogger Site.

Initial Assessment Study

E&E conducted an IAS at the site in 1983. The IAS consisted of an historical records search, a visual inspection of the site, and interviews with Naval Weapons Station SBD Concord personnel. Based on the historical information, E&E recommended the site for further study (E&E 1983).

Site Assessment

IT Corporation conducted an SI at the Wood Hogger Site in 1992 and presented the results in the SI report for the Tidal Area (IT Corporation 1992). Based on the history of the site, the following chemicals were determined to be COPCs: VOCs, SVOCs, OC pesticides and PCBs, inorganics, and explosive compounds. During the SI, groundwater, surface water, soil, and sediment samples were collected at the Wood Hogger Site. The 1992 SI report concluded that several groups of chemicals detected in the southern open area were linked to past site activities; however, the few samples collected in the northern open area were not sufficient to characterize this area, and no samples were collected in the storage yard itself. The SI data qualifier problems described in Section 2.7.1.2 are also applicable to the Wood Hogger Site. The SI data are therefore of qualitative use only and are not used in the HHRA calculations (see Section 6.0).

During the SI, four shallow monitoring wells (13 to 18 feet bgs) were installed around and north of the wood hogger machinery. Groundwater was sampled for four quarters (April-May, July-August, and October-November 1990,and January 1991). During the four quarters of sampling, five SVOCs were detected in groundwater at concentrations up to 13 µg/L. The SVOC 4-methylphenol was detected in two

wells in the southwestern portion of the site during the second and third quarters of sampling at concentrations up to 13 µg/L. Phthalates were detected during the first two quarters in samples collected from three wells, located near the wood hogger machinery, at estimated concentrations up to 6 µg/L. During the first quarter of sampling, dibenzofuran was detected in a sample collected from a well near the southern portion of the site at an estimated concentration of 3 µg/L. Six inorganics were detected; five of these were present at concentrations above IT Corporation estimated ambient concentrations.

Twelve surface water samples were collected during April 1988, May 1989, and April 1990 from four locations along the southern and western site boundaries. No organic COPCs were detected. Surface water samples were filtered with a 0.45-micron filter prior to metals analysis. No inorganics were detected at concentrations above IT Corporation estimated ambient concentrations.

Fifteen soil borings were drilled during the SI, and 40 soil samples were collected in September 1989, November 1989, and March 1990. Sample depths ranged from 0.2 to 2.0 feet bgs, and one sample was collected at 9.0 feet bgs. A total of 31 organic compounds were detected in the soil at the Wood Hogger Site. The VOC PCE was detected twice at estimated concentrations ranging from 2 to 8 µg/kg in samples collected from the one boring drilled in the northern portion of the site. Twenty-three SVOCs were detected in the soil in the southern and southwestern portions of the site. These SVOCs included 2-methylnaphthalene, 3,3'-dichlorobenzidine, benzoic acid, PAHs, and phthalates, which were detected at estimated concentrations ranging from 48 to 14,000 µg/kg. PAHs accounted for 16 of the SVOCs detected. PCP was detected at an estimated value of 1,000 µg/kg in one sample collected from 0.2 feet bgs in the southern open area, adjacent to the wood hogger machinery. The PCP may be associated with PCP-treated wood, and the PAHs may be associated with creosote-treated wood or incinerator ash. Some of the highest SVOCs concentrations were found in the 9-foot-bgs sample; however, no direct correlation between depth and concentration was evident. The pesticides DDT and chlordane were detected four times in soil samples at estimated concentrations up to 620 µg/kg. These pesticides may be present at the Wood Hogger Site as a result of past mosquito abatement efforts or disposal of pesticide-treated wood returned from overseas. Three explosive compounds were detected in two borings. Nitrobenzene and 2,6-dinitrotoluene were detected in soil collected from WHS-10 at 2 feet bgs at estimated concentrations of 1.0 and 0.16 µg/kg, respectively. Diphenylamine was detected at a concentration of 0.13 µg/kg in soil collected from WHS-4 at 2.0 feet bgs. Four of the six inorganics were detected at concentrations above IT Corporation estimated ambient concentrations. Several samples contained copper at anomalously high concentrations above 3,000 µg/kg, as compared to sitewide mean concentrations of 100 to 200 µg/kg. These results may indicate the presence of copper-based wood treatment chemicals.

In April 1990, eight sediment samples were collected from four areas throughout the site. Two SVOCs, both of which were phthalates, were detected at all sampling locations at estimated concentrations ranging from 110 to 960 µg/kg. Copper and zinc were detected along the southern portion of the site at concentrations above IT Corporation estimated ambient concentrations.

Resource Conservation and Recovery Act Facility Assessment

An RFA performed by DTSC in 1992 cited Building A-29 in the "Dunnage Salvage Yard" as SWMU 37 (DTSC 1992a). Particular concerns cited in the RFA were wood treated with creosote, PCP, and copper arsenate. Although not specifically stated, the likely environmental concern was from chemicals in scrap, sawdust, and runoff from the stored wood, rather than the wood itself. The field investigation of the SWMU was conducted in 1995, at which time 23 samples were collected and anaylzed for chemical constituents associated with the wood hogger operations. The results of the SWMU 37 investigation is presented in the RCRA Facility Assessment Confirmation Study (PRC 1997b).

Tidal Area Sites Confirmation Study

The purpose of the Tidal Area Sites Confirmation Study was to confirm the presence of chemicals detected during the SI and to evaluate the laboratory practical quantitation and detection limits that were achievable for soil and water samples. Two groundwater samples (WHSMW003 and WHSMW004) and three soil samples were collected at the Wood Hogger Site during the Tidal Area Sites Confirmation Study. Butanone, acetone, and phthalates were reported previously in the SI; however, they were not detected in groundwater samples. These chemicals are believed to be sampling or laboratory artifacts but were included in further sampling efforts to confirm their absence. Soil samples collected during the Tidal Area Sites Confirmation Study conducted by PRC in January 1993 (James M. Montgomery Consulting Engineers 1993) contained PAHs at estimated concentrations up to 520 µg/kg and the pesticides chlordane (an estimated 13.2 µg/kg), 4,4'-DDT (3.16 µg/kg), 4,4'-dichlorodiphenyldichloroethane (DDD) (59.9 µg/kg), and dieldrin (3.3 µg/kg).

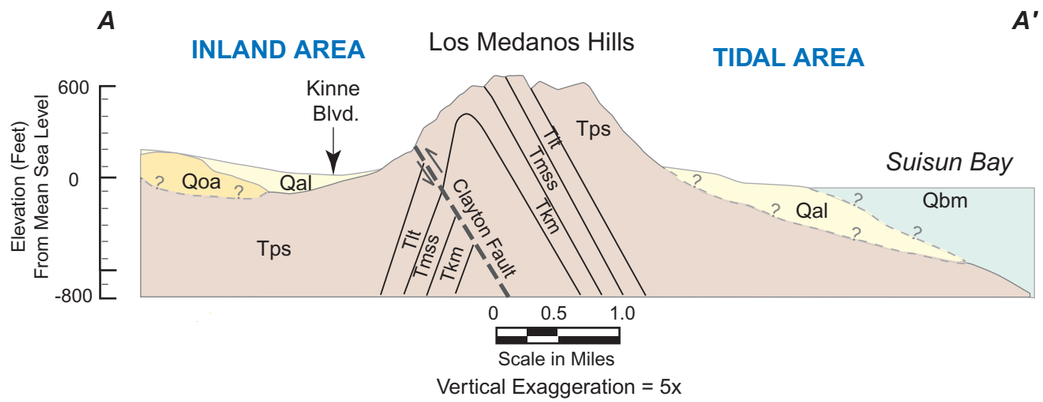
2.7.5 Otter Sluice

Otter Sluice has not been identified as an RI site because there is no record of direct contaminant spills or releases. It was evaluated in the revised draft final ERA (TtEMI 2002) and the HHRA (see Section 6.0) as an AOI because it borders the R Area Site and Wood Hogger Site and because contaminated surface water or suspended sediment may have migrated from those sites to Otter Sluice (see Figure 1-2). Otter Sluice is the only significant perennial body of surface water in the Tidal Area Sites. The FSP addendum

prepared in response to agency comments on the draft qualitative ecological assessment (QEA) (TtEMI 1998a) outlines the rationale for investigating Otter Sluice.

Figures 2-1 - 2-7

These detailed station maps have been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.



LEGEND

Quaternary Sediments:

- Qbm — Bay Mud
- Qal — Young Alluvium
- Qoa — Old Alluvium

Tertiary Rock Formations:

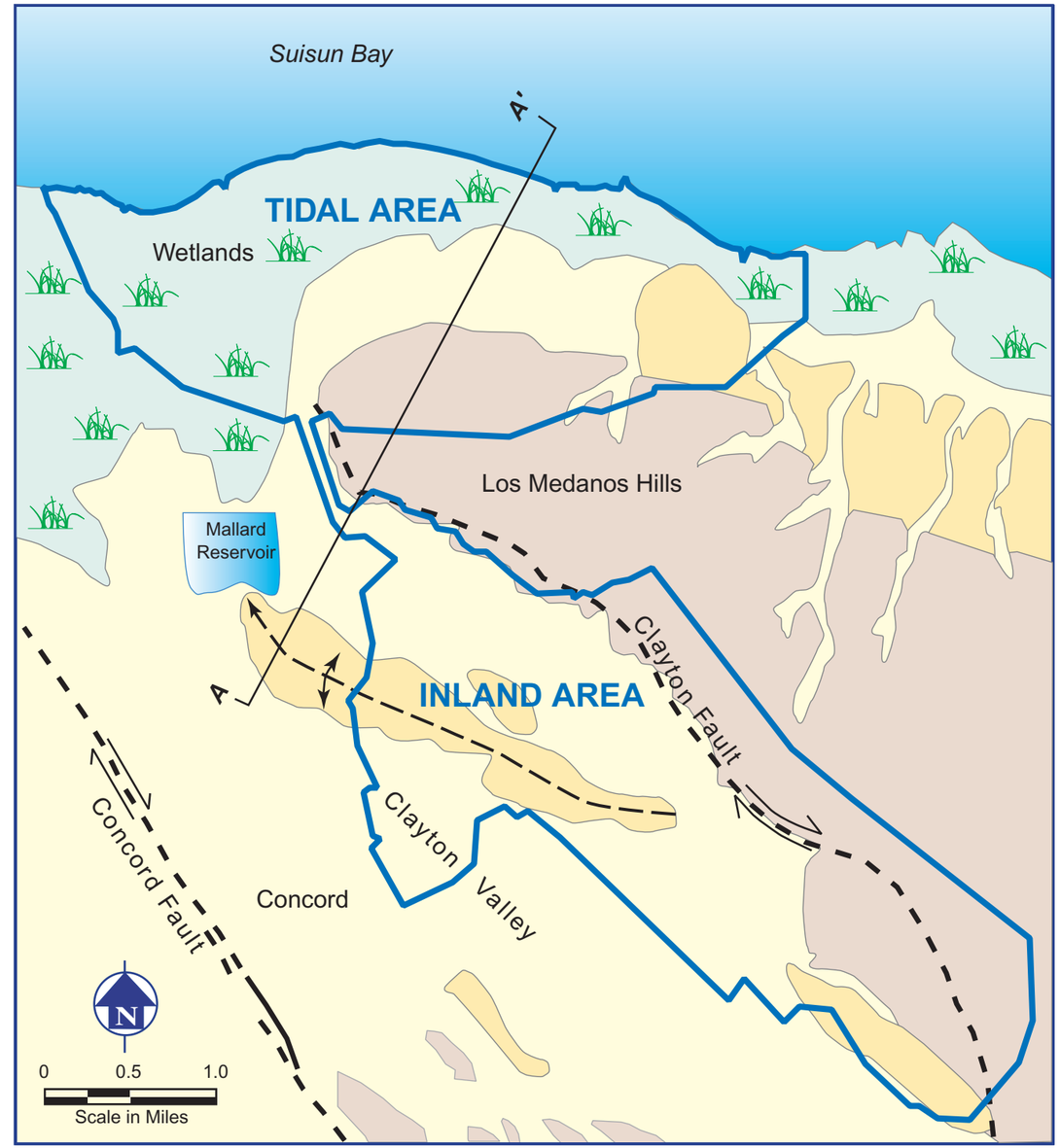
- Tps — Pliocene Nonmarine Sedimentary Rocks
- Tpt — Pliocene Pumiceous Tuff Breccias (Lawlor Tuff)
- Tmss — Miocene Marine Sandstones
- Tkm — Eocene Sandstone (Marley member of Kreyenhagen Formation)

Major Fault (Arrows show direction of relative movement)

Axis of Anticline (Arrow indicates direction of plunge)

A — A' **Cross Section Line**

SOURCE: Adapted from DIBBLEE, 1981

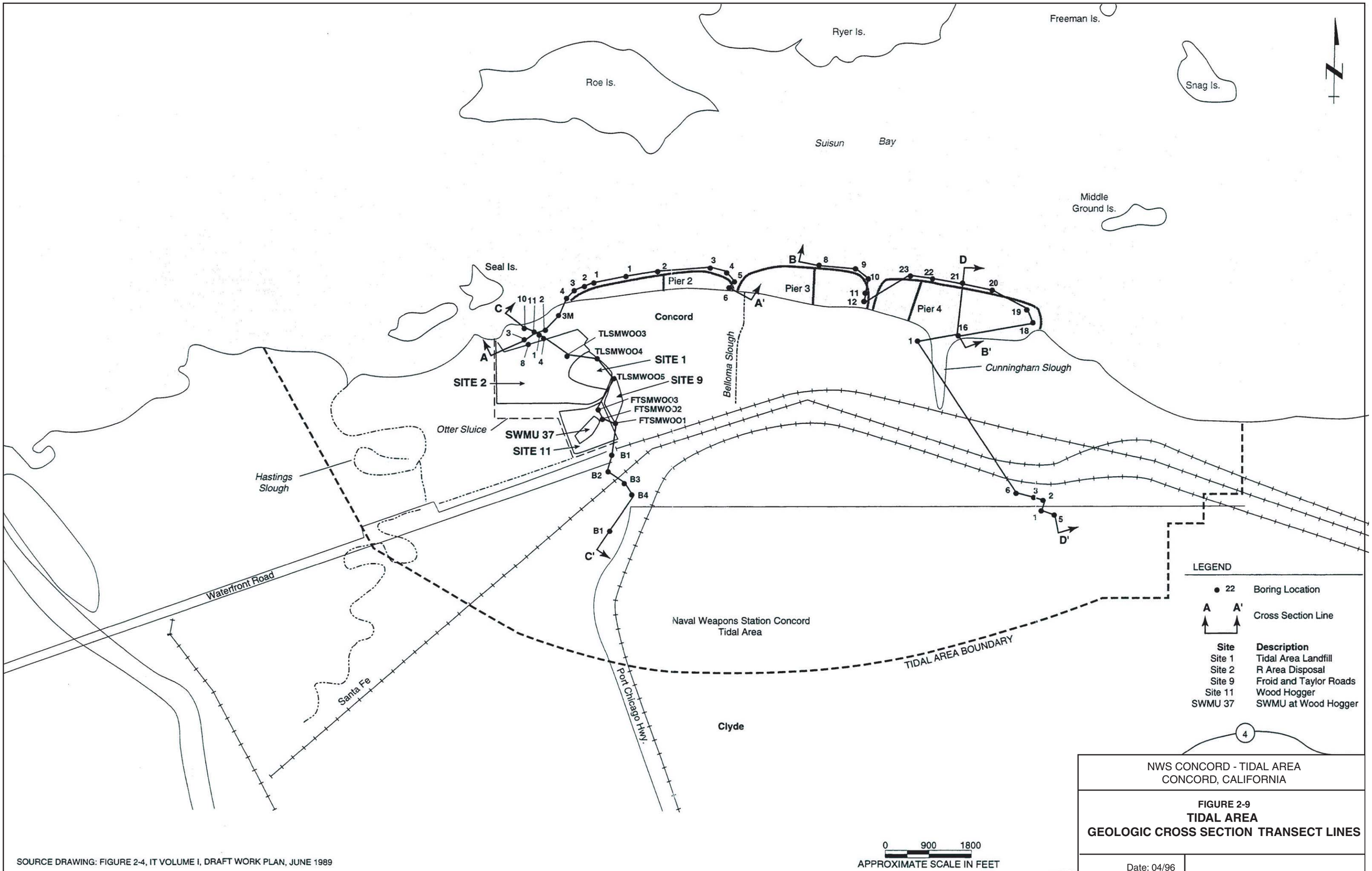


SOURCE: Adapted from LUTTON et.al., 1987 DIBBLEE 1980a, b, c, 1981

NWS CONCORD - TIDAL AREA
CONCORD, CALIFORNIA

FIGURE 2-8
GEOLOGY OF NWS CONCORD

SIZE	DATE	DWG	REV
	04/24/96		



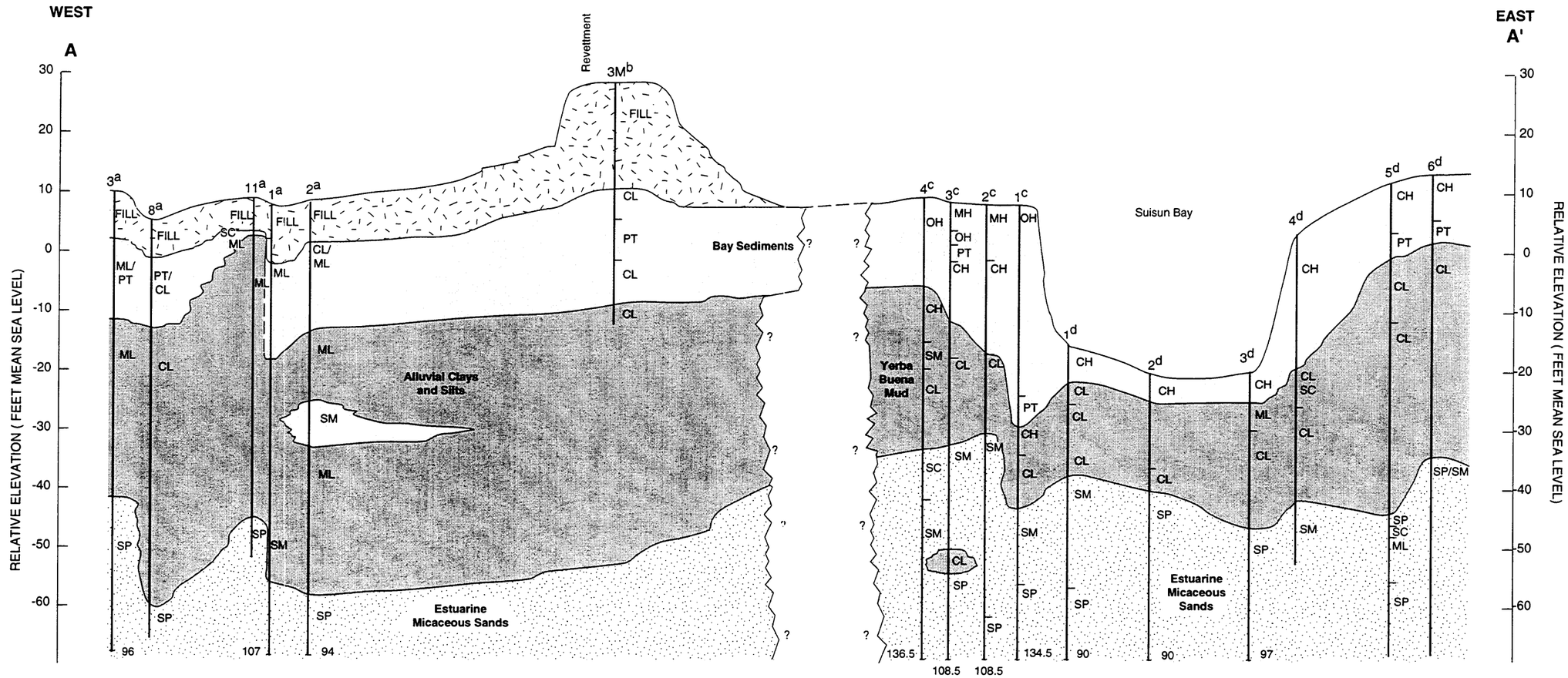
SOURCE DRAWING: FIGURE 2-4, IT VOLUME I, DRAFT WORK PLAN, JUNE 1989

4

NWS CONCORD - TIDAL AREA
CONCORD, CALIFORNIA

FIGURE 2-9
TIDAL AREA
GEOLOGIC CROSS SECTION TRANSECT LINES

Date: 04/96



Unified Soil Classification System

Group Symbol	Typical Name
SP	Poorly-graded sands, gravelly sands, little or no fines
SM	Silty sands, poorly-graded sand-gravel-silt mixtures
SC	Clayey sands, poorly-graded sand-gravel-clay mixtures
ML	Inorganic silts & very fine sands, silty or clayey fine sands, silts with slight plasticity
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
MH	Inorganic silts, micaceous or diatomaceous fine sand or silt
CH	Inorganic clays of high plasticity, fat clays
OH	Organic silts & clays of medium-to-high plasticity
PT	Peat, humus, swamp soils with high organic content

LEGEND

- FILL
- BAY SEDIMENTS
- YERBA BUENA MUDS AND ALLUVIAL CLAYS AND SILTS
- ESTUARINE MICACEOUS SANDS
- 94 — END OF BORING, APPROXIMATE ELEVATION FT. BELOW MSL

RESOURCES FOR SOIL BORING INFORMATION:
a - LEE AND PRASKER, 1967
b - DAMES AND MOORE, 1943
c - WOODWARD CLYDE, 1978
d - DAMES AND MOORE, 1966

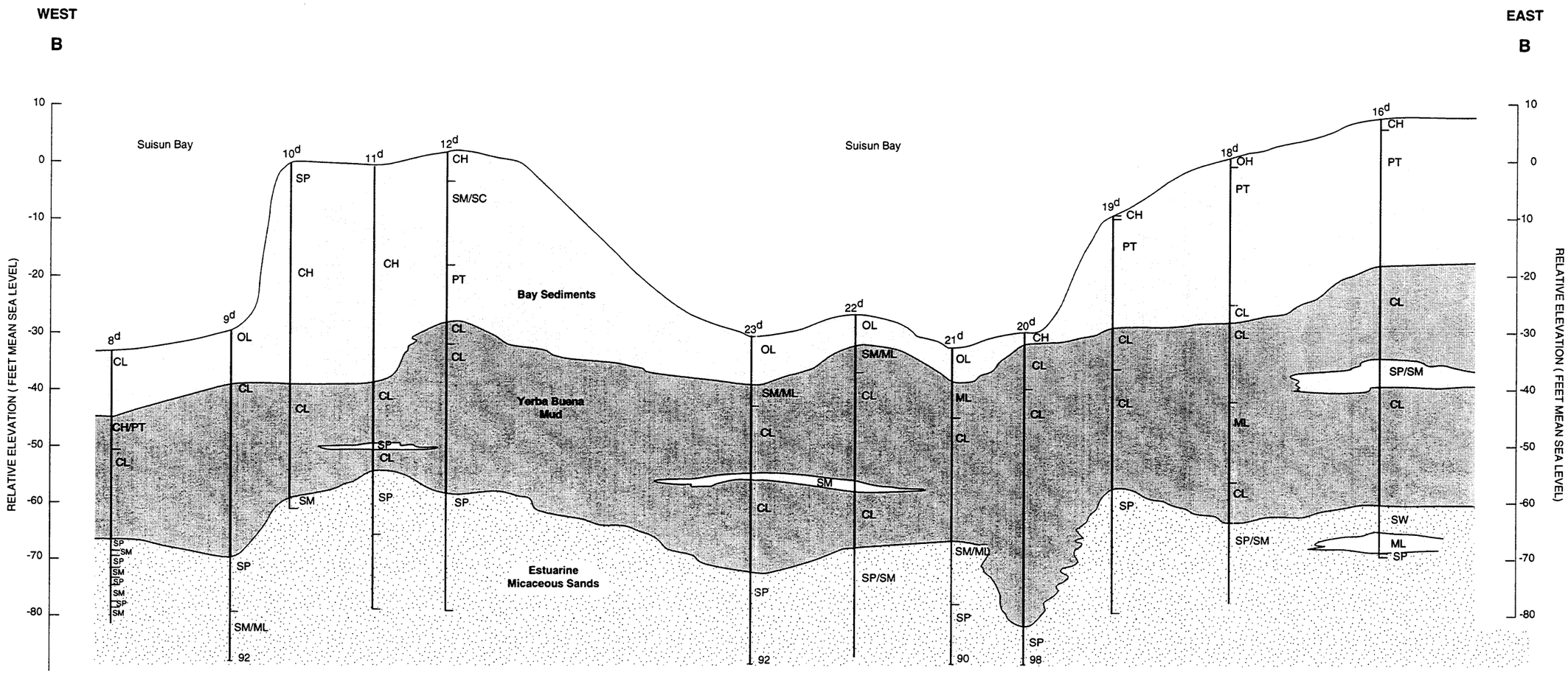
20
0 600
SCALE IN FEET

02/97.CO

NWS CONCORD - TIDAL AREA
CONCORD, CALIFORNIA

FIGURE 2-10
GEOLOGIC CROSS SECTION A-A'

Date: 4/96



Unified Soil Classification System

Group Symbol	Typical Name
SW	Well-graded sands, gravelly sands, little or no fines
SP	Poorly-graded sands, gravelly sands, little or no fines
SM	Silty sands, poorly-graded sand-gravel-silt mixtures
SC	Clayey sands, poorly-graded sand-gravel-clay mixtures
ML	Inorganic silts & very fine sands, silty or clayey fine sands, silts with slight plasticity
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
OL	Organic silts and clays of low plasticity
CH	Inorganic clays of high plasticity, fat clays
OH	Organic silts & clays of medium-to-high plasticity
PT	Peat, humus, swamp soils with high organic content

LEGEND

- BAY SEDIMENTS
- YERBA BUENA MUDS AND ALLUVIAL CLAYS AND SILTS
- ESTUARINE MICACEOUS SANDS
- 90 END OF BORING, APPROXIMATE ELEVATION FT. BELOW MSL

RESOURCE FOR SOIL BORING INFORMATION:
d - DAMES AND MOORE, 1966

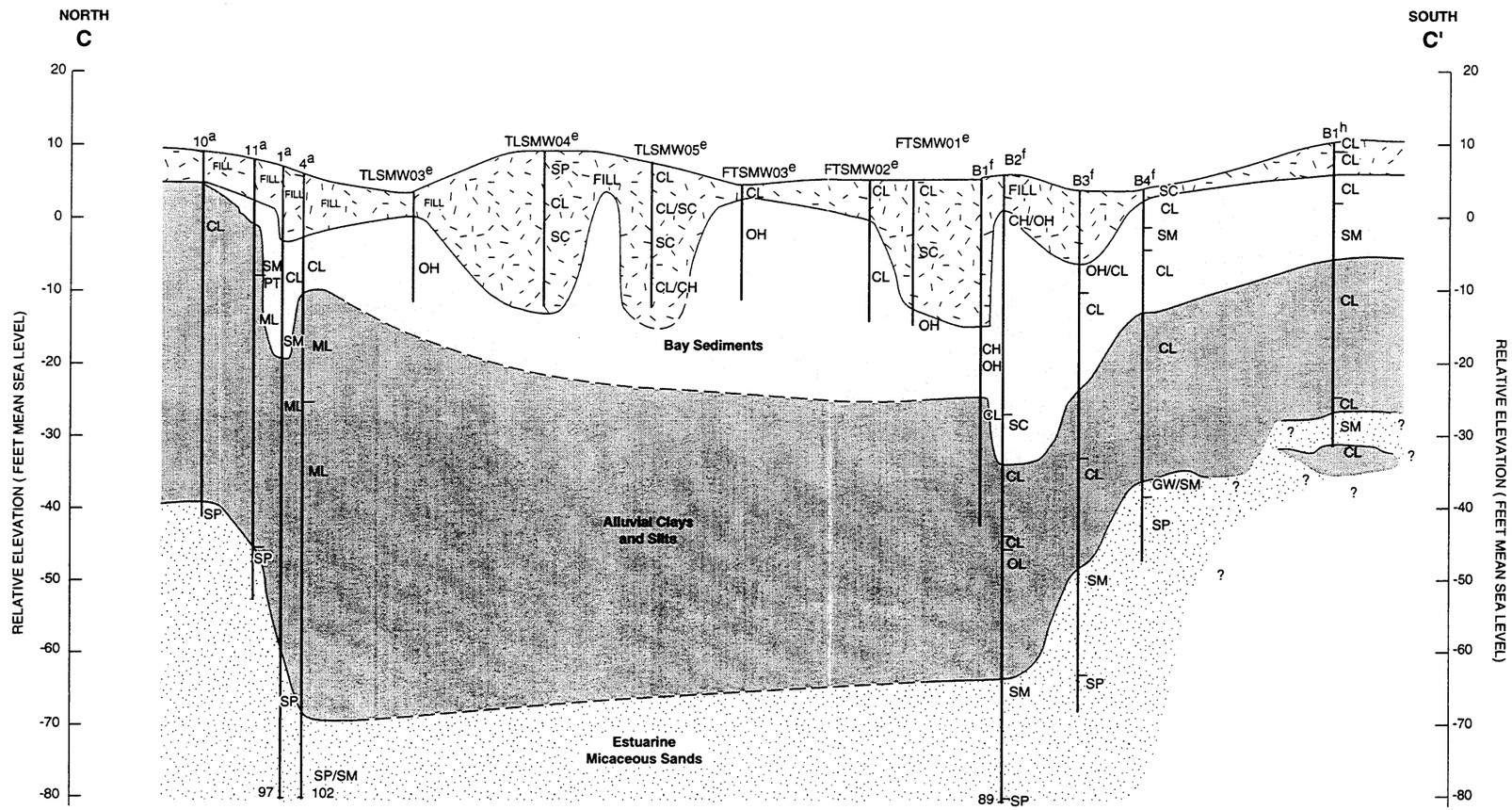
20
0 600
SCALE IN FEET

NWS CONCORD - TIDAL AREA
CONCORD, CALIFORNIA

FIGURE 2-11
GEOLOGIC CROSS SECTION B-B'

Date: 4/96

02/97.CO



Unified Soil Classification System

Group Symbol	Typical Name
GW	Well-graded gravels, gravel-sand mixtures, little or no fines
SP	Poorly-graded sands, gravelly sands, little or no fines
SM	Silty sands, poorly-graded sand-gravel-silt mixtures
SC	Clayey sands, poorly-graded sand-gravel-clay mixtures
ML	Inorganic silts & very fine sands, silty or clayey fine sands, silts with slight plasticity
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
OL	Organic silts and clays of low plasticity
CH	Inorganic clays of high plasticity, fat clays
OH	Organic silts & clays of medium-to-high plasticity
PT	Peat, humus, swamp soils with high organic content

LEGEND

- FILL
- BAY SEDIMENTS
- YERBA BUENA MUDS AND ALLUVIAL CLAYS AND SILTS
- ESTUARINE MICACEOUS SANDS
- 89 — END OF BORING, APPROXIMATE ELEVATION FT. BELOW MSL

RESOURCES FOR SOIL BORING INFORMATION:
a - LEE AND PRASKER, 1967
e - IT CORPORATION, 1992
f - KLEINFELDER, 1973
h- MOOR AND TABER, 1979

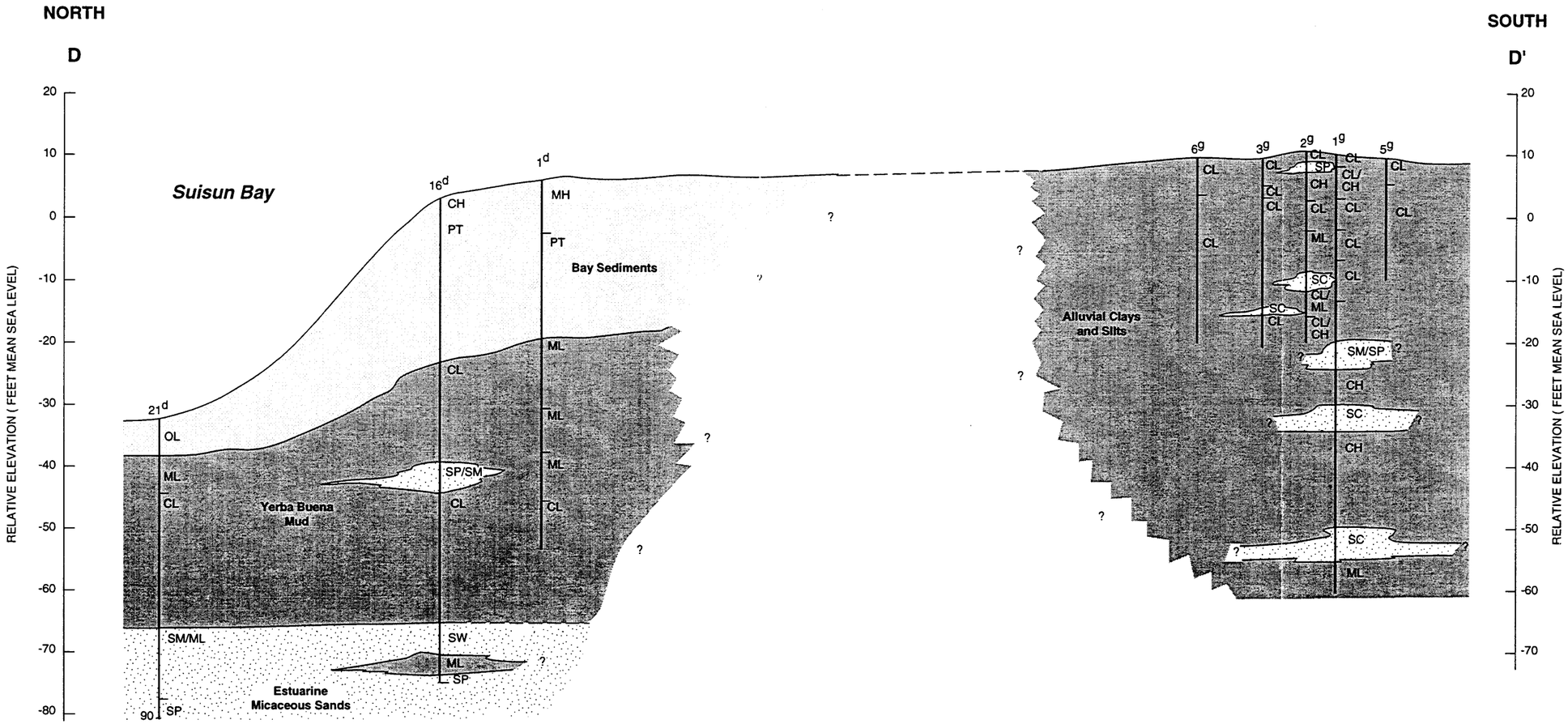
20
0
600
SCALE IN FEET

02/97.CO

NWS CONCORD - TIDAL AREA
CONCORD, CALIFORNIA

FIGURE 2-12
GEOLOGIC CROSS SECTION C-C'

Date: 4/96



LEGEND

- BAY SEDIMENTS
- YERBA BUENA MUDS AND ALLUVIAL CLAYS AND SILTS
- ESTUARINE MICACEOUS SANDS
- 90 END OF BORING, APPROXIMATE ELEVATION FT. BELOW MSL
- GEOLOGIC CONTACT (Dotted where inferred)
- ? NO DATA

RESOURCES FOR SOIL BORING INFORMATION:
d - DAMES AND MOORE, 1966
g - WESTDIVE CODE 411, 1978

Unified Soil Classification System

Group Symbol	Typical Name
SW	Well-graded sands, gravelly sands, little or no fines
SP	Poorly-graded sands, gravelly sands, little or no fines
SM	Silty sands, poorly-graded sand-gravel-silt mixtures
SC	Clayey sands, poorly-graded sand-gravel-clay mixtures
ML	Inorganic silts & very fine sands, silty or clayey fine sands, silts with slight plasticity
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
OL	Organic silts and clays of low plasticity
MH	Inorganic silts, micaceous or diatomaceous fine sand or silt
CH	Inorganic clays of high plasticity, fat clays
PT	Peat, humus, swamp soils with high organic content

20
0
600
SCALE IN FEET

NWS CONCORD - TIDAL AREA
CONCORD, CALIFORNIA

FIGURE 2-13
GEOLOGIC CROSS SECTION D-D'

Date: 04/96

DWG NAME: concord - sf

3.0 INVESTIGATION METHODS

The Naval Weapons Station SBD Concord Tidal Area RI includes several activities to meet the following objectives:

- Characterize the vertical and lateral extent of soil, sediment, surface water, and groundwater contamination
- Identify potential contamination migration pathways and receptors
- Gather data to perform a baseline HHRA and ERA
- Gather data to support initial FS activities

This section describes the field methods used to meet the investigation objectives. These methods consisted of site reconnaissance activities; sediment, soil, surface water, and groundwater investigations; and a tidal influence survey. Additional data collection and laboratory methods to assess exposure and toxicity effects specific to the ERA, such as wildlife and wetland surveys, tissue collection, and bioassays are discussed in the FSP addendum (TtEMI 1998a) and the revised draft final ERA (TtEMI 2002). This section also discusses the field methods and field QA/QC procedures, the analytical program, and data validation procedures. Deviations from the investigation approach outlined in the FSP are also discussed in this section. The Tidal Area RI WP (PRC 1995a) and FSP (PRC 1995c) contain detailed information on field methods, field QA/QC, the analytical program, and data validation. In summary, the RI followed the methods and activities described in the following project plans: RI WPs (PRC 1994b; PRC 1995a), Quality Assurance Project Plan (QAPP) (PRC 1995b), FSP (PRC 1995c), and FSP Addendum (TtEMI 1998).

3.1 RECONNAISSANCE ACTIVITIES

Reconnaissance activities were conducted in 1995, prior to sampling activities at the Tidal Area sites. Initial reconnaissance activities consisted of a biological and an ecological site clearance. Reconnaissance activities were conducted before the field investigation to identify potential impacts to sensitive, threatened, or endangered species habitats.

The Tidal Area was assessed to determine if any wildlife species, nesting sites, or sensitive habitats were present and to assess ways to identify or minimize the impact to these areas from investigation activities. After assessing the sites, it was decided that field personnel would stay on grid-line paths while traversing the sites to minimize impact to the total area by foot traffic. Field activities also were conducted in a way that minimized potential impacts to flora and fauna, such as collecting samples by hand-operated tools

without the use of motorized auger rigs or off-road vehicle support. Field activities were coordinated with regulatory agencies, including EPA, RWQCB, the FWS, and the CDFG.

3.2 SOIL INVESTIGATION

In 1995 and 1998, 319 soil samples were collected from the Tidal Area sites and Otter Sluice following the RI WPs (PRC 1994b; PRC 1995a) and FSP (PRC 1995c) and FSP Addendum (TtEMI 1998a). Of these, 215 samples were surface soils (0 to 0.5 feet bgs) and 104 were subsurface soils (greater than 0.5 feet bgs). The maximum depths of soil samples were 6.0 feet bgs at the Landfill, 6.0 feet bgs at the R Area Site, 3 feet bgs at Froid and Taylor Road Site, and 20 feet bgs at Wood Hogger. Soil samples collected at each site are summarized in Table 3-1; chemical analytical results are in Appendices B through F. Soil sampling locations are shown in Figure 1-2.

Most soil samples were collected from the surface, because overland flow of dissolved or particulate-sorbed chemicals was anticipated to be the dominant transport process of concern at the Tidal Area sites. Subsurface transport of contaminants was determined to be a less significant means of contaminant transport, based on the results of previous investigations, which indicated that the sites were underlain by Bay Mud, with very low permeabilities. Surface soil sampling data were analyzed to evaluate the potential transport and distribution of COPCs through erosion and redeposition of potentially contaminated soils and sediments by surface water at the sites.

Soil sampling locations were based on a grid pattern at the R Area Site and Wood Hogger Site to uniformly cover these sites with an unbiased or systematic sampling pattern. Sampling locations also were selected at locations where contamination was judged to be likely. Sampling locations based on judgment are biased to ensure sample coverage in areas of potential human health or ecological risk. Biased samples were collected from areas of known or suspected disposal. Biased sampling provided specific information for assessing whether contamination had occurred from the Landfill or from other areas where disposal was suspected based on site observations. In addition, “buddy” samples were collected about 10 feet away from randomly selected grid samples. Additional samples were collected to assess spatial variations in concentrations on a smaller scale than the grid spacing.

Nearly all surface and subsurface soil samples were collected by nonmechanical methods, using either hand pushing or hammer-driving to advance a 2-inch-diameter, stainless-steel, core barrel sampler to the desired soil boring depths. Clear, acetate sleeves, which were inserted into the stainless-steel core barrel, served to contain the soil samples for visual logging of soils and laboratory submittal, thereby minimizing disturbance of the sample. A truck-mounted, hydraulic push-probe was used at five locations at the Wood

Hogger Site to assist with soil sampling. For these locations, a 2-inch-diameter core barrel with acetate sleeves was attached to the hydraulic push-probe, which allowed collection of soil samples at depths up to 20 feet bgs.

Each soil sample boring was logged using the Unified Soil Classification System (USCS) (American Society of Testing and Materials D2488-00). Boring logs are included as Appendix G. Vegetation and general geomorphic features were recorded, and a photograph was taken at each soil sampling location. All soil boreholes were field-screened for organic vapors using a photoionization detector (PID). For PID screening, glass jars were partially filled with small quantities of soil, sealed, and shaken vigorously. After about 5 minutes, the PID probe was inserted into the jar headspace and the reading was recorded. Each distinct soil type from each borehole was analyzed. Site conditions, boring logs, and PID readings were used qualitatively to determine the need for contingency samples.

Biased and unbiased (systematic grid) soil samples were analyzed for SVOCs, OC pesticides and PCBs, inorganics, pH, and TOC. Buddy samples were analyzed for metals and pH. In addition, selected samples were analyzed for the following chemical constituents: VOCs, total petroleum hydrocarbons (TPH) as extractable (TPH-e), explosive compounds, inorganics (including hexavalent chromium), sulfides, and dioxins and furans. Selected samples also were analyzed for the following physical characteristics: grain size, moisture content, dry density, specific gravity, and permeability. Soil sample analytical results are presented in Appendices B through F. The rationale for the analysis of chemical and physical characteristics of samples is presented in the RI WP (PRC 1994) for the 1995 sampling event and the FSP addendum (TtEMI 1998a) for the 1998 sampling event.

The soil boreholes in the R Area Site and Froid and Taylor Road Sites were backfilled with the native drill cuttings. In the Landfill and the Wood Hogger, soil boreholes were backfilled with clean, imported soil. Imported soil was used as backfill at the Landfill and the Wood Hogger Site, because the material removed during sampling contained debris and wood chips, which may have prevented the boreholes from being thoroughly backfilled.

A set of ambient metal values for Tidal Area soils was developed in 1996 and revised in 1999. The methodology and approach of the development of this ambient data set is included as Appendix I.

3.3 SURFACE WATER INVESTIGATION

Surface water samples were collected at Otter Sluice and within the R Area Site, Froid and Taylor Road Site, and the Wood Hogger Site during four quarterly sampling periods: July and October 1995, January 1996, and April 1996 following the RI WPs (PRC 1994b; PRC 1995a) and FSP (PRC 1995c). An

additional round of surface water sampling was conducted in June 1998 at the Froid and Taylor Road Site following the FSP Addendum (TtEMI 1998a). Surface water sampling locations are shown in Figure 1-2. Surface water elevations also were recorded and used in conjunction with measurements of groundwater elevations to produce water level maps for each sampling period.

Surface water samples were collected from the sloughs and drainage ditches by submerging sample containers, then adding the necessary preservative following sample collection. All efforts were made to minimize the amount of sediment collected with the samples. Surface water samples were not filtered. Surface water samples were collected at 17 locations at the R Area Site, 5 locations at the Froid Road and Taylor Boulevard, and 6 locations at the Wood Hogger Site. Most surface water samples were analyzed for VOCs, SVOCs, OC pesticides and PCBs, explosive compounds, inorganics, TOC, total suspended solids (TSS), pH, and conductivity. In addition, the two samples collected at the Froid Road and Taylor Boulevard were analyzed for TPH-e. Analytical results for surface water samples are presented in Appendices C through F.

3.4 GROUNDWATER INVESTIGATION

There are currently 29 wells and 6 piezometers in the immediate vicinity of the Tidal Area sites. Twenty-three of these wells were installed by IT Corporation in 1989 during the SI (IT Corporation 1992) at the locations illustrated on Figure 3-1. Six wells were installed in 1995 during underground storage tank (UST) investigations (PRC 1997c). Two piezometers were installed in the R Area Site disposal site in 1995 to better define groundwater flow conditions in the northern part of the Tidal Area sites. Finally, four new piezometers were installed in the area east of the landfill in October 1997 in accordance with the confirmation groundwater sampling WP (TtEMI 1997).

Wells at the Tidial Area Sites were sampled on a quarterly basis for four quarters after they were installed from 1990 until 1991. The wells were sampled using conventional purging and sampling techniques in use at the time with bailers.

In September 1994, to investigate metals concentrations, a low-flow purging and sampling procedure was explored for use at four wells in the Tidal Area of Naval Weapons Station SBD Concord. The 23 Tidal Area monitoring wells were sampled again from October 6 to 15, 1997 in accordance with the WP (TtEMI 1997). Where possible, groundwater samples were collected using low-flow-rate purging techniques. In many cases, the recharge rate in the wells would not support low-flow-rate sampling and the wells were sampled using a natural settling technique to reduce sample turbidity.

TtEMI inspected the wells and piezometers on June 11, 1997, to verify that the wells were in good condition, would yield representative groundwater samples, and would comply with California monitoring well standards (California Department of Water Resources [CDWR] 1981 and 1991). Piezometers PZ-3 through PZ-6 were not yet installed at the time of the inspection, and the locations of the UST wells were not known; therefore, only the 23 wells installed by IT Corporation and the two R Area Site piezometers were inspected.

During the confirmation groundwater sampling conducted in 1997, 14 of the 23 wells sampled, rates of groundwater recharge to the wells from the formation were lower than the lowest pumping rates typically used in low-flow sampling (less than 0.1 liter per minute). Samples collected from these wells using low-flow-rate techniques would have consisted predominantly of stagnant water from the well casing rather than water from the water-bearing formation. Therefore, these 14 wells were sampled using a natural settling technique, rather than a low-flow-rate technique. Groundwater elevations measured during the four monitoring well gauging events (July and October 1995, January 1996, and April 1996) were used in conjunction with surface water elevations to produce area-wide water level maps for each gauging event. Groundwater elevations were measured again in 1998, during the confirmation groundwater sampling conducted for the Tidal Area and results were used to prepare groundwater potentiometric surface maps (presented in Section 4.0 of this report).

3.5 HAND AUGER SURVEY

Historical aerial photographs of the landfill show that a slough meandered through the R Area Site and intersected the southwestern and southern margins of the area currently occupied by the landfill (see Figure 3-1). Portions of this slough have subsequently been filled; in some areas, sandy soil was used as fill material, creating possible preferential groundwater flow paths. The presence of possible preferential flow paths in channel fill southwest of the landfill was not fully investigated during previous investigations. To investigate the presence of possible preferential flow pathways, several shallow borings were drilled with a hand auger in the filled portions of the slough southwest of the landfill. The borings were drilled with a hand auger because the area is currently inaccessible to drill rigs because of saturated soils in the area.

The hand auger survey was conducted on September 11, 1997 in accordance with the confirmation groundwater sampling WP (TtEMI 1997). Lithology of the slough fill material was examined at the three locations near the landfill where the slough was filled. Borings were advanced in the center of the slough near the terminus of the fill material to ensure that the borings penetrated the fill material rather than native materials on the sides of the sloughs. Approximate hand auger boring locations are

illustrated in the technical memorandum (TtEMI 1998b) and discussed and illustrated in Section 4.0 of this report. Soil borings were advanced through the fill material and the native bay mud to the water table, which was within inches of the surface. The soil borings showed that coarse materials were used to fill the slough in some areas, but that the slough is very shallow and the water table was below the base of the fill material in all cases. Consequently, the filled portions of the slough cannot act as preferential groundwater flow pathways in the area southwest of the landfill.

Additional borings were advanced in the bottom of the unfilled portions of the slough at several locations. The lithology in all of these borings consisted of dark gray silty clay.

3.6 SOIL BORING AND PIEZOMETER INSTALLATION

To better characterize the lithology and hydrodynamic regime in the vicinity of the landfill, soil borings were drilled at 11 locations east and northeast of the landfill, and four piezometers were installed in accordance with the confirmation groundwater sampling WP (TtEMI 1997). Soil boring locations are illustrated in the Confirmation Groundwater Sampling TM (TtEMI 1998b) and discussed and illustrated in Section 4.0 of this report. Soil borings were drilled with a truck-mounted rotary drill rig using hollow-stem augers to a depth of up to 26 feet. Split-spoon samples were collected continuously from 2 to 4 feet below grade to the bottom of each boring to characterize lithology of the borings. Split spoon samples were collected to define borehole lithology only and were not submitted for chemical analysis. Lithology of each soil boring was described, logged, and classified according to the USCS.

Seven borings (B-1 through B-7) were drilled northeast of the landfill in an effort to locate a filled manmade sluice that appears on aerial photographs from 1939 that may act as a potential preferential groundwater flow pathway. The borings were drilled to a depth of 8 feet below grade, at least 1 foot into native material. Borings were abandoned by grouting from the surface with cement-bentonite grout.

One piezometer (PZ-4) was installed east of the landfill to verify groundwater flow directions in this area. A previously undiscovered sand unit was encountered at that location from 16 to 19.5 feet below grade. To determine the lateral extent of the sand unit, additional borings were drilled at locations PZ-3, PZ-6, and B-9. Piezometers were installed at two of these locations; no piezometer was installed in boring B-9 because the sand unit was not encountered in that boring. An additional shallow piezometer (PZ-5) was install adjacent to PZ-4 to allow an assessment of hydraulic communication between the sand unit and shallower lithologic intervals. Screened intervals for the piezometers were selected to intersect specific lithologic intervals such as sand units.

The construction of the piezometers conforms to existing monitoring wells at the site, so that the piezometers can function as monitoring wells if necessary. Piezometer construction details are shown in the Confirmation Groundwater Sampling TM (TtEMI 1998b). Each piezometer consists of 4-inch-diameter polyvinyl chloride (PVC) riser pipe and 10-foot-long, 0.010-inch (10 slot) PVC well screens.

The filter pack for each well consists of clean-graded Lone Star Lapis Luster Monterey sand no. 2/12, which extends from approximately 6 inches below the base of the well to 2 feet above the top of the screen. The level of the filter pack sand was checked continuously with a weighted tape during emplacement to ensure that no gaps or bridging occurred. A 2-foot filter collar of bentonite chips was emplaced immediately above the filter pack. The remainder of the annular space from the top of the filter collar to 1 foot below grade was pressure grouted with a cement-bentonite slurry. The grout was emplaced via a hose or tremmie pipe from bottom to top to ensure that the entire annular space was sealed. To allow enough space for a good annular seal, the shallow piezometer (PZ-5) had only 1 feet of filter pack above the top of the screen and a 1-foot bentonite chip filter collar.

The piezometers are completed with aboveground, locking protective casings and concrete surface pads. The concrete surface pads are approximately 3 feet across, centered at the well, and sloped smoothly away from the well to facilitate drainage. The wells are protected from vehicular damage with concrete-filled bumper posts.

The new piezometers were developed on October 3, 1997, using standard surging and pumping techniques. The piezometers were surged vigorously with a tight-fitting surge block for 10 to 15 minutes and then pumped with a submersible pump until water quality improved. Each piezometer was surged and pumped at least three separate times, except for piezometer PZ-5; piezometer PZ-5 was surged once and bailed dry, but it did not recharge appreciably for more than 1 week. Development of the remaining three piezometers ceased when further pumping and surging did not produce an appreciable improvement in water clarity. Each of the piezometers was able to produce water with turbidity below 50 nephelometric turbidity units (NTU), except for PZ-5.

Locations and elevations of the new piezometers and borings were surveyed by a licensed surveyor on October 3, 1997.

3.7 WATER LEVEL MEASUREMENT

Water levels in the Tidal Area wells have been measured every time groundwater samples were collected prior to purging of the wells. The most recent series of groundwater level measurements were conducted

based on the confirmation groundwater sampling WP (TtEMI 1997) and reported in the Confirmation Groundwater Sampling TM (TtEMI 1998b). These measurements were conducted on June 11, 1997, October 3, 1997, and on January 28, 1998. Water levels were measured in the 23 Tidal Area monitoring wells and in piezometers PZ-1 and PZ-2 to the nearest 0.01 feet using a Solinst electronic water level indicator. Water levels were not measured at UST sites A-3A and E-111 on January 28, 1998, but not measured earlier because the wells had not yet been identified as available data points for the Confirmation Groundwater Sampling TM. Water levels were not measured in PZ-3 through PZ-6 before January 1997 because the piezometers had not yet been installed. Water levels in several of the piezometers did not stabilize for several days following well development; therefore, water levels were measured again in these piezometers on October 15, at the conclusion of the confirmation groundwater sampling.

3.8 GROUNDWATER SAMPLING

The 23 Tidal Area monitoring wells were sampled from October 6 to October 15, 1997 in accordance with the WP (TtEMI 1997). Where possible, groundwater samples were collected using low-flow-rate purging techniques. In many cases, the recharge rate in the wells would not support low-flow-rate sampling, and the wells were sampled using a natural settling technique to reduce sample turbidity. Both well sampling techniques are discussed below.

Recent EPA studies have shown that low-flow-rate purging techniques can be used to obtain more accurate and representative groundwater samples for metals analyses than conventional sampling and filtering techniques (Puls and Powell 1992). A principal objective of low-flow-rate purging is to avoid entraining silt- and clay-sized particles in groundwater samples by purging wells at low velocities. Low-velocity purging is intended to establish direct flow from the water-bearing formation to the sample container at velocities and flow conditions comparable to in situ flow velocities. By using low-flow-rate purging techniques, the sampling process more closely matches natural groundwater flow conditions and transport of suspended solids, and analytical problems and uncertainties caused by turbidity are reduced.

Low-flow-rate purging techniques were used to obtain groundwater samples from 9 of the 23 wells. The low-flow-rate purging and sampling technique that was used conducted in accordance with the confirmation groundwater sampling WP (TtEMI 1997).

In 14 of the 23 wells sampled, rates of groundwater recharge to the wells from the formation were lower than the lowest pumping rates (less than 0.1 L/min). Because samples collected from these wells using low-flow-rate techniques would have consisted predominantly of stagnant water from the well casing

rather than water from the water-bearing formation, these 14 wells were sampled using a natural settling technique rather than a low-flow-rate technique. The natural settling technique was conducted as described in the confirmation grounwater sampling WP (TtEMI 1997).

The natural settling technique consisted of purging the wells dry, allowing the wells to recharge overnight, and collecting samples the following day. Particles that may have been entrained in the water that recharged the wells after purging were allowed to settle naturally from the water within the well casing. Samples were collected by attaching the peristaltic pump to the free end of the tubing and gradually increasing pumping rate to 0.25 L/min, taking care to avoid agitating the tubing and sample. The tubing that was used to purge the well was left suspended in the well overnight to prevent disturbing the water column and resuspending sediments when inserting the tubing to collect a sample. At least 3 liters of water were purged, and three rounds of well stabilization parameters were measured to characterize water quality before the samples were collected. Groundwater samples collected from these wells were not filtered. Well RDW-5 recharged very slowly (5.6 feet in 5 days) and was sampled 5 days after purging. All other wells were sampled the day after the wells were purged.

3.9 SURFACE WATER SAMPLING

Surface water samples were collected to characterize isotopic composition and total and dissolved solids concentrations in surface water adjacent to the Tidal Area sites in accordance with . Samples of surface water at the inlet to Otter Sluice and in Otter Sluice itself were collected at high and low tides. These samples were analyzed for stable isotopes of oxygen and hydrogen and for total dissolved solids (TDS) and TSS. In addition, a surface water sample was collected from near the shoreline of Suisun Bay at the Port Chicago Memorial to characterize background radioisotope concentrations in Suisun Bay. Samples were collected by immersing sample bottles about 6 inches below the surface and opening the caps and allowing the bottles to fill. Surface water sample preservation and handling was as described for other samples. Surface water sampling locations are shown in Figure 1-2.

3.10 GROUNDWATER SAMPLE ANALYSIS

All groundwater samples collected in October 1997 were analyzed for metals, TDS, TSS, and stable isotopes of oxygen and hydrogen. Selected wells were sampled for VOCs, SVOCs, pesticides, PCBs, and gamma emissions, as discussed in Section 5.0. Samples were analyzed in accordance with procedures described in the QAPP (PRC 1995b) using analytical methods in the following list:

Analyte Group	Analytical Method
Metals	EPA Contract Laboratory Program (CLP) Statement of Work for Inorganic Analyses ILM04.0
TDS/TSS	EPA Method 160.1/160.2
VOCs	EPA CLP Statement of Work for Organic Analyses OLM02.1
SVOCs	EPA CLP Statement of Work for Organic Analyses OLM02.1
Pesticides and PCBs	EPA CLP Statement of Work for Organic Analyses OLM02.1
Stable isotopes	Mass spectrometer
Gamma Spectroscopy	EPA Method 901.1

3.11 QUALITY ASSURANCE AND QUALITY CONTROL FIELD PROCEDURES

Field QA/QC samples were collected for laboratory analysis to check sampling and analytical precision, accuracy, and representativeness in accordance with the QAPP (PRC 1995b). Analytical results for QA/QC samples are discussed in the QCSR presented in Appendix H. QA/QC samples were consistent with guidelines presented in Navy QA/QC requirements (Naval Energy and Environmental Support Activity 1988). In addition, the QA/QC program presented in this section meets appropriate regulatory guidance (EPA 1990).

3.11.1 Field Duplicate Samples

Field duplicate samples were collected at the same time and from the same sampling matrix as the original samples and were submitted to the laboratory as separate samples to assess the consistency of the overall sampling and analytical system. Field duplicates were collected for 10 percent of all samples and were analyzed for the same constituents as the original sample. The 10 percent basis was determined separately for each sample matrix and did not include QC samples. Field duplicates were collected, numbered, packaged, and sealed in the same manner as other samples and were submitted blind to the laboratory.

3.11.2 Laboratory Split Samples

Samples collected from three locations in the R Area Site were selected for laboratory splits and analyzed for SVOCs, OC pesticides, and PCBs (using low detection limits) and standard CLP analytical methods. In addition, equipment rinsate blank split samples were collected for rinsate water samples (collected about every 2 days) to evaluate possible sources of field contamination.

3.11.3 Referee Samples

Referee duplicate samples were collected to evaluate interlaboratory analytical precision and accuracy as well as to serve as external QA samples. These samples were collected and sent to a referee QA laboratory only when regulatory agencies collected split samples. The collection method for referee duplicates or referee split samples was identical to the collection method used for field duplicate samples, as described previously.

3.11.4 Source Water Blank

One source water blank sample was collected from the base domestic water source to determine quality parameters. The source water sample was analyzed for the same parameters as samples collected during the investigation. The source water was used throughout the investigation as detergent wash water for decontamination procedures.

3.11.5 Equipment Rinsates

Equipment rinsates are used to evaluate the effectiveness of sampling equipment decontamination. Equipment rinsates were collected after a sample collection device, such as a split-spoon sampler or bailer, was decontaminated using standard procedures. Appropriate water for the intended analysis was poured over or through the sampling device, collected in a sample container, and sent as a blind sample to the laboratory for analysis. High-performance liquid chromatography water or equivalent organic-free water was used in the organic analyses, and deionized water was used for inorganic analyses. Equipment rinsate samples were collected daily.

3.11.6 Trip Blanks

Trip blanks are used to identify possible sample contamination originating from sample transport, shipping, or site conditions. Trip blanks were prepared in the laboratory, using organic-free water. Next, they were shipped with sample containers to the field, stored with field samples, and returned to the laboratory with samples scheduled to be analyzed for VOCs. One trip blank accompanied each cooler containing VOC samples. Analysis for VOCs was performed, because these compounds have the greatest potential for cross-contamination.

3.11.7 Quality Control Practices

Field measurements were recorded while water samples were collected. These measurements and associated QC practices are as follows:

- pH, specific conductance, turbidity, and temperature were measured in duplicate at a frequency of 10 percent.
- Water levels were measured in duplicate at a frequency of 10 percent.

Subcontractors conducting field activities followed QC practices, as provided in their standard operating procedures. Results from field measurements and QC checks were compared to the precision, accuracy, representativeness, completeness, and comparability (PARCC) criteria presented in Section 3.0 of the QAPP (referred to as the "QAPjP" in previous documents) (PRC 1995b).

3.12 TIDAL SURVEY

Tidal fluctuations in oceans and hydraulically connected surface water bodies (such as bays, tidal marshes, or streams) sometimes produce groundwater level fluctuations in adjacent, hydraulically connected, coastal aquifers. These tidal effects may cause fluctuations in groundwater gradients and flow directions, ultimately affecting contaminant migration. The tidal influence survey at Naval Weapons Station SBD Concord was conducted to assess whether significant tidal influence on groundwater levels occurs at the site. The goal of the survey was to quantify the degree of influence from seasonal and daily tidal fluctuations on surface water and groundwater levels.

The tidal influence survey was conducted using eight groundwater monitoring wells to evaluate the potential for hydraulic influence, including time lapse effects, between tidal changes in Suisun Bay and surface water and groundwater level fluctuations at Naval Weapons Station SBD Concord. Data loggers were installed in groundwater monitoring wells, at surface water monitoring locations, and in Suisun Bay.

The tidal influence survey was conducted by continuously measuring the change in static water levels in eight groundwater monitoring wells and nine surface water monitoring sites, including five locations in Otter Sluice, one location in Suisun Bay at the outfall of Otter Sluice, and three locations within site boundaries (see Figure 3-2). Monitoring locations and duration are presented in Table 3-2. Field data were continually recorded using In-Situ Hermit 2-channel SE 1000C or 6-channel SE 2000 data loggers and pressure transducers. Before the data loggers were installed, static water levels were recorded for each monitoring well. Pressure transducers were then installed in each well, and the data loggers were programmed to record water levels every 15 minutes during the tidal survey. When the monitoring period

was complete, the data recorded on the data logger were downloaded onto a computer and plotted by graphing the net change in water level versus time. Results of the tidal survey are presented in Section 4.2.

3.13 DEVIATIONS FROM PROPOSED INVESTIGATION APPROACH

The following deviations from the proposed investigation approach occurred during the sampling and analysis for the Landfill, Tidal Area sites, and Otter Sluice.

3.13.1 Site 1, Tidal Area Landfill

One additional soil boring, TL-SB-08, was drilled at the request of the on-site EPA representative.

3.13.2 Site 2, R Area Site

One surface soil grid location, RAD-SD-A8, was moved because of access problems. Surface water samples proposed at three locations were not collected during the first round of sampling because of a lack of surface water. Three field contingency soil samples were collected at the R Area Site based on observed site conditions at the time of sampling.

3.13.3 Site 11, Wood Hogger Site

Soil samples were not collected as proposed from Grid Locations L3, K2, and J3, because two of these grid locations were on the railroad tracks and one was on the road. Grid Locations E8, G6, E6, and C6 were sampled in alternate locations because of access problems; E8 was located in a slough, G6 and E6 were inside of a fenced area, and C6 was located inside a wood-constructed warehouse. One contingency soil sample was collected at the Wood Hogger Site.

3.13.4 Otter Sluice

Otter Sluice has not been identified as an RI site but is being evaluated separately in this report, because it borders the R Area Site and Wood Hogger Site and because contaminated surface water or suspended sediment may have migrated from those sites to Otter Sluice. The FSP addendum (TtEMI 1998a) outlines the rationale for investigating Otter Sluice.

3.15 ANALYTICAL PROGRAM

The analytical program for the Naval Weapons Station SBD Concord Tidal Area sites was designed to provide users with data of known quality (PRC 1994b; PRC 1995a; PRC 1995b; PRC 1995c; TtEMI 1997; and TtEMI 1998a). To achieve this goal, documented procedures were followed for the identification and documentation of all samples collected, containerization and preservation of all samples, sample custody and shipment control, internal QC checks for field and laboratory analyses, data reduction and reporting, and data validation. Each of these procedures is described in the following sections.

3.15.1 Identification and Documentation of Samples

Immediately following sample collection, a sample number was assigned, the sample container was labeled, and sample collection was documented. The sample numbering scheme was compatible with both the Navy and laboratory computerized database management systems. The numbering scheme allowed each sample to be uniquely identified and provided a means of tracking the sample from collection through analysis. Sample numbers identify the site, sample matrix (for example, sediment, soil, or surface water), and sample location. This numbering scheme is consistent with those used for all Naval Weapons Station SBD Concord sampling efforts.

The numbering scheme does not provide the laboratory with any information that could bias the reported results, which is particularly important for field QC samples. Procedures for numbering the field QC samples (field duplicates, equipment blanks, and trip blanks) are described in Section 3.15.1.2. Other QC samples collected for this project were the matrix spike (MS) and matrix spike duplicate (MSD) samples. MS/MSD samples are required by the laboratory to measure precision and accuracy of analytical methods. MS/MSDs, however, are not considered to be unique samples, and the extra sample volumes were numbered with the sample number of the original sample.

After the sample number was determined, it was recorded on sample labels, field tracking sheets, chain-of-custody (COC) forms, and other records documenting sampling activities such as the field logbook.

3.15.1.1 Remedial Investigation Location Identification System

The RI location identification system consisted of three parts: (1) the RI site, (2) the location type (for example, soil boring or surface water), and (3) the specific location (for example, biased and unbiased [systematic grid sample] location). Examples of the location identification system and each of its parts follow:

RI Abbreviation	Location Type Abbreviation	Specific Location
TLS (Tidal Landfill)	SB (soil boring)	005
RAD (R Area Site)	SB (soil boring)	B04
WHS (Wood Hogger Site)	ST (sediment)	003
FTS (Froid Road and Taylor Boulevard)	SW (surface water)	002
OSL (Otter Sluice)	SL (sluice/slough)	001

The RI site abbreviation is a three-letter code identifying the RI site. The location type abbreviation is a two-letter code for the type of location. The specific location is a three-character code or three-digit number used to identify specific unbiased (systematic grid) or biased sampling locations. For example, Grid Node A01 would be located at the intersection of Column A and Row 01. Biased sampling locations were identified consecutively. Samples collected at different times from the same location (for example, surface water) were differentiated by the date of collection and the sample identification number.

All locations were recorded on appropriate forms during field activities to identify the location corresponding to the sample sent to the laboratory.

3.15.1.2 Remedial Investigation Sample Identification System

The sample identification system was developed in order to submit blind samples to the laboratory, that is, sample identification names that did not contain information about the purpose of the sample. The sample identification consisted of four parts (1) the CTO number, (2) the RI site from which the sample was collected, (3) sample type, and (4) sample number. Examples of the sample identification system and each of its parts follow:

CTO Number	RI Site Abbreviation	Sample Type Abbreviation	Sample Number
281	TLS (Tidal Area Landfill)	SS (soil)	001
281	RAD (R Area Site)	SS (soil)	002
281	WHS (Wood Hogger Site)	ST (sediment)	003
281	FTS (Froid Road and Taylor Boulevard)	SW (surface water)	004
217	OSL (Otter Sluice)	SW (surface water)	010

The RI site abbreviation remains the same for both the location and sample identification system. The sample type abbreviation is a two-letter code for the type of sample collected. The sample number is a three-digit, sequential code for each type of sample at each site. For each sample type (soil, sediment, and surface water) samples were numbered sequentially.

Field QC samples (trip blanks, duplicates, and equipment blanks) were numbered sequentially to ensure that all samples were submitted blind to the laboratory. For example, a trip blank sent to the laboratory with surface water samples collected from the Wood Hogger Site was identified as 281WHSSW020 (the last sample collected that day would have been 281WHSSW019). Surface water samples analyzed for MS/MSD were noted in the remarks section on the COC forms.

3.15.2 Sample Analysis, Containerization, and Preservation

Samples were placed in containers appropriate for the intended analyses, and a preservative was added, as necessary. All soil and water analyses were conducted at an off-site analytical laboratory. Analytical methods, sample containers, preservative requirements, and holding times are listed in Tables 3-3 (soil and sediment) and 3-4 (surface water).

3.16 DATA VALIDATION

Data validation is a systematic process for reviewing and qualifying data against a set of criteria to ensure that the data are adequate for their intended use. This is accomplished by reviewing and evaluating all analytical data against PARCC criteria. The laboratory analytical data generated during the Naval Weapons Station SBD Concord RI were validated in accordance with EPA procedures (EPA 1994a, 1994b), and procedures in the QAPP for Naval Weapons Station SBD Concord (PRC 1995b). The results of data validation are discussed in the QCSR, presented in Appendix H.

The scope of the data validation encompassed results for soil, sediment, surface water, and tissue samples. The analytical program included the following analyses: CLP SVOCs, CLP pesticides and PCBs, low-detection-limit OC pesticides and PCBs, CLP metals, dioxins, moisture content, and TOC. Analytical methods and references are listed in Table 3-5 for surface water samples and Table 3-6 for soil and sediment samples.

3.16.1 Validation and Verification Methods

Validation and verification of data generated during field activities are essential to ensuring that the data is defensible and of acceptable quality. Data values that are significantly different from the population are called "outliers." Outliers may represent actual sample concentrations or may result from improper sampling or analytical methodologies, matrix interferences, data transcription errors, and calculation errors. Outliers resulting from errors found during data verification were identified and corrected; those that could not be attributed to analytical, calculation, or transcription errors were reported in the case narrative section of the analytical report. Additional verification methods for field and laboratory activities are presented in the following two sections.

3.16.1.1 Field Data Verification

Field personnel reviewed field data to identify inconsistencies or anomalous values. Any inconsistencies discovered were resolved immediately, if possible, by seeking clarification from the personnel responsible for data collection. All field personnel were responsible for following the sampling and documentation procedures described in the FSP (PRC 1995c) to ensure that defensible and justifiable data were obtained.

3.16.1.2 Laboratory Data Verification

Laboratory personnel assessed the data at the time of analysis and reported, through a review of raw data, any nonconformances in analytical method protocols. Detailed procedures for laboratory validation and corrective action are described in the laboratory QA plan. The laboratory QA plan discusses sample control, methods of analyses, calibration procedures, document control, QC, corrective actions, QC checks, QA, and data review.

3.16.1.3 Analytical Data Validation

Data validation is a systematic process of reviewing and qualifying data against a set of criteria to ensure that the data are adequate for their intended use. During the validation process, all results were identified as either acceptable for use, qualified (estimated) and acceptable for limited use, or rejected and unacceptable for use. Results that were rejected were retained in the database but were not used in quantitative evaluations. Qualified (estimated) and rejected data can result from improper sampling or analytical methodologies, matrix interferences, errors in data transcription, and changes in instrument performance. Erroneous results found during field and laboratory data validation were identified and corrected. Data validation was performed by an independent third party contractor, as required under the CLEAN contracts.

The validation procedure for non-CLP methods involved (1) reviewing the requirements of the analytical method and the project QAPP, (2) reviewing the data package to ensure that the requirements of the analytical methods and the QAPP were met, and (3) reviewing the data package against applicable criteria in accordance with the EPA functional guidelines. Although the functional guidelines do not specifically address analyses other than CLP methods, the general concepts presented in the guidelines were applied to non-CLP analytical methods.

Cursory Data Validation

Cursory validation was performed on the data summary packages for analyses of soil and surface water samples by CLP and non-CLP methods. All data were validated and qualified using the established criteria. Data summary packages consist of sample results and QA/QC summaries (equivalent to CLP Forms I through X for organic analyses and Forms I through XIV for inorganic analyses), including calibration and internal standard data. The number of samples in a sample delivery group (SDG) did not exceed 20.

Full Data Validation

Full validation was performed on data packages for analyses of soil and surface water samples by CLP and non-CLP methods. All data were validated and qualified using established criteria. Full validation was performed on about 10 percent of the SDG. Data packages consisted of sample results, QA/QC summaries (equivalent to CLP Forms I through X for organic analyses and Forms I through XIV for inorganic analyses), and all raw data associated with the sample results.

3.16.2 Data Validation Criteria

The QC criteria reviewed for both cursory and full validations are as follows:

- CLP organic analyses: holding times, calibration, gas chromatograph tuning, internal standard performance, blanks, surrogate recovery, target compound list identification, compound quantitation and reported detection limits, tentatively identified compounds, MS/MSD recovery, blank spike or laboratory control sample (LCS) recovery, overall assessment of data for an SDG, and field duplicate sample analysis.
- CLP inorganic analyses: holding times, calibration, blanks, interference check sample, LCS, sample result verification, MS/MSD sample analysis, field duplicate sample analysis, inductively coupled plasma serial dilution, graphite furnace atomic absorption, QC, and overall assessment of data for an SDG

The Tidal Area project chemist reviewed the data validation reports from the validation subcontractor to assess whether data quality objectives (DQO) were met and to determine whether the data are usable for their intended purpose.

TABLE 3-1

SUMMARY TABLE OF SAMPLES BY TYPE AND LOCATION
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Site		Sample Collection Year												
		1995/1996[a]			1995[b]	1998[c]	1998[d]							
	Number of Locations/ Samples	Sediment	Soil	Surface Water	Soil	Soil	Amphipod Tissue	Clam Tissue	Fish Tissue	Sediment	Soil	Surface Water	Pickleweed Tissue	Mouse Tissue
Tidal Area Landfill Site	Locations	0	8	0	0	0	0	0	0	0	0	0	0	0
	Samples	0	24	0	0	0	0	0	0	0	0	0	0	0
R Area Site	Locations	2	111	17	0	0	0	0	0	3	3	0	0	0
	Samples	2	152	52	0	0	0	0	0	3	3	0	0	0
Froid and Taylor Roads Site	Locations	0	9	2	0	0	1	0	1	0	0	3	2	2
	Samples	0	27	10	0	0	1	0	1	0	0	3	2	3
Wood Hogger Site	Locations	3	71	6	0	11	0	0	0	3	1	0	0	0
	Samples	3	114	25	0	13	0	0	0	3	1	0	0	0
Otter Sluice	Locations	0	0	0	0	0	0	5	5	0	0	9	0	9
	Samples	0	0	0	0	0	0	7	7	0	0	16	0	9
SWMU 37	Locations	0	0	0	12	0	0	0	0	0	0	0	0	0
	Samples	0	0	0	23	0	0	0	0	0	0	0	0	0

Notes:

a Collected under CTO 281
b Collected under CTO 283
c Collected under CTO 033
d Collected under CTO 217

CTO Contract task order
SWMU Solid waste management unit

TABLE 3-2

LOCATION OF WATER LEVEL MEASURING POINTS AND MONITORING PERIOD FOR TIDAL SURVEY REVISED DRAFT FINAL REMEDIAL INVESTIGATION TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Location	Date and Time Period Monitoring		Surface Water Gauge	Groundwater Monitoring Well
	Begin	End		
Suisun Bay	6/23/94 18:35	6/30/94 13:50	SW-0	NA
Otter Sluice	6/23/94 18:35	6/30/94 13:50	SW-1	NA
	6/23/94 18:47	6/30/94 14:17	SW-2	NA
	6/24/94 10:20	6/30/94 12:35	SW-5	NA
	6/27/94 11:50	6/30/94 12:05	SW-7	NA
	6/27/94 09:50	6/30/94 11:50	SW-8	NA
Tidal Area Landfill Site	6/24/94 08:20	6/30/94 13:20	NA	TLW-2
R Area Site	6/23/94 18:47	6/30/94 14:17	SW-3	RDW-2 RDW-3 RDW-4 RDW-5
Froid and Taylor Roads Site	6/24/94 11:35	6/30/94 2:50	SW-4	FTW-3
Wood Hogger Site	6/24/94 10:20	6/30/94 12:35	SW-6	NA
	6/27/94 08:20	6/30/94 11:20	NA	WHW-2
	6/27/94 10:50	6/30/94 12:20	NA	WHW-3

Note:

NA Not applicable

TABLE 3-3

SAMPLE CONTAINER, HOLDING TIMES, AND PRESERVATIVE REQUIREMENTS FOR SOIL SAMPLES
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Parameter	Method Number[a]	Sample Container	Preservative	Holding Time[b]
Organic Analyses				
Volatile Organic Compounds	CLP RAS[c]	6-in sleeve[d], no headspace	Cool, 4 °C	14 days
Semivolatile Organic Compounds	CLP RAS[c]	6-in sleeve[d]	Cool, 4 °C	14 days/40 days
Organochlorine Pesticides and Polychlorinated Biphenyls	CLP RAS[c]	6-in sleeve[d]	Cool, 4 °C	14 days/40 days
Explosives	EPA 8330	6-in sleeve[d]	Cool, 4 °C	7 days/40 days
Total Petroleum Hydrocarbons-extractable	8015/CLP SAS[e]	6-in sleeve[d]	Cool, 4 °C	14 days/40 days
Dioxins and Furans	8280/CLP SAS[e]	6-in sleeve[d]	Cool, 4 °C	30 days/45 days[f]
Inorganic/Physical Analyses				
Metals	CLP RAS[c]	6-in sleeve[d]	Cool, 4 °C	Mercury 28 days; others, 6 months
Hexavalent Chromium	EPA 7196	6-in sleeve[d]	Cool, 4 °C	24 hours[g]
Total Organic Carbon	Mod. ASTM D2974-87	6-in sleeve[d]	Cool, 4 °C	10 days
Sulfide	EPA 9030	6-in sleeve[d]	Cool, 4 °C	7 days
Grain Size	ASTM D422-63	6-in sleeve[d]	NA	NA
Soil Bulk Density	ASTM D2937	6-in sleeve[d]	NA	NA
Soil Porosity	Calculated[h]	6-in sleeve[d]	NA	NA

TABLE 3-3 (Continued)

SAMPLE CONTAINER, HOLDING TIMES, AND PRESERVATIVE REQUIREMENTS FOR SOIL SAMPLES
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Parameter	Method Number[a]	Sample Container	Preservative	Holding Time[b]
Moisture Content	ASTM D2216	6-in sleeve[d]	Cool, 4 °C	2 weeks[i]
Inorganic/Physical Analyses (Continued)				
Grain Size Analysis	ASTM D422	6-in sleeve[d]	NA	NA
Permeability	ASTM D2434	6-in sleeve[d]	NA	NA
pH	EPA 9045	6-in sleeve[d]	NA	Not promulgated

Notes:

a Complete method references are presented in Section 8.0, Table 8-1 of quality assurance project plan .

b # days/# days refers to the maximum number of days from sampling to extraction/the maximum number of days from extraction to analysis.

c Routine analytical services:
EPA. 1993a. "CLP Statement of Work for Inorganics Analyses." ILM03.0
EPA. 1993b. "CLP Statement of Work for Organic Analyses." OLM02.1

d Surface samples were collected in stainless-steel sleeves, and subsurface samples were collected in acetate sleeves. Multiple parameters may be analyzed from a single sleeve.

e Special analytical services; low resolution dioxin/furans method

f 45 days from collection

g A 24-hour holding time is applicable for water matrices but has not been determined for soil.

h Soil porosity is calculated using measured moisture content and soil density values.

i Recommended, but not a required holding time

ASTM American Society for Testing and Materials
CLP Contract Laboratory Program
C° Degrees Celsius
NA Not applicable
PCB Polychlorinated biphenyl
RAS Routine analytical services
SAS Special analytical service
EPA U.S. Environmental Protection Agency

TABLE 3-4

SAMPLE CONTAINER, HOLDING TIMES, AND PRESERVATIVE REQUIREMENTS FOR WATER SAMPLES
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Parameter	Method[a]	Sample Container[b]	Sample Volume	Preservatives	Holding Time[c]
Organic Analyses					
Volatile Organic Compounds	CLP SAS[d]	V	160 mL, no headspace	HCl to pH <2 Cool, 4 °C	14 days
Semivolatile Organic Compounds	CLP RAS[e]	G	2L	Cool, 4 °C	7 days/40 days
Organochlorine Pesticides and Polychlorinated Biphenyls	CLP RAS	G	2L	Cool, 4 °C	7 days/40 days
Total Petrleum Hydrocarbons-diesel	CLP SAS	G	2L	Cool, 4 °C	7 days/40 days
Explosives	EPA 8330	G	2L	Cool, 4 °C	7 days/40 days
Inorganic/Physical Analyses					
Metals	CLP RAS	P	1L	Filtered[f] and unfiltered, nitric acid to pH <2	Mercury, 28 days; others, 6 months
Hexavalent Chromium	EPA 218.4	P	500 mL	Cool, 4 °C	24 hours
Total Organic Carbon	EPA 415.1	G	125 mL	HCl to pH < 2 Cool, 4 °C	28 days
Total Suspended Solids	EPA 160.2	P	100 mL	Cool, 4 °C	7 days
Total Dissolved Solids	EPA 160.1	P	250 mL	Cool, 4 °C	7 days

TABLE 3-4 (Continued)

SAMPLE CONTAINER, HOLDING TIMES, AND PRESERVATIVE REQUIREMENTS FOR WATER SAMPLES
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Notes:

a	Complete method references are presented in Section 8.0, Table 8-1 of the quality assurance project plan .
b	Container types: G - Amber glass with Teflon®-lined lid, sized according to sample volume P - Polyethylene container sized according to sample volume V - Volatile organic analysis vial with Teflon®-lined septum, 40-mL size
c	# days/# days refers to the maximum number of days from sampling to extraction/the maximum number of days from extraction to analysis.
d	Special analytical services
e	Routine analytical services: EPA. 1993a. "CLP Statement of Work for Inorganic Analyses." ILM03.0 EPA. 1993b. "CLP Statement of Work for Organic Analysis." ILM02.1
f	Filtered using 5-micron filter

CLP	Contract Laboratory Program
EPA	U.S. Environmental Protection Agency
L	Liter
HCl	Hydrochloric acid
mL	Milliliter
RAS	Routine analytical services
SAS	Special analytical services

TABLE 3-5

ANALYTICAL METHODS FOR SURFACE WATER SAMPLES
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Parameter	Method Number[a]	Reference[b]	Analyte List	Technique
Organic Analyses:				
Volatile Organic Compounds	CLP SAS	EPA 1993b	TCL + 10 TIC	GC/MS
Semivolatile Organic Compounds	CLP RAS	EPA 1993a	TCL + 20 TIC	GC/MS
Organochlorine Pesticides and Polychlorinated Biphenyls	CLP RAS	EPA 1993a	TCL	GC
Explosives	EPA 8330	EPA 1990		
Inorganic/Physical Analyses:				
Metals	CLP RAS	EPA 1993a	Target analyte list	Inductively coupled plasma and atomic adsorption spectroscopy
Total Organic Carbon	EPA 415.1	EPA 1983		Combustion or oxidation
Total Suspended Solids	EPA 160.2	EPA 1983		Gravimetric
Total Dissolved Solids	EPA 160.1	EPA 1983		Gravimetric

Notes:

a Other EPA and Navy-approved methods may be selected with approval from the Navy remedial project manager. All method changes will be documented in writing.

b EPA. 1983. "Methods for Chemical Analysis of Water and Wastes." Prepared by EPA Environmental Monitoring and Support Laboratory. EPA-600/4-79-020. March.
EPA. 1990. "SW-846, Update."
EPA. 1993a. "EPA CLP Statement of Work for Organic Analyses."
EPA. 1993b. "CLP Special Analytical Services for Organic Analyses."

CLP Contract Laboratory Program
EPA U.S. Environmental Protection Agency
GC Gas chromatography
MS Mass spectrometry
Navy Department of the Navy
RAS Routine analytical services
SAS Special analytical services
TCL Target compound list
TIC Tentatively identified compound

TABLE 3-6

ANALYTICAL METHODS FOR SOIL SAMPLES
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Parameter	Method Number[a]	Reference[b]	Analyte List	Technique
Organic Analyses:				
Volatile Organic Compounds	CLP RAS	EPA 1990a, 1990b	TCL + 10 TIC	GC/MS
Semivolatile Organic Compounds	CLP RAS	EPA 1990a, 1990b	TCL + 20 TIC	GC/MS
Organochlorine Pesticides and Polychlorinated Biphenyls	CLP RAS	EPA 1990a, 1990b	TCL	GC
Explosives	EPA 8330	EPA 1986		High-performance liquid chromatography
Dioxins and Furans	8280/CLP SAS	EPA 1989		GC/MS
Total Petroleum Hydrocarbons-diesel	EPA 8015/3550	EPA 1986		GC
Inorganic/Physical Analyses:				
Metals	CLP RAS	EPA 1990a, 1990b	Target analyte list	Inductively coupled plasma and atomic adsorption spectroscopy
Hexavalent Chromium	EPA 7196	EPA 1986		Furnace/Flame or Colorimetric
Sulfide	EPA 9030	EPA 1986		
Total Organic Carbon	Modified ASTM D2974-87	ASTM		
Grain Size Analysis	ASTM D422-63	ASTM	ASTM	
Soil Porosity	Calculated[c]	EPA 1986		
Permeability	ASTM D2434	ASTM	ASTM	

TABLE 3-6 (Continued)

ANALYTICAL METHODS FOR SOIL SAMPLES
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Parameter	Method Number[a]	Reference[b]	Analyte List	Technique
Inorganic/Physical Analyses (Continued):				
Moisture Content and Soil Bulk Density	D2937	ASTM		
pH	EPA 9045	EPA 1986		

Notes:

a Other EPA and Navy-approved methods may be selected with approval from the Navy remedial project manager. All method changes will be documented in writing.

b EPA. 1986. "Test Methods for Evaluating Solid Waste, Third Edition SW-846." Prepared by the Office of Solid Waste and Emergency Response. November.
EPA. 1989. "CLP Special Analytical Services for Organic Analyses."
EPA. 1990a. "Statement of Work for Organic Analyses Multi-Media Multi-Concentration." EPA Contract Laboratory Program OLM02.0. December.
EPA. 1990b. "Statement of Work for Inorganic Analyses Multi-Media Multi-Concentration." EPA Contract Laboratory Program ILM01.0. December.

c Soil porosity is calculated using measured moisture content and soil density values.

ASTM American Society for Testing and Materials
CLP Contract Laboratory Program
EPA U.S. Environmental Protection Agency
GC Gas chromatography
MS Mass spectrometry
Navy Department of the Navy
RAS Routine analytical services
SAS Special analytical services
TCL Target compound list
TIC Tentatively identified compound

Figures 3-1 and 3-2

These detailed station maps have been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

4.0 GEOLOGY, HYDROLOGY, AND HYDROGEOLOGY OF THE TIDAL AREA SITES

The following sections describe the geology, hydrology, and hydrogeology of the Tidal Area sites: the R Area Site, Froid Road and Taylor Boulevard, and the Wood Hogger Site. The Landfill also will be described so as to provide a complete picture of the geology, hydrology, and hydrogeology of the area, even though the Landfill is not being assessed in this report. The regional geology and hydrology and hydrogeology are discussed in Sections 2.5.2 and 2.5.3, respectively.

4.1 GEOLOGY OF THE TIDAL AREA SITES

This section discusses the geology of the Tidal Area sites and includes lithologic results from the SI, RI and Confirmation Groundwater Sampling TM (TtEMI 1998b). The geology of the Tidal Area at Naval Weapons Station SBD Concord is characterized by a thick deposit of Bay Mud that contains isolated lenses of silty clay and peat and is overlain by fill material in some areas. Detailed logs of boreholes drilled in the Tidal Area aid in interpreting the direct influence of sedimentary features on surface and groundwater pathways within each site. Logs for boreholes drilled during the SI, RI, and confirmation groundwater sampling are included in Appendix G. The SI report includes logs for boreholes drilled during the SI (IT Corporation 1992). Boring locations used to construct geologic cross sections are shown in Figure 4-1.

As noted above and as discussed previously in Section 2.5.3, the near-surface geology of the Tidal Area is characterized by fine-grained Bay sediments that consist chiefly of Bay Mud, with isolated lenses of peat, silty sand, and artificial fill material. Sand lenses typically appear to have short lateral extent; most are recorded in a single soil boring and were not encountered in adjacent borings. The only sand lenses that could be correlated between adjacent borings occur near the eastern margin of the landfill. These sand lenses are discussed in more detail in the next subsection of this report. The deepest borings in the tidal area sites are about 25 feet bgs or 15 to 20 feet below msl. The Tidal Area sites share a similar history of sedimentary deposition. Artificial fill and Bay Mud were the only hydrogeologic units encountered at the Tidal Area sites during the SI and RI. Hydrogeologic units present in the Tidal Area are described in Section 2.5.3.

Approximately one-half of the Tidal Area sites are overlain by fill material. Fill areas are distinguished by their higher elevation, compared to low-lying wetlands and lithologic dissimilarity with natural tidal area sediments. Fill material typically contains a higher proportion of gravel, sand, yellow and brown clays, and refuse. In many cases, artificial fill, consisting primarily of silty clay or silty gravel, has been used to construct road beds, levees, and elevated pads for structures. The road beds, levees, and structure

pads make each of the Tidal Area sites geographically distinct: these elevated fill features form the site boundaries of the R Area Site, Froid Road and Taylor Boulevard, and Wood Hogger Site; the extent of refuse defines the boundary of the Landfill.

Four geologic cross sections have been developed to illustrate subsurface geology at the Tidal Area sites. Figure 4-1 shows the transect lines for the geologic cross sections. Figures 4-2 through 4-5 present geologic cross-sections E-E' through H-H', respectively. The cross sections are referred to in the site-specific geologic discussions presented below.

The lithology depicted in these cross sections relies primarily on lithologies recorded on soil boring logs, rather than on monitoring well logs. The lithologies recorded for the monitoring wells installed during the SI appear to be based on drill cuttings brought to the surface during drilling, rather than on depth-discrete split-spoon samples. Because lithologic logs based solely on drill cuttings are often inaccurate, the cross sections are based on lithologic logs that indicate that actual depth-discrete samples were examined, except in areas where lithologies from soil borings are unavailable. In these areas, the lithologic information from monitoring wells is depicted. Monitoring wells have been projected to the lines of cross section to illustrate the spatial relationships between the wells and the lithology.

4.1.1 Geology of Tidal Area Landfill

The Tidal Area Landfill forms an asymmetric mound, which is elevated above both the R Area Site wetlands to the west and Johnson Road to the east. The highest point (13 feet above msl) is located in the north-central part of the Landfill. The western boundary of the landfill is marked by a sharp escarpment, delineating the lateral extent of filling. Subsurface materials encountered while drilling boreholes for the SI and RI indicate that landfill refuse, consisting of soil, waste, and construction debris, is present at the Landfill at depths of at least 11 feet bgs (1 feet bgs above msl) (see Figures 4-2 and 4-5, Cross Sections E-E' and H-H', respectively).

Landfill soil borings indicate that Landfill refuse was placed atop imported soils in some areas. For example, Soil Boring TLS-7, in the center of the Landfill, contains sandy silt with small pebbles between 8 to 10 feet bgs. This material likely was imported to the site, because the Bay Mud, which comprises the subsurface beneath the Landfill, consists of silty clay.

The Landfill overlies naturally deposited Bay Mud, which consists primarily of dark gray to black silty clay, with some discrete lenses of peat and silty sand. Peat zones are present in many borings drilled in the Landfill. The Bay Mud extends from the base of the Landfill to at least 20 feet bgs at Boring B9, the deepest boring drilled at the landfill (see Figure 4-5, Cross Section H-H').

As previously mentioned, sand lenses in the Tidal Area typically appear to have short lateral extent; most are recorded in one or two soil borings but were not encountered in adjacent borings on either side. The only sand lenses that could be correlated between adjacent borings occur near the eastern margin of the landfill. The sand lens encountered in Borings TLSMW004 and TLSMW005 extends eastward, beneath Johnson road, where it was encountered in Piezometers PZ-4 and PZ-6 (see Figure 4-2, Cross Section E-E') and PZ-3, but does not extend westward beneath the landfill, because sand was not encountered in Landfill Borings TLSSB003, TLS-4, TLS3, TLS-8, and TLS-9 (see Figure 4-5).

The sand lens was encountered in Piezometers PZ-3, PZ-4, and PZ-6, but was not encountered in Boring B9. The sand lens consists of a 3- to 3.5-ft-thick, medium-grained, brown sand that flowed into the augers during drilling in the eastern two borings. In contrast, the sand units encountered in PZ-6 at the eastern margin of the landfill were very fine-grained, silty, and thin and did not flow into the augers during drilling. The deeper of the three sands in Piezometer PZ-6 has been tentatively correlated to the sand lens in PZ-3 and PZ-4 and is interpreted as the margin of a discontinuous sand unit that grades laterally westward into silty clay. The lateral extent of this sand lens east of Piezometers PZ-3 and PZ-4 is not defined.

4.1.2 Geology of the R Area Site

The geology of the R Area Site is illustrated in Cross Sections E-E', G-G,' and H-H' (see Figures 4-2, 4-4, and 4-5, respectively). Subsurface soils encountered at the R Area Site consist primarily of Bay Mud. Silty clay is present at the surface over most of the site and was encountered up to a depth of 25 feet bgs (16 feet below msl).

The perimeter of the R Area Site is overlain with artificial fill. The fill includes the road base surrounding the site and refuse disposed of adjacent to the roads, along the western and northwestern perimeter of the site. The refuse consists of wood, metal, and construction debris, which is visible at a few locations. Fill material, consisting primarily of soil rather than refuse, was encountered in borings drilled around the perimeter of the R Area Site, except in the area south and east of the landfill, where silty clay and clay extend from the surface to about 15 feet bgs (see Figures 4-4 and 4-5, Cross Sections G-G' and H-H', respectively). Distribution of soil fill material encountered in these areas of the R Area Site is consistent with the fill history developed from Tidal Area aerial photographs from pre-1950 to 1952 (see Figures 2-1, 2-2, and 2-3). The soil fill is characterized by an elevated ground surface, with yellow or brown silty clays or silty sands resting directly on top of Bay Mud silty clay sediments.

Bay Mud is present at the surface over most of the interior of the site and extends to depths of at least 16 feet below msl (the total explored depth at the site). Bay Mud in the R Area Site consists primarily of dark gray to black silty clay, with abundant organic material (peat). A 2-ft thick silty, sand lens was encountered at Boring RDS-17 (see Figure 4-2, Cross Section E-E'). This lens is not laterally extensive, because it does not appear in surrounding borings and Wells RDW-1, RDW-2, RADSBD06, and RADSBG08.

4.1.3 Geology of the Froid and Taylor Road Site

The geology of the Froid and Taylor Road Site consists primarily of Bay Mud overlain in some areas by artificial fill. The geology of the western margin of Froid and Taylor Road Site Site is illustrated in Cross Section H-H' (see Figure 4-5).

Bay Mud is present at the surface over most of the site and was encountered at depths up to 18 feet below msl, the total explored depth at the site. Bay Mud in the Froid and Taylor Road Site consists primarily of brownish black, silty clay, with abundant organic material (peat). As in the R Area Site, the uppermost portion of the silty clay is dark yellowish brown. The silty clay becomes sandy at the southern end of the site, near Well FTSMW001. Metallic refuse was identified at the site during the IAS, but was not visible during the RI.

4.1.4 Geology of the Wood Hogger Site

Soils encountered in boreholes drilled during the SI and RI at the Wood Hogger Site and SWMU 37 indicate that the subsurface consists mainly of artificial fill, with underlying, fine-grained Bay Mud. Geologic Cross-Sections F-F', G-G', and H-H' (see Figures 4-3 through 4-5, respectively) illustrate the subsurface stratigraphy at the Wood Hogger Site. The site is characterized by a relatively thick layer of artificial fill overlying naturally deposited Bay Mud. In contrast to the R Area Site and Froid and Taylor Road sites, the Bay Mud is rarely present at the surface of the Wood Hogger Site. Artificial fill material at the site is heterogeneous, consisting of decayed wood chips and gravel, silty sand, and clayey sand, which form a surficial layer up to 9 feet thick. In most parts of the site, the artificial fill material is 3 to 5 feet thick. Refuse, such as wood scraps, gravel, paving materials, nails, and other metal objects, was observed at the surface throughout the Wood Hogger Site. At SWMU 37, clay fill was encountered at the surface of all boring locations to a total explored depth of 6 feet bgs.

The artificial fill material overlies the Bay Mud, which consists primarily of dark gray to black silt or silty clay with peat. The Bay Mud grades laterally into a sandy clay near the western and eastern margins of

the site. The Bay Mud extends from about sea level to 20 feet below msl, which is the deepest interval penetrated by borings at the site.

4.1.5 Summary of the Geology at the Tidal Area Sites

The subsurface of the three Tidal Area sites, SWMU 37, and the Landfill consists of sedimentary features that reflect the complex depositional environment of tidal wetlands and subsequent modification with roadways, buildings, and drainage features. The Tidal Area is characterized by fine-grained Bay Mud that consists chiefly of silty clay, with isolated lenses of peat and silty sand. The Bay Mud is overlain in many areas by artificial fill used to construct road and railroad beds, channel levees, structural pads, and protective revetments. Because the original surface elevation of the tidal marsh was probably 2 to 3 feet above msl, most of the material above 2 to 3 feet msl is likely to be fill material. Fill material underlies all of the roads, railroad tracks, and buildings near the Tidal Area sites and much of the Wood Hogger Site. Although the fill material is a mixed lithology that contains varying proportions of clay, silt, sand, and gravel, it consists mainly of clays; however, sand and gravel also were used for fill in some locations. At the landfill, up to 11 feet of refuse and construction debris have been found, and soil fill has been encountered at depths up to 10 feet below msl. At the Wood Hogger Site, wood chips make up a significant proportion of the fill material. Metal and wood debris also was encountered in much of the fill material at the Tidal Area sites.

Until the Tidal Area facilities were built, a natural slough flowed through the area now occupied by the Tidal Area sites. Before the Navy acquired the site, a manmade sluice was constructed through what is now the Landfill and the R Area Site. Most of the natural slough and the manmade sluice have been backfilled with soil. Although coarse-grained materials were used to backfill these areas in some spots, the coarse-grained material is not continuous and the water table is below the base of the slough and sluice during most of the year. Consequently, it is unlikely that the slough or sluice act as preferential groundwater flow pathways for large distances.

4.2 HYDROLOGY AND HYDROGEOLOGY OF THE TIDAL AREA SITES

The variability of natural sediments and drainage features, coupled with large-scale modifications of the Tidal Area environment, create a complex hydrological environment, as presented in the following section. The following sections describe surface water hydrology and subsurface hydrogeology at the Tidal Area sites. Section 4.2.1 presents the results of the tidal influence study, which provided empirical data that aid in understanding overall site hydrology and hydrogeology. Section 4.2.2 describes overall

hydrology and hydrogeology of each of the Tidal Area sites. Surface water and monitoring well locations gauged during the tidal influence study are shown in Figure 3-2.

Hydrogeology and surface water hydrology at the Tidal Area sites are strongly influenced by the geologic setting and surface features described in previous sections. The direction of groundwater flow within the Tidal Area sites is strongly influenced by permanent surface water features, such as Otter Sluice, which provides a local source of surface water drainage and groundwater recharge. Infiltration of surface water in the Tidal Area is largely inhibited by the clayey composition of the subsurface soil.

4.2.1 Tidal Influence Study Results

A tidal influence study was conducted in June 1994 to assess the effects of tidal fluctuations in Suisun Bay and Otter Sluice on surface water and groundwater elevations at the Tidal Area sites. The results of the study are presented in Table 4-1. The one-way tide gate at the end of the Otter Sluice gate is designed to allow surface water to exit Otter Sluice, while preventing inflow during high tide. During the winter of 1994-1995, after the tidal influence study was conducted, repairs were made to the one-way tide valve. However during a site visit in 2001, the tide gate did not appear to be functioning properly, indicating that fluctuation of surface water elevations in Otter Sluice was not being controlled. The 1994 tidal influence study and results are described in the following paragraphs.

During the 1994 tidal influence survey, water levels were monitored in eight monitoring wells, five surface locations in Otter Sluice, and one surface location within each of the R Area Site, Froid and Taylor Road Site, Wood Hogger Site, and Suisun Bay. Surface water and groundwater levels were measured at locations across the Tidal Area sites, and monitoring well locations also were selected to monitor wells screened in either Bay Mud or fill. Water level measurement locations for the tidal influence study are shown in Figure 3-2. Table 4-1 provides summaries of the results of the study. Appendix J includes graphs of water levels over time for monitoring wells and surface water locations that were monitored during the tidal influence survey.

The tidal influence study was conducted in June 1994. Water levels were recorded at 15-minute intervals over the course of 1 week at the 17 above-referenced locations using data loggers and pressure transducers. The data loggers recorded changes in water levels at each location. The initial water level at each location was set at 0.00 feet.

During the survey, 5.67 feet of tidal change was recorded in Suisun Bay, near the tidal gate, at Measurement Location SW-0. Surface water levels at the monitoring locations in Otter Sluice (SW-1, SW-2, SW-5, SW-7, and SW-8) varied in response to tidal fluctuations in Suisun Bay; however, the

magnitude of water level change in Otter Sluice decreased with increased distance from Suisun Bay. The maximum change in water level at Monitoring Location SW-1 across the tidal gate from SW-0, adjacent to Suisun Bay, was 2.45 feet during the monitoring period. At location SW-8, about 5,800 feet upstream of SW-1, a maximum water level change of 0.56 feet was recorded during the survey. Tidal fluctuations at SW-8 lagged about 5 hours behind those at SW-0. The tide gate reduces the magnitude of tidal influence on water levels in Otter Sluice, as evidenced by the difference in water level fluctuations at Locations SW-0 and SW-1.

Water levels at Monitoring Location SW-3 in the R Area Site showed sinusoidal variation at the same frequency as in Otter Sluice, with a lag of several hours. Monitoring Locations SW-4 and SW-6, located in the northern part of the Froid and Taylor Road Site and at the western edge of the Wood Hogger Site, exhibited diurnal water level fluctuations of up to 0.5 feet. Over the duration of the survey, water levels at locations SW-3 and SW-4 exhibited a general decreasing trend of 0.26 and 0.15 feet, respectively. The general decreasing trend of surface water levels within site boundaries may reflect a 0.20-ft decrease in the mean daily surface water level in Suisun Bay over the course of the survey or may reflect the typical drying pattern during the summer months.

Water level fluctuations were observed in most of the wells that were monitored during the tidal influence survey. The water levels in Wells RADMW003 and WHSMW003 exhibited regular changes that reflect tidal fluctuations. These wells are located within about 60 feet of Otter Sluice, which appears to locally influence groundwater levels. Well RADMW004, which is also located about 60 feet from Otter Sluice, did not exhibit tidal fluctuations, indicating that lithology influences the lateral reach of tidal fluctuations in Otter Sluice. Wells RADMW002 through RADMW005 exhibited overall gradual decreases in water levels, which probably reflects continual lowering of the water table during dry summer months. Decreases in groundwater elevations in these wells during the course of the survey ranged from 0.07 to 0.65 feet. Wells TLSMW002, FTSMW003, and WHSMW002 did not exhibit significant regular fluctuations in water levels or longer-term changes in water levels. These wells are located 5,500 to 1,300 feet from Otter Sluice and are 1,900 to 3,200 feet from Suisun Bay.

In summary, the tidal influence study indicates that tidal fluctuations in Suisun Bay caused fluctuations in surface water levels in Otter Sluice from 0.56 to 2.45 feet. The magnitude of fluctuations in Otter Sluice decreased with distance inland from the Suisun Bay. Minor tidal influence also was observed at one surface water location within the Tidal Area sites (SW-3), and diurnal fluctuations were observed at two other locations (SW-4 and SW-6). Long-term decreases in surface water elevation were observed at all surface water locations within the Tidal Area beyond Otter Sluice. Long-term decreases are likely caused by evapotranspiration lowering the groundwater table during the summer months. Regular fluctuations in

groundwater elevations were observed in two wells within 60 feet of Otter Sluice, but not in Well RADMW004, also located 60 feet from Otter Sluice. These fluctuations imply that groundwater gradients and flow directions in localized portions of the Tidal Area sites closest to Otter Sluice are influenced by the tides. However, tidal fluctuations do not occur at locations through most of the R Area Site although they do occur within a narrow zone surrounding Otter Sluice. Long-term decreases in groundwater levels were observed in several wells and probably reflect dewatering of the shallow water-bearing zone during the summer months. The dewatering is irregular, because four of the wells did not experience long-term declines in water level.

It is important to note that reversals of flow direction caused by tidal fluctuations in Otter Sluice have short duration and are localized in the area immediately adjacent to the sluice. Even if tidal fluctuations cause local flow reversals toward Otter Sluice, overall groundwater flow will still be directed towards the center of the R Area Site. The area where groundwater actually interacts with surface water during a tidal cycle appears to be limited to a narrow band adjacent to Otter Sluice. Groundwater in the vicinity of the landfill does not appear to be interconnected with surface water.

In October 1997, water level in well TLW-4 was monitored for 54 hours using a down-hole pressure transducer to determine whether the sandy fill material at that location is subjected to tidal influences. Water levels in the well did not vary over the monitoring period, indicating that the sandy fill material adjacent to the landfill is not subjected to tidal influence.

4.2.2 Hydrology and Hydrogeology of the Tidal Area Sites

This section discusses the hydrology and hydrogeology of the Tidal Area sites. The following conditions influence the hydrology of the Tidal Area sites:

- Upland areas provide groundwater recharge for the lowland areas in the Tidal Area.
- Artificial barriers to surface water flow have been constructed. These barriers include drainage channel levees, raised road beds (railroad and motor vehicle), berms, elevated areas, and structure pads.

Areas of ponded water have been created by the above-listed barriers. These ponds, both ephemeral and continuous, serve as groundwater recharge points.

The natural slough that drained the present Tidal Area sites was supplanted by manmade drainage features. Most of the slough was backfilled, although some unfilled portions remain. The backfilled slough and the former manmade sluice are not expected to act as a subsurface conduit, because portions

of these features were backfilled with low-permeability materials. As a consequence, the backfilled slough and sluice do not form a continuous, high-permeability pathway for groundwater flow. Further, the water table is below the base of the slough for most of the year, so the backfill material is typically unsaturated.

Tidal fluctuations in Suisun Bay and Otter Sluice influence surface water and groundwater at some areas of the site.

Natural sediments at the site consist of low-permeability clays, interspersed with thin, discontinuous permeable zones. The stratigraphy of the site is anisotropic, which increases the complexity of groundwater movement at the site.

Artificial fill covers approximately one-half of the total acreage of Tidal Area sites. The composition and thickness of the artificial fill is highly variable, but permeabilities of the fill are likely to be greater than those of the native sediments.

Groundwater and surface water elevations at the Tidal Area sites were measured in July and October 1995 and January and April 1996. Groundwater and surface water elevations for the four measurement events are presented in Tables 4-2 and 4-3, respectively. Water levels throughout the sites were measured within a 2-hour period during each measurement event. Water levels were measured first at locations with the greatest tidal fluctuations, such as Otter Sluice, and progressed to locations with minimal tidal influence. Groundwater and surface water elevations for the four measurement events are illustrated in Figures 4-6 through 4-9. Potentiometric surfaces were contoured using both groundwater and surface water elevations.

During the confirmation groundwater sampling, groundwater levels were measured in monitoring wells and piezometers in June and October 1997 and January 1998. The groundwater potentiometric surface maps for these three measurement events are presented on Figures 4-10 through 4-12. Surface water elevations were not measured during the Confirmation Groundwater Sampling TM. Therefore, the groundwater potentiometric surface contours on Figures 4-10 through 4-12 appear more generalized than the potentiometric surface contours on Figures 4-6 through 4-9, which include both groundwater and surface water measurements.

The tidal influence study demonstrated that surface water and groundwater at the sites are hydrologically connected in the area adjacent to Otter Sluice. Information presented on the water level contour maps and the cross sections are discussed in the following site-specific sections.

4.2.2.1 Hydrology of the Tidal Area Landfill Site

The hydrogeology of the Landfill is strongly influenced by the presence of artificial fill, which covers the entire area. The surface of the artificial fill is found at heights up to 13 feet above the adjacent, low-lying wetlands of the R Area Site. Surface water infiltrates rapidly through the permeable Landfill material but is slowed by the fine-grained, low-permeability Bay Mud at the base of the fill material. Groundwater elevation data were obtained from seven groundwater monitoring wells surrounding the Landfill (TLSMW001 through TLSMW007), but not from within the Landfill itself. The data indicate that groundwater elevations east of the Landfill (Wells TLSMW004 and TLSMW005) are consistently higher than those at the western edge of the Landfill and the R Area Site and that groundwater flows from east to west beneath the Landfill. Groundwater is interpreted to move westward from the Landfill toward the R Area Site (see Figures 4-6 through 4-12), except in the northern portion of the Landfill, where groundwater flows northward toward Suisun Bay.

Groundwater elevations surrounding the Landfill during the four measurement from July 1995 to April 1996 ranged from 3.18 feet below msl (Well TLSSMW001, October 1995) to 2.77 feet above msl (Well TLSMW005, January 1996). Except for Well TLSMW002, water levels in the wells at the Landfill were uniformly highest in January 1996, (the height of the wet season), followed by April 1996 (end of the wet season), July 1995 (beginning of the dry season), and October 1995 (end of the dry season) (see Table 4-2). The response of water levels in Landfill wells to seasonal rainfall indicates that groundwater is recharged by infiltration of precipitation.

Well TLSMW002 exhibited an apparent lag in water level response to seasonal rainfall. The highest water level in TLSMW002 occurred in April, rather than January. This apparent lagged response to the rainy season may be the result of the location of Well TLSSW002. The well is located 120 feet from the Landfill in low-lying terrain that remains flooded into the dry season. The persistent surface water near the well may cause water levels in Well TLSMW002 to be highest at the end of the wet season, rather than in the middle of the wet season.

During the Confirmation Groundwater Sampling TM, water levels were measured in June 1997, October 1997, and January 1998. Although groundwater elevations were variable, similar patterns were observed regarding flow directions and groundwater recharge during wet weather.

In addition to shallow groundwater within the shallow surface soils discussed previously, groundwater occurs in a subsurface sand lens enclosed within the silty clay in the area east of the Landfill. The sand lens is about 3.5 feet thick in piezometers PZ-3 and PZ-4 and appears to pinch out to the west in the

vicinity of the landfill. The sand unit was about 1.5 feet thick in piezometer PZ-6 and was not present at all in boring B9, adjacent to well TLW-5. The lateral extent of the sand lens east of piezometers PZ-3 and PZ-4 is unknown.

Three piezometers penetrate the sand lens (PZ-3, PZ-4, and PZ-6), and two of these piezometers form well nests with other wells screened in the shallow silty clay water-bearing zone (PZ-4/PZ-5 and PZ-6/TLW-4). The water levels in the wells that penetrate the sand lens rise above the base of the overlying silty clay unit, indicating that groundwater within the sand lens is confined. Groundwater elevations and vertical hydraulic gradients are presented below. Groundwater elevations are not presented for the PZ-5/PZ-4 well nest for October 15, 1997, because water levels in PZ-5 had not yet stabilized after well development at the time of the water level measurements. Vertical gradients were calculated for each well nest based on the midpoints of the screened intervals for each well. Vertical gradients ranged from 0.024 to 0.60 and were directed downward.

Well Nest	Date	Groundwater Elevation	Vertical Hydraulic Gradient (direction)
TLW-4 / PZ-6	10/15/97	0.87 / -0.97	0.44 (down)
TLW-4 / PZ-6	1/28/98	3.54 / 3.35	0.024 (down)
PZ-5 / PZ-4	1/28/98	6.37 / 3.38	0.60 (down)

Groundwater within the confined sand unit flows to the northwest during both dry and wet seasons, based on groundwater levels measured on October 15, 1997, and January 28, 1998 (Figures 4-13 and 4-14). The horizontal gradient within the sand lens appears to vary seasonally from a moderate horizontal gradient of 0.0095 at the end of the dry season to a weaker gradient of 0.0015 during the wet season. Because groundwater in the confined sand lens is not downgradient from the landfill, groundwater samples were not collected from the newly installed piezometers.

4.2.2.2 Hydrology of the R Area Site

The hydrology of the R Area Site is influenced by geomorphologic features and by tidally influenced artificial and natural channels. As discussed in Section 4.2.1, tidal fluctuations of water levels in Suisun Bay influence surface water in Otter Sluice, which influences surface water and, to a lesser extent, groundwater within the R Area Site. During high tide, water flows from Suisun Bay into Otter Sluice and into the low-lying parts of the R Area Site through two culverts that run underneath Baker Road at the western boundary of the R Area Site. During extreme tidal events (for example when spring tides

coincide with storms), surface water from Otter Sluice flows overland across Baker Road into the R Area Site and subsequently drains back into Otter Sluice through the two culverts. Surface water exchange between the R Area Site and Otter Sluice is most prevalent during the rainy season.

Most of the R Area Site consists of low-permeability Bay Mud. Heavy rainfall, abundant surface water inflows, and low evaporation rates cause flooding over large areas of the site during the wet season. During the dry season, surface water infiltration is reduced and evaporation increases (see Figure 4-15); however, some areas remain flooded (see Figure 4-16). These seasonal fluctuations directly influence groundwater and surface water elevations within the R Area Site. Interpreted water level contours at the site (see Figures 4-6 through 4-12) illustrate that groundwater recharge from Otter Sluice is most pronounced in the dry season, when groundwater levels within the site are relatively low.

To determine seasonal groundwater and surface water trends, groundwater levels at the R Area Site were measured in seven groundwater monitoring wells (RADMW001 through RADMW007) and two piezometers (RADPZ001 and RADPZ002), and surface water levels were measured at four surface gauges (RADSG003, -004, -005, and -008). Potentiometric surfaces for the wet and dry seasons (see Figures 4-6 through 4-12) share the same general features. Groundwater elevations are generally highest at the end of the wet season and lowest during the dry season, but groundwater flowed radially toward a depression in the water table in the R Area Site during all seven groundwater measurement events. Groundwater elevations are below sea level over large parts of the R Area Site and are higher along the perimeter of the site throughout the year, indicating that groundwater flows from the edges of the Tidal Area sites toward the center. Between July 1995 and April 1996, groundwater elevations in the R Area Site ranged from 3.15 feet below msl (well RADMW001, October 1995) to 3.14 feet above msl (Well RADMW004, January 1996). Consistent gradients away from Otter Sluice indicate that Otter Sluice acts a groundwater recharge feature. Radial groundwater flow toward the center of the R Area Site and consistent gradients away from Otter Sluice indicate that groundwater does not discharge to Suisun Bay through subsurface flow or groundwater and surface water interaction, although limited groundwater and surface water interaction occurs along a narrow strip adjacent to Otter Sluice, as discussed in Section 4.2.1.

Between July 1995 and April 1996, groundwater levels in Wells RADMW001, RADMW004, and RADMW005 were highest in January 1996 and lowest in October 1995, following the progression of seasonal rainfall (see Table 4-2 and Figure 4-4). This behavior suggests good communication between the surface and subsurface at these locations where wells were installed in areas of fill material. The highest water levels in the remaining wells lag the rainy season by several months. These wells are situated in wetland areas that are flooded for many months of the year. The persistent presence of surface water in the vicinity of these wells likely causes water levels to remain elevated after the end of the rainy

season. The presence of standing water also indicates less-permeable soil; boring logs for these wells indicate silty clays from the surface to the bottom of the screen. This decreased soil permeability could create the lag time observed in the response of groundwater levels to precipitation cycles. Groundwater levels in Wells RADMW002 and RADMW003 vary over a smaller annual range than other wells at the site because of their proximity to Otter Sluice.

Surface water measurements from two gauging locations, RADSG004 and RADSG008, are strongly correlated with seasonal rainfall (see Table 4-3). Surface water levels measured in the natural slough at Gauging Location RADSG007 showed poor correlation with seasonal rainfall, with the highest water levels in July 1995 and the lowest in April 1996 (see Table 4-3).

During the majority of the tidal cycle, surface water elevations in Otter Sluice are higher than groundwater elevations in wells located within 60 feet of Otter Sluice. However, during a portion of the tidal cycle, groundwater in these wells is periodically higher than the elevation of surface water (depending on the time of day and tidal fluctuation in Otter Sluice). When surface water elevations in Otter Sluice are higher than groundwater levels adjacent to Otter Sluice, groundwater flows from Otter Sluice toward the R Area Site. Groundwater flow will occur at these times, but the velocity of movement and volume of water will be limited by the naturally low permeability of Bay Mud soils. Conversely, when the groundwater elevation in wells near Otter Sluice exceeds the elevation of water in Otter Sluice, groundwater flows from the R Area Site towards Otter Sluice. Although these fluctuations and tendency toward flow reversals appear to occur in the immediate vicinity of Otter Sluice, the overall gradient (discounting the narrow local zone adjacent to Otter Sluice) is from Otter Sluice towards the R Area Site. The overall gradients are easily observed on Figures 4-6 through 4-12.

During the Confirmation Groundwater Sampling TM, water levels were measured again between June 1997 and January 1998. Although groundwater elevations during this time period differed from those during the earlier measurements similar patterns were observed regarding flow directions and groundwater recharge during wet weather.

4.2.2.3 Hydrology of the Froid and Taylor Road Site

The hydrology of the Froid and Taylor Road Site is controlled primarily by surface features, such as roads, that create barriers for surface water movement and cause ponding. Fill material is present at the surface in at least one-half of the site. As discussed in Section 4.2.2.1, precipitation infiltrates rapidly into the porous and highly permeable fill sediments that underlie the roads. However, infiltration rates are slowed by the fine-grained, low-permeability Bay Mud. Groundwater is interpreted to flow westward

from fill areas along Froid and Taylor Road Site, toward low-lying wetlands areas in the Froid and Taylor Road Site and the Wood Hogger Site. The tidal influence study showed very modest diurnal variations and a gentle long-term decline in water level in the remnant of the natural slough monitored. The natural slough remnant does not appear to be tidally influenced.

To determine seasonal groundwater and surface water trends at the Froid and Taylor Road Site, groundwater measurements were collected from five groundwater monitoring wells (FTSMW001 through FTSMW005) and one surface water gauge (FTSSG010). Groundwater generally flows from east to west at the site; however, a persistent groundwater mound is present in the north-central part of the Froid and Taylor Road Site and the adjoining Tidal Area Landfill (see Figures 4-6 through 4-12). Between July 1995 and April 1996, groundwater elevations at Froid and Taylor Road Site during the four measurement events ranged from 1.27 feet below msl (Well FTSMW002, October 1995) to 2.42 feet above msl (Well FTSMW003, January 1996). Groundwater levels at the site are generally highest in the wet season and lowest during the dry season. Groundwater levels in Wells FTSMW001, FTSMW004, and FTSMW005 were highest in January 1996 and lowest in October 1995, following the progression of seasonal rainfall (see Table 4-2). This behavior may indicate good communication between the surface and subsurface at these wells, which were installed in areas of road fill. Water levels in Wells FTSMW002 and FTSMW003 show a lag time compared to the rainy season. These wells were also installed in areas where fill is present at the surface; however, these wells are screened primarily in silty clay, which would slow the effects of surface infiltration.

Surface Water Gauging Station FTSSG010 is located in a remnant of the former natural slough. Surface water elevations at this location also are strongly correlated with seasonal rainfall (see Table 4-3).

During the Confirmation Groundwater Sampling TM, water levels were measured again between June 1997 and January 1998. Although groundwater elevations during this time period differed from those during the earlier measurements similar patterns were observed regarding flow directions and groundwater recharge during wet weather.

4.2.2.4 Hydrology of the Wood Hogger Site

The hydrology of the Wood Hogger Site is influenced by Otter Sluice, natural drainages, and groundwater flow from the Froid and Taylor Road Site. Otter Sluice is adjacent to the western and southern sides of the Wood Hogger Site, and a manmade tributary to Otter Sluice is present along the southeastern boundary of the Wood Hogger Site. Tidal fluctuations of water levels in Otter Sluice exert a localized influence on surface water and groundwater adjacent to the sluice and tributary.

Groundwater and surface water levels at the Wood Hogger Site were measured during four measurement events in Wells WHSMW001 through WHSMW004 and Surface Water gauging stations WHSSG005, WHSSG006, and WHSSG009 to assess seasonal groundwater and surface water variations. Groundwater at the Wood Hogger Site is interpreted to flow generally to the north, toward the R Area Site during the dry season (see Figures 4-6, 4-7, 4-10, and 4-11) and toward a water table depression in the southern and southeastern parts of the site during the wet season (see Figures 4-8, 4-9, and 4-12). Hydraulic gradients away from Otter Sluice indicate that the sluice recharges groundwater along the southern and eastern boundaries of the site (see Figures 4-6 through 4-12). Convoluted groundwater contours in the eastern area of the site likely are caused by significant differences between surface water elevations at Gauging Location WHSSG009 and groundwater elevations in the Froid and Taylor Road Site Well FTSMW002. These differences in water elevations suggest poor communication between surface water and groundwater at this location.

Groundwater elevations at the Wood Hogger Site Site between July 1995 and April 1996 ranged from 1.01 feet below msl (Well WHSMW002, October 1995) to 1.62 feet above msl (Well WHSMW004, July 1996). Groundwater levels in Well WHSMW002 were highest in January 1996 and lowest in October 1995, following the progression of seasonal rainfall (see Table 4-2). This behavior indicates good communication between surface water and groundwater at this well, which was installed in a fill area. Well WHSMW001 also was installed in fill material; however, water levels in this well show a significant lag time in responding to seasonal rainfall. Groundwater levels in Well WHSMW003 reflected tidal variations in Otter Sluice (see Section 4.2.1) and were poorly correlated with seasonal rainfall. Well WHSMW004 is located adjacent to Otter Sluice, but it is not known whether this well is tidally influenced, because the well was not monitored during the tidal influence survey. However, the proximity of Otter Sluice appears to moderate seasonal changes in groundwater levels in Well WHSMW004 (see Table 4-2).

All surface water measurement points at the Wood Hogger Site are located in Otter Sluice (WHSSG005) or are in direct connection with Otter Sluice (WHSSG006 and WHSSG009), and were influenced by the tides. A low surface water elevation in Gauging Location WHSSG009 caused an apparent depression in the piezometric surface during the April 1996 gauging event (see Figure 4-9).

4.2.2.5 Summary of the Hydrology and Hydrogeology of the Tidal Area Sites

Numerous conditions at the Tidal Area affect the hydrology of the sites. The Tidal Area is a highly modified physical environment, consisting of low-lying areas interrupted by elevated features constructed of artificial fill, such as levees, road beds, building pads, and disposal areas. These elevated features act

as barriers to surface flow and cause ponding in some areas. They also serve as groundwater recharge areas, as indicated by groundwater mounding. Site soils mainly consist of low-permeability, silty clays that generally inhibit surface water infiltration. Subsurface silty clays are overlain by discontinuous permeable fill zones. The complex morphology of the permeable zones creates areas of local complexity in groundwater flow.

Modification of the site over time has filled the former natural slough that ran through the Tidal Area sites and a manmade sluice in the vicinity of Johnson Road. The former slough and sluice are linear or curvilinear features that could act as preferential flow pathways; however, exploratory borings in both features have shown that many portions of the slough and sluice have been filled with low-permeability materials that do not readily transmit water and that the water table is below the base of the slough and sluice for much of the year. Consequently, the slough and sluice do not act as preferential flow pathways that allow groundwater from the Tidal Area sites to discharge directly to Suisun Bay.

Except for the Landfill, surface water is present at all sites during the rainy season (Figures 4-15 and 4-16). At the R Area Site and the Wood Hogger Site, surface water is present continuously in some areas. Surface water levels in Otter Sluice are strongly influenced by tidal variations in Suisun Bay. In turn, surface water levels in ponded areas that are connected to Otter Sluice are tidally influenced. Groundwater at the Tidal Area sites generally flows radially toward the center of the R Area Site. The piezometric surface is highly irregular because of the variability of soil permeabilities, the presence of standing and perched water, and the complexities of the present and filled drainage systems. Groundwater levels in some areas of the R Area Site and Wood Hogger Site near Otter Sluice respond to tidal fluctuations and long-term changes in surface water levels in Suisun Bay and Otter Sluice.

4.2.3 Groundwater Flow Velocity

Groundwater flow velocity was evaluated by estimating seepage velocity based on aquifer parameters and site-specific hydraulic measurements. Seepage velocity, representing the average rate at which groundwater moves between two points, was calculated using the following equation:

$$\text{seepage velocity} = Ki / \square_e \qquad \text{(Fetter 1993)}$$

where

K = hydraulic conductivity (cm/s)

i = hydraulic gradient (unitless)

$\square_e$ = effective porosity (unitless)

Site-specific values for hydraulic conductivity were obtained from rising head permeability test data presented in the SI report (IT Corporation 1992). Rising head in situ permeability tests (commonly known as slug tests) were performed in 11 of the tidal area monitoring wells during November 1991 as a part of the SI. Because the initial interpretation of the data did not closely match the curves presented in the SI report, the well recharge data was reinterpreted using both the software program AQTESOLV and the method of Hvorslev (Hvorslev 1951). Reinterpreted hydraulic conductivities are presented below:

Well	Hydraulic Conductivity (cm/s)	
	AQTESOLV	**Hvorslev**
FTW-3	4.18×10^{-6}	5.00×10^{-6}
FTW-5	6.49×10^{-5}	7.58×10^{-5}
RDW-1	3.78×10^{-6}	4.57×10^{-6}
RDW-4	2.24×10^{-6}	2.82×10^{-6}
RDW-5	1.17×10^{-6}	1.35×10^{-6}
TLW-1	1.60×10^{-5}	1.95×10^{-5}
TLW-3	1.25×10^{-5}	1.58×10^{-5}
TLW-5	6.66×10^{-5}	8.00×10^{-5}
WHW-1	2.65×10^{-5}	3.24×10^{-5}
WHW-2	4.26×10^{-6}	5.12×10^{-6}
WHW-4	7.13×10^{-6}	8.09×10^{-6}
Geometric mean	**8.93×10^{-6}**	**1.07×10^{-5}**

Note:
cm/s Centimeters per second

Site-specific measurements of effective porosity are not available for the Tidal Area sites; therefore, reasonable values were assumed based on ranges reported in the literature. Effective porosity was approximated by using specific yield values because specific yield values are more representative of interconnected porosity in fine-grained materials than bulk porosity values (Todd 1980). Todd (1980) reports specific yields of 0.08 for silt and 0.03 for clay; therefore, an intermediate value of 0.06 was assumed to be the effective porosity of the Bay Mud that underlies the tidal area sites. The steepest site hydraulic gradients were 0.008 in June 1997, 0.011 in October 1997, and 0.012 in January 1998.

Using the geometric mean conductivity calculated by AQTESOLV (8.93×10^{-6} cm/s) and other values listed above, seepage velocities ranging from approximately 0.12 to 0.19 cm/day (1.5 to 2.2 feet/year) were estimated for the tidal area sites. These velocities do not account for retardation or dispersion; therefore, the velocities listed above should be considered the upper range of potential analyte transport rates.

4.2.4 Preferential Flow Pathways

Historical aerial photographs of the tidal area sites show that portions of a slough that meandered through the tidal area sites and a manmade sluice were subsequently filled, creating possible preferential groundwater flow paths near the surface. The hand auger survey during this investigation established that coarse materials were used to fill the natural slough in some areas, but that the fill material is shallow and the water table is below the base of the fill material in all cases. Likewise, the seven borings drilled into the filled manmade sluice during this investigation established that the sluice has been partially filled with sand and silty sand, but that the water table is below the base of the fill materials. Consequently, the filled portions of the slough and sluice cannot act as preferential groundwater flow pathways.

The filled manmade sluice could conceivably act as a preferential flow pathway if the groundwater surface rises during the wet season and saturates the sandy fill material. Well TLW-5 is screened within the sandy fill material and can be used to assess concentrations of contaminants within the sandy fill during the wet season.

The sand and peat lenses shown on the geologic cross sections consist of coarser, more porous material than the Bay Mud. Although these lenses would be expected to act as preferential flow pathways, their function as flow pathways is limited by their restricted aerial extent. The peat and sand lenses, except for the deeper sand lens described above, were detected in only one or two wells. Due to their limited extent, the peat and sand lenses cannot function as flow pathways to allow contaminated groundwater to move significant distances. The deeper sand lens could act as a preferential flow pathway because it is more laterally extensive than the other sand lenses and because it occurs within the saturated zone. As discussed previously in this section; however, the deeper sand lens is not downgradient from the landfill or other tidal area sites.

TABLE 4-1

TIDAL INFLUENCE SURVEY RESULTS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Monitoring Location	Distance from Otter Sluice (feet)	Level Variation (feet)	Shows Tidal Influence	Shows Diurnal Variation	Decline in Water Level
Surface Water:					
SW-0 Suisun Bay	0	5.67	X		
SW-1 Otter Sluice (R Area)	0	2.45	X		
SW-2 Otter Sluice (R Area)	0	2.40	X		
SW-3 R Area wetlands	80	0.26	X		X
SW-4 Froid and Taylor Roads slough	1,300	0.15		X	X
SW-5 Otter Sluice (Wood Hogger)	0	1.80	X		
SW-6 Wood Hogger wetlands	100	0.54		X	X
SW-7 Otter Sluice (Wood Hogger)	0	0.97	X		
SW-8 Otter Sluice (Wood Hogger)	0	0.56	X		
Groundwater:					
TLW-2 Tidal Area Landfill	1,100	0.03			
RDW-2 R Area Disposal	60	1.58		X	X
RDW-3 R Area Disposal	55	0.30	X		
RDW-4 R Area Disposal	80	0.13			X
RDW-5 R Area Disposal	460	0.33		X	X
FTW-3 Froid and Taylor Roads	1,300	0.17			
WHW-2 Wood Hogger	550	0.18			
WHW-3 Wood Hogger	60	0.67	X		

Notes:

Data recorded in monitoring well WHW-3 appear questionable. A spike appears in the data that cannot be attributed to tidal effects.

The spike has been disregarded in the quantitative assessment.

TABLE 4-2

SUMMARY OF GROUNDWATER ELEVATIONS, JULY 1995 THROUGH APRIL 1996
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TDIAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Well	Piezometric Surface Elevation (feet above msl)				Water Level Response Pattern
	July 1995	October 1995	January 1996	April 1996	
TLSMW001	-0.77	-3.18	0.22	-0.15	SCS
TLSMW002	-0.36	-1.71	-0.83	-0.08	SCL
TLSMW003	-1.19	-1.78	0.28	-0.42	SCS
TLSMW004	1.78	1.03	2.62	2.13	SCS
TLSMW005	1.77	0.83	2.77	2.12	SCS
TLSMW006	-0.02	-0.53	0.78	0.35	SCS
TLSMW007	-0.47	-2.20	0.04	-0.15	SCS
RADMW001	-0.07	-3.15	1.55	0.05	SCS
RADMW002	0.64	0.30	0.24	0.36	MOS
RADMW003	1.14	0.56	0.59	0.39	MOS
RADMW004	1.38	1.01	3.14	2.06	SCS
RADMW005	-0.03	-2.03	2.10	1.88	SCS
RADMW006	-0.28	-1.99	-0.48	0.05	SCL
RADMW007	-0.61	-2.08	-0.45	-0.17	SCL
RADPZ001	NA	-1.96	-0.52	-0.43	SCL
RADPZ002	NA	-3.85	-1.38	-1.83	SCS
FTSMW001	0.96	-0.85	1.89	1.04	SCS
FTSMW002	1.00	-1.27	-0.60	0.23	SCL
FTSMW003	2.00	0.55	2.29	2.42	SCL
FTSMW004	0.80	0.31	1.94	1.40	SCS
FTSMW005	1.46	0.16	1.80	1.72	SCS
WHSMW001	1.52	-0.04	-1.04	0.75	SCL
WHSMW002	0.67	-1.01	1.40	0.81	SCL
WHSMW003	NA	1.00	1.40	0.69	MOS
WHSMW004	1.62	0.76	1.06	0.57	MOS

Notes:

msl Mean sea level
MOS Exhibits a moderating effect caused by hydraulic connection to Otter Sluice.
NA Not measured
SCL Exhibits a seasonal cycle reflective of rainfall patterns, with short lag time.
SCS Exhibits a seasonal cycle reflective of rainfall patterns, with a moderate to long lag time.

TABLE 4-3

SUMMARY OF SURFACE WATER ELEVATIONS, JULY 1995 THROUGH APRIL 1996
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

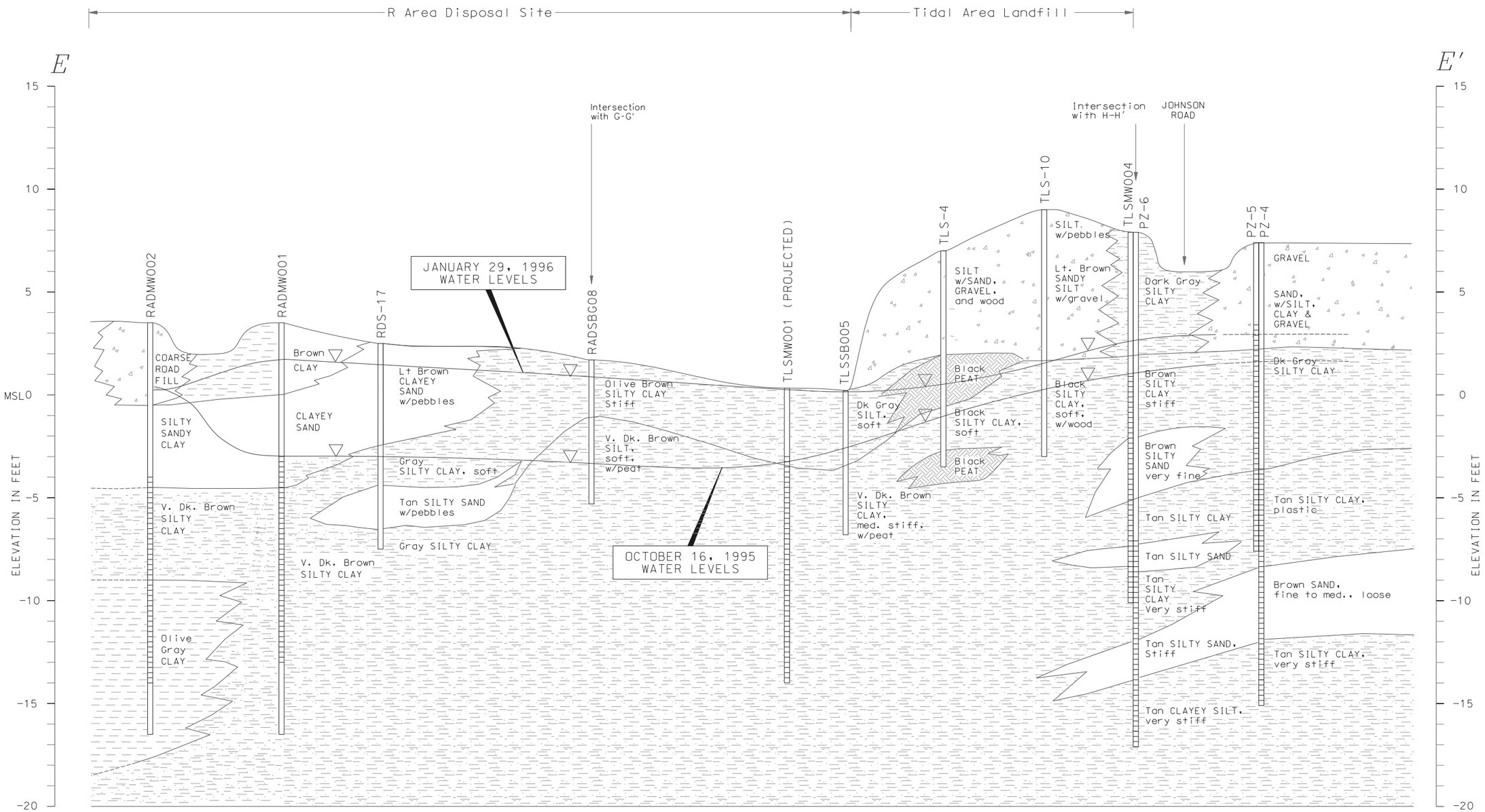
Surface Water Location	Surface Water Type	Surface Water Elevation (feet above msl)				Water Level Response Pattern
		July 1995	October 1995	January 1996	April 1996	
RADSG001	Otter Sluice	1.20	2.32	1.99	0.32	DTL
RADSG002	Otter Sluice	1.29	1.17	1.67	-0.16	DTL
RADSG003	Otter Sluice	1.09	1.07	1.53	-0.52	DTL
RADSG004	Wetland/Marsh	-0.27	-0.72	0.53	0.03	SCS
RADSG007	Natural Slough	-0.46	Dry	-0.62	-1.37	SCL
RADSG008	Wetland/Marsh	Dry	Dry	0.32	Dry	SCS
FTSSG010	Ephemeral Pool	0.47	-2.16	2.14	1.41	SCS
WHSSG005	Otter Sluice	1.10	1.14	1.52	-0.19	DTL
WHSSG006	Otter Sluice Tributary	1.70	1.22	1.41	NA	DTL
WHSSG009	Otter Sluice Tributary	1.78	1.18	1.43	-1.94	DTL

Notes:

DTL Exhibits a direct tidal influence
msl Mean sea level
NA Not measured
SCL Exhibits a seasonal cycle reflective of rainfall patterns, with a moderate to long lag time
SCS Exhibits a seasonal cycle reflective of rainfall patterns, with a short lag time

Figure 4-1

This detailed station map has been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.



NOTES:

THIS CROSS SECTION REPRESENTS ONE ITERPRETATION BASED ON AVAILABLE DATA, OTHER INTERPRETATIONS ARE POSSIBLE

WATER LEVELS BETWEEN WELLS ARE INTERPOLATED

PROJECTED WELLS SHOW SCREENED INTERVALS BUT NOT LITHOLOGY

0 150 300
FEET
HORIZONTAL SCALE

VERTICAL SCALE = 20 X HORIZONTAL SCALE

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

ENGINEERING FIELD ACTIVITY WEST

DALY CITY, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH DETACHMENT — CONCORD, CALIFORNIA

FIGURE 4-2
GROUNDWATER ELEVATIONS ALONG GEOLOGIC CROSS SECTION E-E'

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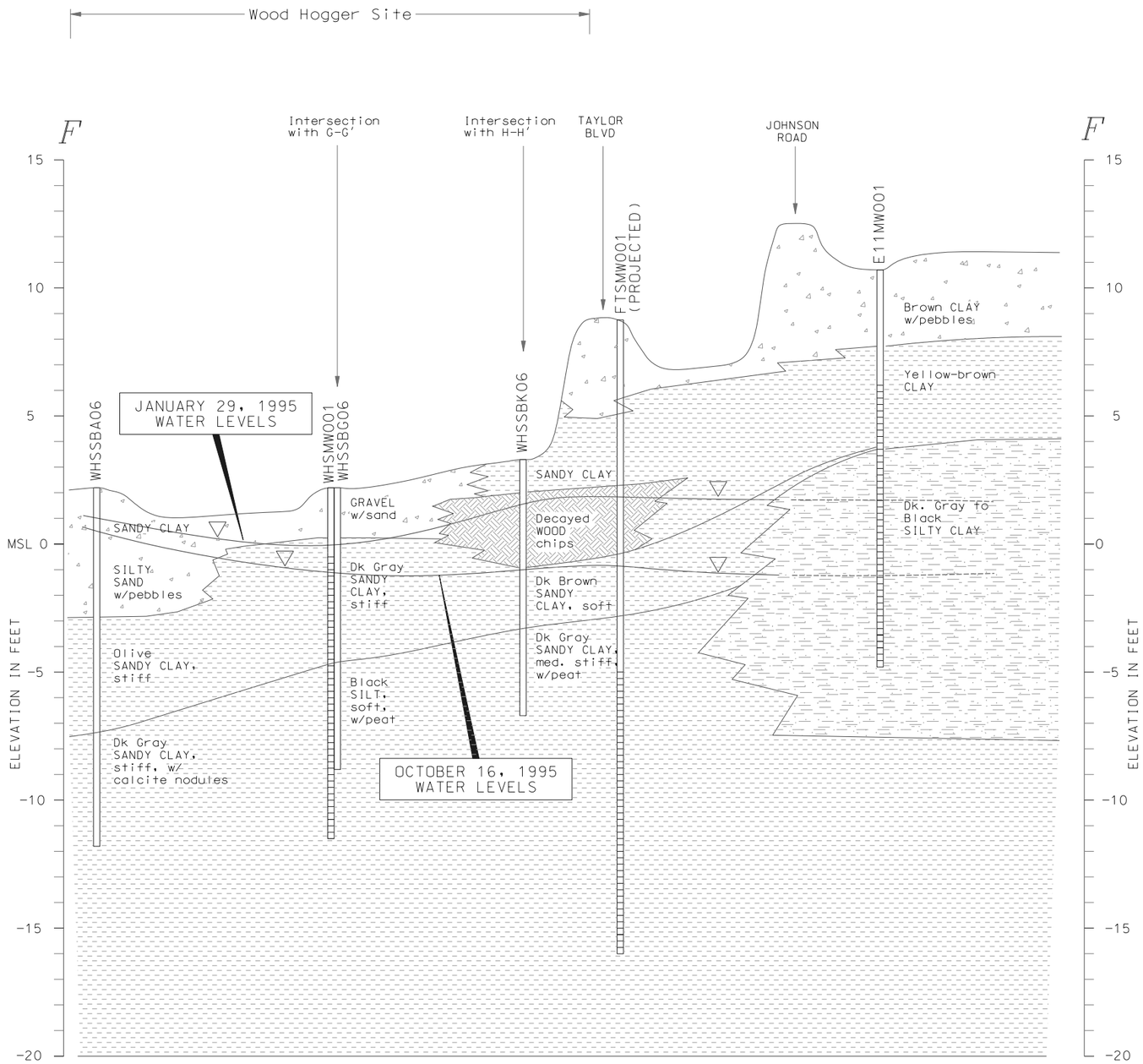

0 150 300
FEET
HORIZONTAL SCALE

VERTICAL SCALE = 20 X HORIZONTAL SCALE

NOTES:

THIS CROSS SECTION REPRESENTS ONE ITERPRETATION BASED ON AVAILABLE DATA, OTHER INTERPRETATIONS ARE POSSIBLE

WATER LEVELS BETWEEN WELLS ARE INTERPOLATED

PROJECTED WELLS SHOW SCREENED INTERVALS BUT NOT LITHOLOGY

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

ENGINEERING FIELD ACTIVITY WEST

DALY CITY, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH DETACHMENT — CONCORD, CALIFORNIA

FIGURE 4-3
GROUNDWATER ELEVATIONS ALONG GEOLOGIC CROSS SECTION F-F'

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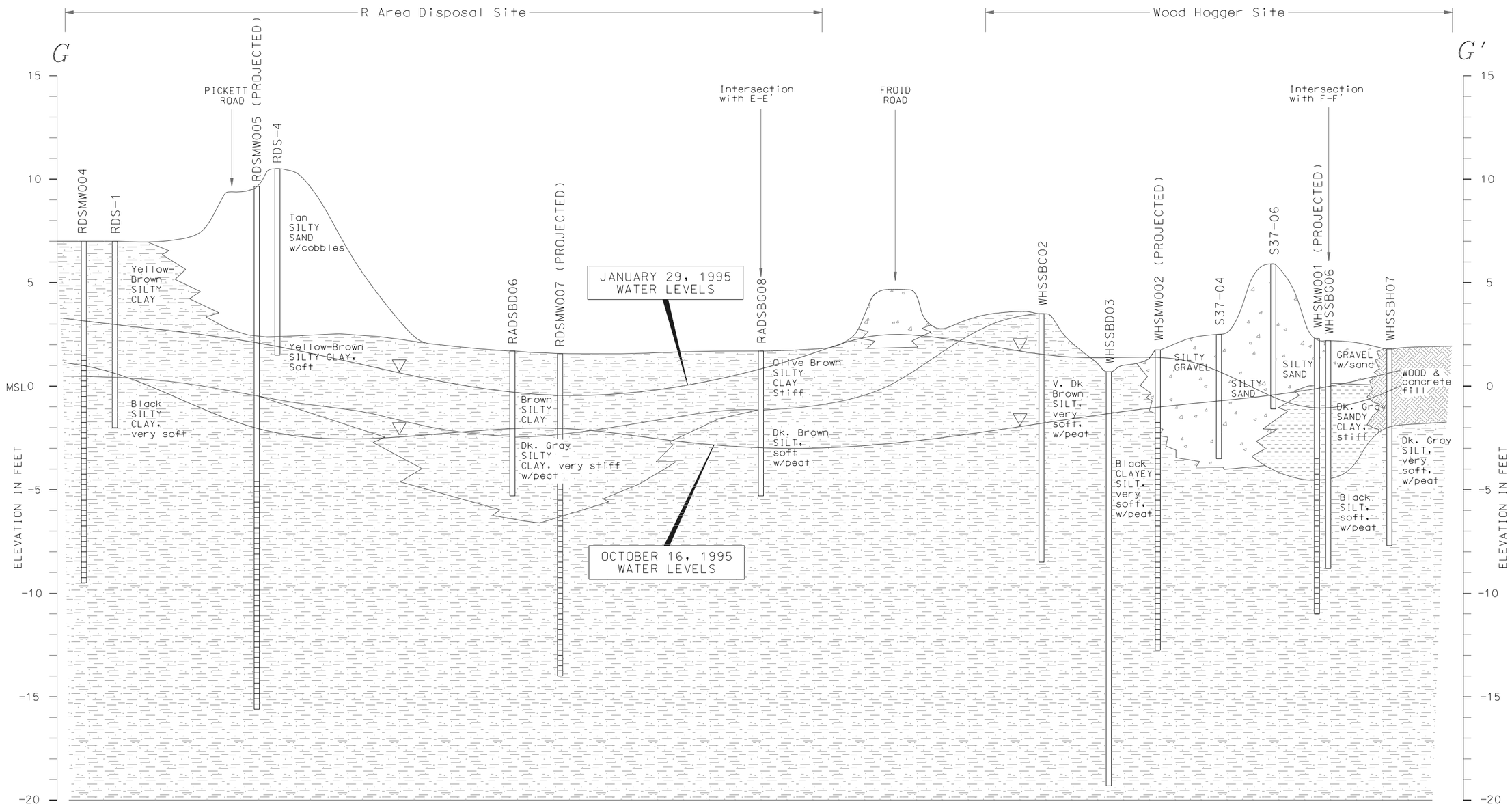

NOTES:

THIS CROSS SECTION REPRESENTS ONE ITERPRETATION BASED ON AVAILABLE DATA, OTHER INTERPRETATIONS ARE POSSIBLE

WATER LEVELS BETWEEN WELLS ARE INTERPOLATED

PROJECTED WELLS SHOW SCREENED INTERVALS BUT NOT LITHOLOGY

0 150 300
FEET
HORIZONTAL SCALE

VERTICAL SCALE = 20 X HORIZONTAL SCALE

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
ENGINEERING FIELD ACTIVITY WEST
DALY CITY, CALIFORNIA
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT — CONCORD, CALIFORNIA

FIGURE 4-4
GROUNDWATER ELEVATIONS ALONG GEOLOGIC CROSS SECTION G-G'

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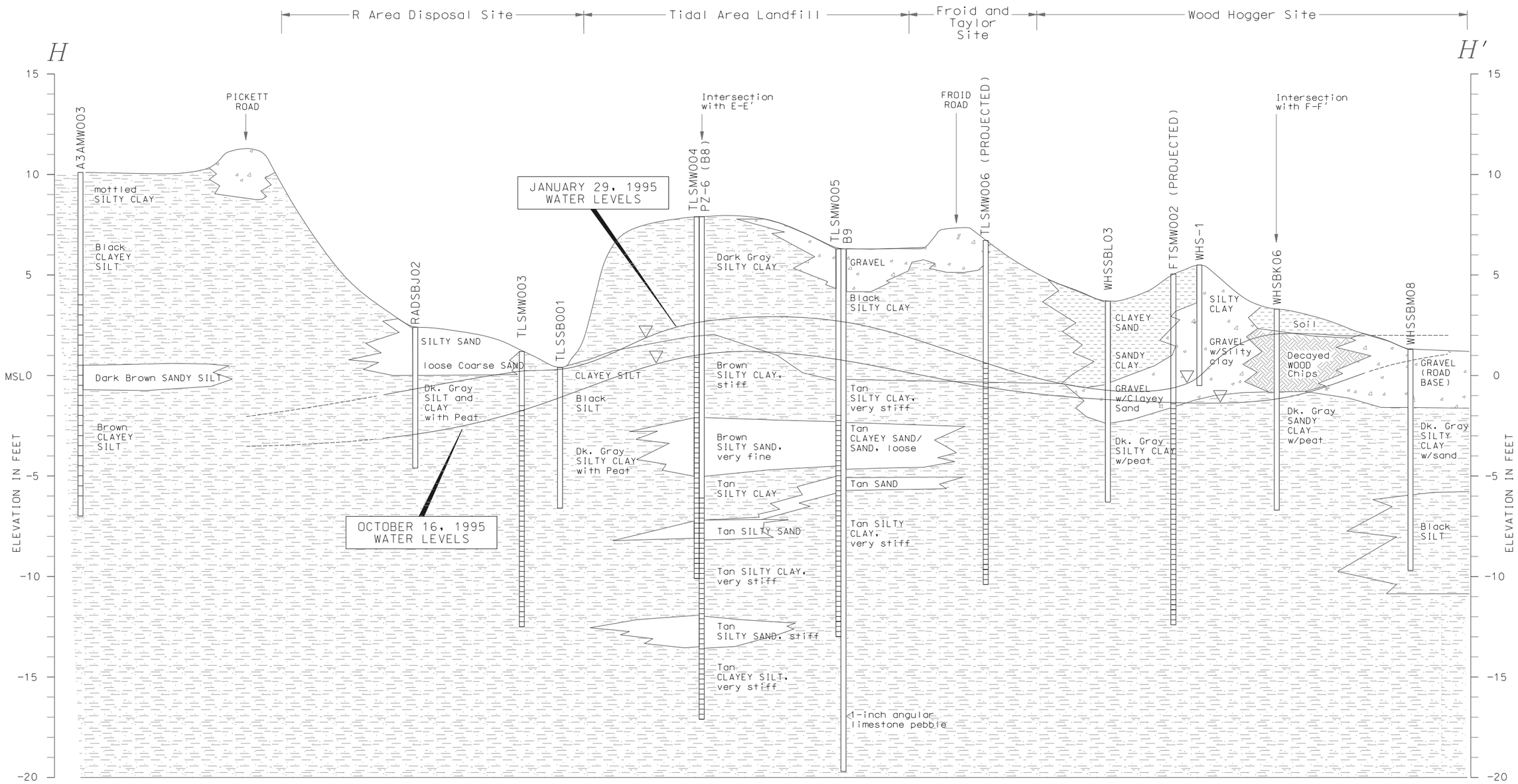

NOTES:

THIS CROSS SECTION REPRESENTS ONE ITERPRETATION BASED ON AVAILABLE DATA, OTHER INTERPRETATIONS ARE POSSIBLE

WATER LEVELS BETWEEN WELLS ARE INTERPOLATED

PROJECTED WELLS SHOW SCREENED INTERVALS BUT NOT LITHOLOGY

0 150 300
FEET
HORIZONTAL SCALE

VERTICAL SCALE = 20 X HORIZONTAL SCALE

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

ENGINEERING FIELD ACTIVITY WEST

DALY CITY, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH DETACHMENT — CONCORD, CALIFORNIA

FIGURE 4-5
GROUNDWATER ELEVATIONS ALONG GEOLOGIC CROSS SECTION H-H'

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Figures 4-6 to 4-16

These detailed station maps have been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

5.0 CHEMICAL CHARACTERIZATION OF THE TIDAL AREA SITES

This section describes the nature and extent of detected chemicals based on the results of soil, sediment, and surface water investigations at the Tidal Area sites. The samples and types of analyses performed in the Tidal Area sites are summarized in Table 5-1. Chemicals are evaluated further in the HHRA (Section 6.0) and the baseline ERA (TtEMI 2002). Groundwater investigations are discussed only briefly since groundwater is not considered a pathway for potential receptors at the Tidal Area sites. Tissue samples from the Tidal Area sites were also collected and analyzed, and they were used in the ERA as a component of the food-chain modeling.

The chemical characterization for inorganic chemicals in soil and sediments at the Tidal Area sites was based on a statistical comparison with Tidal Area ambient concentrations of inorganic chemicals. The chemical characterization for organic chemicals was performed based on their detection. Statistical comparisons performed for each site and various media are summarized in Tables 5-2 through 5-8.

5.1 COMPARING SITE SOIL AND SEDIMENT WITH AMBIENT CONCENTRATIONS

Inorganic chemicals are naturally occurring in the environment, so an initial comparison was performed to determine which inorganic chemicals at the site could be considered releases requiring investigation under CERCLA. Site soil and sediment concentrations were compared with Tidal Area ambient inorganic concentrations following Navy guidance (Navy 2000) and agreements with the regulatory agencies at a meeting in November 2000 (TtEMI 2000b). Ambient concentrations were established for 17 inorganic chemicals based on results from subsurface samples collected at depths of 2 to 10 feet bgs (Appendix I). Because no unaffected area could be identified during the 1997 draft RI (PRC 1997a), the regulatory agencies agreed that soil and sediment data from within the Tidal Area should form the data set used to estimate ambient concentrations. A detailed discussion on the development of the ambient data set is provided in Appendix I.

The RI used the ambient data set comparisons as an initial screening step to derive an initial list of inorganic chemicals of potential concern in soil/sediment for each of the Tidal Area sites. The ambient screening involved conducting two-population comparisons. The two-population comparison was performed using the Wilcoxon Rank Sum (WRS) and the Quantile test. The use of the two-population test comparison is consistent with EPA guidance (EPA 2002a) and Navy guidance (Navy 2000). The two-population comparison takes into account the full range of concentrations in both the site and ambient populations. The two-population comparison is a more rigorous statistical tool than single value

comparisons. The results of the ambient comparison based on the two-population comparison for each of the Tidal Area sites are summarized in Tables 5-2 through 5-8.

The null hypothesis (H_o) (site concentrations are less than or equal to ambient concentrations) was tested depending on the sample size and percentage of nondetects for each chemical, as follows:

- For large sample sizes where nondetected concentrations composed less than 50 percent of the data set (such as sediment in the R Area Site), the WRS test was used to compare the site data set with the ambient data set. For example, the WRS test was performed when an element was detected in more than 50 percent of the samples in a large data set.
- If the WRS test showed a shift in the mean, indicating that site concentrations were greater than ambient concentrations, then the chemical was retained for toxicological screening.
- If the WRS test did not show a shift in the mean (that is, site concentrations were *not* different than ambient concentrations), the Quantile test was performed to test for hot spots. If the Quantile test resulted in rejecting H_o, the chemical was identified as "exceeding ambient" and retained for toxicological screening. If the Quantile test failed to detect hot spots, the chemical was dropped from further consideration.
- For large sample sizes where nondetected concentrations composed more than 50 percent of the samples, both the F test and the Quantile test were performed. If either test rejected H_o, the chemical was retained. If neither test rejected H_o, the chemical was dropped from further consideration.

Inorganic chemicals that exceeded Tidal Area ambient concentrations, based on either a shift in the mean or an indication of hot spots, were considered to represent potential site releases and were evaluated in the HHRA and ERA. Those chemicals that did not exceed ambient concentrations were dropped from further consideration. Inorganic chemicals for which no ambient concentrations were available were treated as if they exceeded ambient and were retained by default. All detected organic chemicals were considered to represent potential site releases and were included in the HHRA and ERA.

The Tidal Area sites ambient data set was additionally used to calculate the 99th percentile ambient concentration values for the 17 inorganic metals. In the HHRA and the ERA, the 99th percentile ambient inorganic chemical concentrations were used to assess risk associated with ambient levels when compared to available toxicity benchmarks.

5.2 NATURE AND EXTENT OF CONTAMINATION IN SOIL, SEDIMENT, AND SURFACE WATER AT THE TIDAL AREA SITES

Chemical characterization of the Tidal Area sites is based on analytical results for soil, sediment, and surface water. The chemical characterization for sediment, soil, and surface water samples is discussed

for each of the Tidal Area sites and Otter Sluice, in Sections 5.2.1 through 5.2.4. The chemical characterization of groundwater at the Tidal Area sites is discussed as a unit in Section 5.3.

The rationale for selecting sediment, soil, and surface water sampling locations and analytical methods was provided in the FSP and WP (PRC 1995c, 1994, 1995a) as well as the FSP addendum (TtEMI 1998a). Complete soil, sediment, and surface water data sets are provided in Appendices B through F. The Tidal Area sites soil and sediment inorganic data summaries, including the maximum detected chemical concentrations, are provided in Tables 5-2 through 5-8. The Tidal area sites soil and sediment organic data summaries, including the maximum detected chemical concentrations, are provided in Tables 5-9 through 5-15. The Tidal Area sites inorganic and organic surface water data summaries, including the maximum detected chemical concentrations, are provided in Tables 5-16 through 5-19. The quarterly surface water sampling chemical data for each of the Tidal Area sites are provided in Tables 5-20 through 5-37. All inorganic chemicals that exceeded ambient concentrations are included in the HHRA; however, this section provides details only on those that exceeded ambient concentrations in more than 10 percent of the samples and those for which the maximum site concentration exceeded the ambient concentration by more than 10 percent. Although the 10 percent distinction is somewhat arbitrary, it serves to focus the discussion on those inorganic chemicals that are most likely the result of a site release, based on the frequency and magnitude of the chemical concentrations greater than ambient concentrations. The term soil samples was often used to collectively refer to surface soils samples, but they were actually considered sediment based on wetland habitat definitions established as part of the ERA discussed in Section 7.0.

5.2.1 Site 2: R Area Site

The sampling design for the R Area Site included purposive and unbiased locations. Purposive samples were collected at suspected disposal locations identified in previous investigations or determined by visual inspection. Unbiased samples were collected from additional locations to provide uniform spatial coverage of the site. Sampling locations are shown in Figure 1-2.

5.2.1.1 Soil and Sediment

Soil and sediment samples from 0 to 0.5 foot bgs were collected at 111 locations at the R Area Site in July and August 1995 using an unbiased grid sampling design. Each square grid section measured 200 feet on a side, as described in the WP (PRC 1994, 1995a). Unbiased subsurface samples were collected at 20 randomly selected grid nodes to assess soil chemical concentrations at depth. Focused (biased) soil samples were collected at locations where evidence of disposal activities was observed or reported in

earlier investigations. Field contingency samples were collected based on site conditions at the time of sampling, such as stained soil or newly encountered disposal areas.

Surface soil samples were analyzed for SVOCs, pesticides, PCBs, and inorganic chemicals. Subsurface soil samples also were analyzed for VOCs. Several soil samples also were analyzed for explosive compounds and hexavalent chromium. Complete analytic results for soil and sediment are in Appendix C, Table C-1.

Organic Compounds in Soil and Sediments

VOCs, SVOCs, pesticides, and PCBs were detected in soil and sediment samples collected at the R Area Site. No explosives compounds were detected in any soil sample. The frequency of detection and distribution of detected compounds in soil are discussed below.

Volatile Organic Compounds

Low concentrations of VOCs were detected in seven subsurface soil samples collected from the R Area Site (surface soil samples were not analyzed for VOCs). Most VOCs detected were either 2-butanone (up to 73 µg/kg), a common laboratory contaminant, or carbon disulfide (up to 160 µg/kg), which occurs naturally in bay environments. Carbon disulfide was detected in four samples at concentrations up to 160 µg/kg, and e-butanone was detected in two samples at a maximum concentration of 73 µg/kg, respectively. In addition, chloromethane was detected in one sample (soil boring RADSBH06, 1.5 to 2.0 feet bgs) at a concentration of 14 µg/kg. The distribution of VOC concentrations does not suggest a potential source.

Semivolatile Organic Compounds

The frequency of detection among SVOCs ranged from 0 to 31 percent (benzoic acid). The highest concentrations of SVOCs, including PAHs, were from the northwestern portion of the R Area Site (along Otter Sluice and Baker Road) and at the southern edge of the site, along an unnamed drainage feature that runs parallel to Froid Road, about 200 feet north of Froid Road. (Evidence of past disposal activities has been documented at both areas.) The PAH benzo(a)pyrene was detected in samples collected from eight borings (seven surface and one subsurface sample) at concentrations up to 1,500 µg/kg (grid sample collected from soil boring RADSBG08, 0.7 to 2 feet bgs). The sample collected from soil boring RADSBG08, 0.7 to 2 feet bgs, also contained the PAHs benzo(a)anthracene (2,000 µg/kg), benzo(b)fluoranthene (2,300 µg/kg), and benzo(k)fluoranthene (820 µg/kg). Soil boring RADSBG08 is near the above-referenced drainage channel approximately 150 feet north of Building R-1. No SVOCs were detected in the samples collected from soil boring RADSBG08 at the surface or at depth (4.0 to

5.3 feet bgs), indicating a limited extent of subsurface contamination at this location. The PAH dibenzo(a,h)anthracene was detected in purposive surface samples collected from soil borings RADSB007 and RADSB008 at concentrations of 87 and 94 µ/kg, respectively.

Twenty-five additional SVOCs were detected in soil samples collected from the R Area Site (ranging from 96 to 1,100 µg/kg). These SVOCs were detected primarily near the corners of the site, including the northwestern, northeastern and southwestern areas of the site. Except for one cluster of samples (soil borings RADSBG04 through RADSBG06, and RADSBH04), no SVOCs were detected in the interior of the site. Detected concentrations of PAHs in soil may be the result of past waste disposal or airborne deposition and subsequent runoff of wood smoke and vehicle exhaust particulates. Runoff of diesel exhaust residue from roadways is a major source of PAHs in the environment (Moore and Ramamoorthy 1984).

Pesticides and Polychlorinated Biphenyls

Low concentrations of pesticides were detected in soil samples collected at the R Area Site. DDT compounds were detected in 91 percent of the surface samples, with total DDT concentrations up to 73 µg/kg (soil boring RADSB011). Unbiased grid surface samples, collected in the north-central portion of the site (near RADSB010 and RADSB011), also contained several pesticide compounds at somewhat elevated concentrations. The second most frequently detected pesticide in surface samples was chlordane (maximum of 3 µg/kg alpha-chlordane in soil boring RADSBD05). Other pesticides detected in more than 10 percent of surface samples include aldrin, dieldrin, hexachlorobenzene, mirex, and trans-Nonachlor. The ubiquity of pesticides in surface soil at the R Area Site may be the result of past widespread application of chemicals for mosquito control at the site and surrounding area; however, pesticides in samples from borings RADSB010 and RADSB011 indicate that pesticides in some areas could have resulted from past disposal activities. No pesticides were detected in any subsurface samples.

PCBs were detected in 75 percent the 65 surface samples at total concentrations up to 13 µg/kg (soil boring RADSBL03). This location is at the extreme eastern edge of the R Area Site, immediately adjacent to a railroad track. Low concentrations of PCBs were detected across the site in surface soil samples, but no PCBs were detected in subsurface samples.

Inorganic Compounds in Soil and Sediments

The statistical methods described in Section 5.1 were used to determine whether concentrations of each inorganic chemical in sediment were elevated in comparison with Tidal Area ambient concentrations. The comparisons of concentrations of inorganic chemicals in soil with ambient concentrations are in Table 5-9 (surface soil only) and Table 5-10 (all depths). In surface samples, exposure concentrations of

aluminum, antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, silver, vanadium, and zinc in sediment at the R Area Site exceeded Tidal Area ambient concentrations. When all samples from 0 to 6.0 feet bgs were considered together, beryllium was not elevated with respect to ambient concentrations (see Table 5-10). Only chromium, lead, and mercury exceeded ambient concentrations in more than 10 percent of the samples. Detection frequencies and distribution of these metals are discussed below. Barium exceeded ambient in only one sample, but is discussed below because the concentration was more than 10 percent higher than ambient concentrations.

Sediment concentrations were analyzed separately in the eastern and western sides of the R Area Site in response to questions raised by the regulatory agencies about the historical role of the Landfill as a source of chemicals in the R Area Site. All exposure concentrations of inorganic chemicals (except beryllium and manganese) were higher in the western side of the site than in the eastern side. Differences in the 95th percentile upper confidence limit on the arithmetic mean (UCL_{95}) between the western and eastern sides ranged from 7 percent (nickel) to 133 percent (mercury) (see Table 5-38).

The same pattern was observed for all organic chemicals, with higher concentrations in the western side than in the eastern side of the R Area Site. Percent differences for organic chemicals were much smaller than for inorganic chemicals; the maximum difference was 4 percent (2,4'-dichlorodiphenyldichloroethene [DDE]). In addition, 12 organic chemicals were detected in sediment from the western side only. In contrast, only one organic chemical (isophorene) was detected in sediment from the eastern side only. Concentrations of almost all chemicals were higher on the western side of the R Area Site, farthest from the Landfill. Several organic chemicals are unique to the western side, supporting the original site assessment that reported a source of contaminants in the northwestern corner of the R Area Site.

Barium

Barium was detected in all 111 surface and 20 subsurface soil samples collected at the R Area Site. One sample, the unbiased surface sample collected from soil boring RADSBE07 in the south-central portion of the site, contained 7,710 milligrams per kilogram (mg/kg) barium, which is 14.5 percent higher than the ambient concentration. However, the UCL_{95} of the surface samples was 169 mg/kg, and all but one sample contained less barium than the ambient concentration (530 mg/kg). No fill or debris was observed in the soil from soil boring RADSBE07; barium at this location may be the result of surface water ponding and evaporation cycles.

Chromium

Chromium was detected in 124 of 131 soil samples collected at the R Area Site, at concentrations up to 319 mg/kg at location RADSBA07, which is immediately adjacent to Baker Road, along the western edge of the R Area Site. In 11.2 percent of the samples (13 surface and 1 subsurface), chromium concentrations exceeded the ambient concentration of 82.1 mg/kg. However, the UCL_{95} in surface soil (61.9 mg/kg) was less than the ambient concentration. Mean chromium concentrations were about 20 percent higher in the western half of the site than in the eastern half. Highest concentrations of chromium were near the central portion of the western side, potentially indicating concentration from evaporation or an anthropogenic source.

Lead

Lead was detected in 99 percent of 131 soil samples at the R Area Site. Lead concentrations in about 16 percent of the samples (21 surface and 1 subsurface) exceeded the Tidal Area ambient concentration of 95 mg/kg, although the UCL_{95} (77.7 mg/kg) in surface soil was less than ambient. The maximum lead concentration was 1,160 mg/kg in a random grid sample (RADSBG08, 0.7 to 2.0 feet bgs). This sample, RADSBG08, also contained the highest SVOC concentrations at the site. This location is at the southern edge of the site, near a cul-de-sac of an unnamed road that parallels the railroad track. Soil samples containing elevated lead concentrations were found in the central area of the site, but mean lead concentrations were 88 percent higher in the western half of the site than in the eastern half. Elevated lead concentrations, primarily in surface soil, indicate an anthropogenic source.

Mercury

Mercury was detected in 69 percent of soil samples. Almost 20 percent of soil samples contained mercury at concentrations exceeding the Tidal Area ambient concentration. However, both mean (0.11 mg/kg) and median (0.11 mg/kg) concentrations of mercury were less than the ambient concentration (0.32 mg/kg). Mean mercury concentrations in surface soil were 133 percent higher in the western half than in the eastern half of the R Area Site, suggesting that a release may have occurred in the western area. The maximum detected concentration of mercury was 0.92 mg/kg in surface soil at location RADSBA04.

5.2.1.2 Surface Water

The R Area Site has no permanent surface water but becomes inundated during the wet season; isolated ponded areas remain for variable durations during dry periods. Surface water in the R Area Site is a

combination of rain that falls directly within the bermed site and Suisun Bay water that enters through culverts in the western portion of the site.

Surface water samples collected from 36 locations were analyzed for metals, and samples from 35 of the 36 locations were analyzed for organic chemicals. Table 5-1 summarizes the samples collected from all Tidal Area sites. Four rounds of surface water sampling were conducted: July and October 1995, and January and April-May 1996. Water was not present at all sampling locations during each sampling event. Sampling locations included sloughs, continually flooded areas, and ephemeral ponds. Unfiltered surface water samples from the R Area Site were analyzed for VOCs, SVOCs, pesticides, PCBs, explosives, and inorganic chemicals. Organic chemicals were detected in surface water only infrequently (less than 10 percent, or 3 of 35 samples). In surface water, 4,4'-DDT, dieldrin, endrin, and heptachlor were dropped from consideration in the risk assessments because they were detected in only 1 of 35 surface water samples (2.8 percent) in the R Area Site. Frequency of detection of inorganic chemicals ranged from 3 percent (antimony) to 100 percent (barium and manganese). Complete analytical results by location for surface water samples collected at the site are presented in Appendix C, Table C-2. Quarterly surface water sampling results are in Tables 5-20 through 5-23. Overall summary statistics for the site are in Table 5-16.

5.2.2 Site 9, Froid and Taylor Road Site

Sediment samples were collected at 11 locations in the wetland habitat south of Froid Road. The triangular-shaped portion of upland habitat north of Froid Road was sampled in only one location, and two confirmation samples were collected subsequently for chlordane analysis. Table 5-1 summarizes the samples collected at Tidal Area sites.

5.2.2.1 Soil and Sediment

Soil and sediment samples from 0 to 0.5 foot bgs (surface) were analyzed for inorganic and organic chemicals at 12 locations at Froid and Taylor Road Site. At nine of these locations, subsurface samples were also collected. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, explosive compounds, TPH-e, hexavalent chromium, and inorganic compounds. Complete analytic results for soil and sediment are in Appendix D, Table D-1.

Organic Chemicals in Soil and Sediment

No explosive compounds were detected in any soil samples. SVOCs, including PAHs, were detected in samples from eight of the nine soil borings at the site. Two samples collected near Taylor Boulevard

contained the PAH benzo(a)pyrene at concentrations that may be of concern. SVOCs detected in soil near roadways may be the result of deposition and wood smoke and runoff of automobile and diesel exhaust particulates from road surfaces.

TPH-e quantified as motor oil was detected in soil samples collected from all nine borings at the Froid and Taylor Road Site. TPH-e quantified as motor oil was detected in soil samples at concentrations ranging from 9 to 23,000 mg/kg, with the highest concentration of TPH-e, detected in a surface sample that was collected along the southern edge of Froid Road. Relatively elevated concentrations of motor oil in samples collected from FTSSB001 through FTSSB003 may be indicative of surface releases of diesel fuel or motor oil alongside Froid Road. Lower concentrations of motor oil at the site may be the result of runoff from the roads and railways that traverse the site.

Inorganic Chemicals in Soil and Sediment

The statistical methods described in Section 5.1 were used to determine whether concentrations of metals in soil and sediment were elevated in comparison with Tidal Area ambient concentrations. Exposure concentrations of barium, cadmium, copper, lead, mercury, silver, and zinc in surface soil and sediment at the Froid and Taylor Road Site exceeded Tidal Area ambient concentrations (see Table 5-4). When all samples from 0 to 3.0 feet bgs were considered together, barium and copper were not statistically different than Tidal Area ambient concentrations (see Table 5-5). Only lead and mercury exceeded ambient concentrations in more than 10 percent of the samples. Detection frequencies and distribution of these metals are discussed below.

Lead

Lead was detected in all 21 soil samples at the Froid and Taylor Road Site. Lead concentrations in about 24 percent of the samples exceeded the Tidal Area ambient concentration of 95 mg/kg. The maximum lead concentration was 515 mg/kg in a surface sample (FTSSB002), which was 5.4 times higher than the ambient concentration. Five soil samples scattered across the site exceeded the Tidal Area ambient concentration of lead. The four highest concentrations were all in surface samples adjacent to roadways (FTSSB002, FTSSB003, FTSSB006, and FTSSB009), indicating an anthropogenic source.

Mercury

Mercury was detected in 67 percent of the soil samples. Nineteen percent of the soil samples contained mercury at concentrations exceeding the Tidal Area ambient concentration. However, the maximum detected concentration of mercury (0.49 mg/kg in surface soil at location FTSSB006) was only 1.5 times ambient, and the mean concentration of (0.18 mg/kg) was less than the ambient concentration (0.32 mg/kg).

5.2.2.2 Surface Water

Surface water enters the Froid and Taylor Road Site as rainfall and through overland flow from Otter Sluice and other low elevation areas during extreme high tides. Surface water at the site may disappear during prolonged drought. Surface water samples were collected at two locations (FTSSW001 and FTSSW002) during the RI at the Froid and Taylor Road Site. Surface water samples were collected in July and October 1995 and January and May 1996; however, surface water was not present at location FTSSW002 in October 1995 or May 1996 (see Appendix D, Table D-2). Both surface water sampling locations are in the area of the site immediately south of Froid Road, near soil sampling locations FTSSB002 and FTSSB003. Surface water samples also were collected at three additional locations during a round of sampling in June 1998, from locations FTSSL102, FTSSL103, and FTSSL104 (see Figure 1-2).

Surface water samples collected at the Froid and Taylor Road Site during the first four sampling events were analyzed for VOCs, SVOCs, pesticides, PCBs, explosives, and inorganic constituents. Samples collected in 1998 were analyzed for SVOCs and inorganic chemicals. Statistical summaries of quarterly surface water analytical results for the five surface water sampling events are presented in Tables 5-24 through 5-28. Summary statistics for the site overall are in Table 5-17. Complete data by location are in Appendix D, Table D-2.

Organic Compounds in Surface Water

No pesticides, PCBs, or explosives were detected in surface water at the Froid and Taylor Road Site. Two SVOCs were detected in a single sample. TPH-e was detected in all six surface water samples from the Froid and Taylor Road Site that were submitted for TPH-e analysis. TPH-e constituents detected in site surface water samples are listed below.

Constituent	Location Identification	Sampling Event	Concentration (milligrams per liter)
Diesel	FTSSW001	Jul 1995	0.3
		Oct 1995	2
		Jan 1996	0.1
		May 1996	< 0.6 (Nondetect)
	FTSSW002	Jul 1995	0.3
		Jan 1996	0.8
Motor Oil	FTSSW001	Jul 1995	0.6
		Oct 1995	2
		Jan 1996	0.2
		May 1996	0.6
	FTSSW002	Jul 1995	0.8
		Jan 1996	0.1

As shown in the table, petroleum hydrocarbon concentrations were highest during dry months (July and October) and lowest during rainy months (January and April), when surface waters receive fresh inputs. No VOCs, other than carbon disulfide, were detected in the samples. Carbon disulfide, a common compound in bay environments, was detected in the sample collected at FTSSW001 in October 1995, at a concentration of 20 µg/L.

Inorganic Chemicals in Surface Water

Because only nine surface water samples were collected, a single detection of a chemical resulted in a frequency of detection greater than 10 percent. Therefore, all detected chemicals in surface water are considered in the HHRA (see Section 6.0) and the ERA (TtEMI 2002). Table 5-17 presents the detection frequency, mean, median, and UCL_{95} for all detected chemicals. Detection frequency of inorganic chemicals ranged from 11 percent (cadmium, lead, and thallium) to 100 percent (arsenic, barium, iron, and manganese).

5.2.3 Site 11, Wood Hogger Site

The following sections discuss the analytical results of the RI and the RFA Confirmation Study at SWMU 37, the wood storage and processing site in the central area of the Wood Hogger Site (see Figure 1-2). Purposive samples were collected at suspected disposal locations identified in previous SIs; unbiased soil samples were collected at additional locations intended to provide uniform spatial coverage of the site. Wood chips were disposed of primarily in the southern portion of the site. The former incinerator also was located in this area. Most of the northern portion of the site contains wetland areas that are seasonally flooded. Soil sampling locations at SWMU 37 were selected based on present wood storage and processing locations at the site.

5.2.3.1 Soil and Sediment

Soil sampling was conducted at the Wood Hogger Site in July and August 1995 as part of the RI. Unbiased grid sampling of surface soil was conducted to define site wide variances in soil chemical concentrations. Each grid section measured 200 by 200 feet (PRC 1995c). Unbiased subsurface samples were collected at randomly selected grid nodes to assess soil chemical concentrations at depth and to determine the depth to Bay Mud at the site. Purposive samples were collected at locations where evidence of disposal activities had been reported. Some field contingency samples were collected based on site conditions observed at the time of sampling, such as stained soil or newly encountered disposal areas. Soil samples were collected in both the fill and Bay Mud.

Surface soil and sediment samples (0 to 0.5 feet bgs) were analyzed for inorganic chemicals at 68 locations; organic chemicals also were analyzed at 49 locations. Subsurface samples (generally from 5.0 to 6.0 feet bgs) were collected at 44 locations in SWMU 37. Two composite samples were collected in the immediate area of the Wood Hogger and analyzed for dioxin compounds. Because dioxins were detected in the two composite samples, a more extensive sampling and analysis for dioxins was completed in 1998. Polychlorinated dibenzo-dioxins and furans were analyzed in nine soil samples and three sediment samples collected from the Wood Hogger, near the location of the former incinerator (see Figure 1-2). The subsurface sample collected from purposive boring WHSSB030 also was analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds. Table 5-1 summarizes the samples collected at the Tidal Area sites. Analytical results for soil and sediment samples collected during the RI at the Wood Hogger Site and the SWMU 37 investigation are presented in Appendix E, Table E-1.

Organic Compounds in Soil and Sediment

Organic compounds, including VOC, SVOC, pesticides, PCBs, explosive compounds, petroleum products, and dioxins, were detected in soil samples collected from the Wood Hogger Site. The frequency of detection and distribution of the detected organic compounds in soil are discussed below.

Volatile Organic Compounds

VOCs were detected in samples collected from seven borings at the Wood Hogger Site (11 of 44 subsurface samples and none of the 11 surface samples). Five VOCs were detected in soil samples at concentrations ranging from 20 to 720 µg/kg and at depths between 1.5 to 20.0 feet bgs; however, except for ethylbenzene and total xylenes, VOCs detected in samples were either 2-butanone or acetone, which are common laboratory contaminants, or carbon disulfide, which occurs naturally in bay environments. Ethylbenzene and total xylenes were detected in the sample collected from purposive soil boring WHSSB030 (3.2 to 3.5 feet bgs) at a concentration of 200 µg/kg each. A black liquid with the appearance of motor oil was observed in soil boring WHSSB030, which is located about 100 feet northwest of the wood hogger machinery. The liquid had a strong hydrocarbon odor; however, the PID did not measure any volatile organic vapor emanating from the liquid. Additional borings were drilled within 1 to 5 feet of boring WHSSB030. The black liquid was not found in any of these borings, so its detection is believed to be an isolated occurrence. Total xylenes were detected in two samples collected from random boring WHSSBC02 1.3 to 2.0 and 4.0 to 5.5 feet bgs at concentrations of 26 and 54 µg/kg, respectively. No VOCs were detected in the sample collected from soil boring WHSSBC02 at depths of (8.8 to 10.0 feet bgs). No VOCs were detected in the samples collected for the SWMU 37 investigation.

Soil containing detectable VOC concentrations was collected at locations scattered across the site, indicating that the presence of VOCs in site soil is not associated with disposal of wood chips at the site. No potential sources of VOCs have been identified.

Semivolatile Organic Compounds

SVOCs, including PAHs, were detected in soil samples collected from most boreholes at the site. SVOCs were detected in 36 of 59 surface samples and in 11 of 44 subsurface samples collected during the RI and SWMU 37 investigation, primarily in the area of the former wood hogger machinery, in the southwestern portion of the site, and east of the wood hogger machinery, where wood chips are believed to have been discarded. Most samples without detectable SVOCs were collected along the northern, western, and southern borders of the site, where site activities were likely to have been minimal. PAHs were detected in surface soil samples at the site at concentrations that may be of concern, as summarized below:

- Benzo(a)pyrene was detected at concentrations up to 2,700 µg/kg.
- Dibenzo(a,h)anthracene was detected at concentrations up to 600 µg/kg.
- Chrysene was detected in the sample collected at WHSSBC06 at a concentration of 6,400 µg/kg.
- Benzo(b)fluoranthene was detected at concentrations up to 3,100 µg/kg.
- Benzo(k)fluoranthene was detected at concentrations up to 3,400 µg/kg.
- Benzo(a)anthracene was detected in the sample collected at WHSSBC06 at a concentration of 3,800 µg/kg.
- Indeno(1,2,3-cd)pyrene was detected in the sample collected at WHSSBC06 at a concentration of 1,200 µg/kg.

The highest concentrations of these PAHs were detected in the surface sample collected from soil boring WHSSBC06, which is located within the perimeter of Building A-29, north of the wood hogger machinery. The surface sample collected from WHSSBE06 also contained benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene at concentrations that may be of concern. Five soil samples containing elevated concentrations of benzo(a)pyrene were collected at locations outside of the immediate area of the wood hogger machinery. These include three locations north of the storage yard (WHSSBB05, WHSSBD03, and WHSSBF03) and two locations near the western edge of the site (WHSSB006 and WHSSBM06) (see Figure 1-2). The wood preservative PCP was detected in surface samples collected from four borings in the area of the wood hogger machinery, at concentrations up to 780 µg/kg. Eighteen additional SVOCs were detected in soil collected at the Wood Hogger Site, at concentrations ranging from 14 to 14,000 µg/kg and at depths between 0 and 20 feet bgs.

Phenol was detected in three soil samples collected as part of the SWMU 37 investigation at concentrations up to 280 µg/kg. No other SVOCs were detected in the samples collected during the SWMU 37 investigation. All SWMU 37 samples were analyzed using the CLP method.

The presence of PCP in soil collected in the area of the wood hogger is likely the result of chipping and burying wood preserved with PCP. The presence of other SVOCs in soil may be in part or wholly the result of airborne deposition and runoff of wood smoke or vehicle exhaust particulates, both of which are major sources of PAHs in the environment (U.S. Department of Health and Human Services 1993).

Chromatographs of samples with relatively low concentration of SVOCs showed a typical petroleum fuel pattern, indicating weathered, heavier diesel. Petroleum fuels may, therefore, be the source for SVOCs in these samples. The chromatograph for the surface sample collected at WHSSBM06 did not resemble a fuel pattern; however, this sample did contain some SVOCs at low concentrations. The amount of fuel in this sample may be too low to show a typical fuel pattern.

Pesticides and Polychlorinated Biphenyls

Pesticides and PCBs were detected in samples collected from most boreholes at the site. Pesticides and PCBs were detected in 46 of 59 surface soil samples and in 4 of 43 subsurface samples collected during the RI and SWMU 37 investigations. Twenty-one Aroclors or PCB congeners were detected in surface soil samples at concentrations ranging from 0.07 to 15 mg/kg and at depths between 0 and 6 feet bgs. A total of 15 pesticides were detected at concentrations ranging from 0.1 to 280 µg/kg at depths between the surface and 6 feet bgs. DDT compounds were detected in most of the samples, with total DDT concentrations up to 320 µg/kg (WHSSB009, surface; see Figure 1-2).

Pesticide and PCB concentrations were generally highest in the samples collected in the southern portion of the site, east of the wood hogger machinery, where wood chips are believed to have been disposed of, and may be the result of disposal of dunnage treated with or containing pesticides. Elevated pesticide and PCB concentrations also were detected in soil collected in the north-central portion of the site. Elevated concentrations of PCBs in this area of the site may be indicative of a source other than wood hogging operations.

Explosives

The explosive compound cyclotetramethylene tetranitramine was detected in a soil sample from WHSSBH07 (1.3 to 2.3 feet bgs) at a concentration of 0.4 mg/kg. Borehole WHSSBH07 is located in the south-central portion of the Wood Hogger Site. The explosive compound 1,3-dinitrobenzene was detected in SWMU 37 surface soil sample S37-03 at a concentration of 0.1 mg/kg. S37-03 is located about 50 feet north of Building A-29 in the central portion of the Wood Hogger Site.

Petroleum Hydrocarbons

Petroleum hydrocarbons were detected in two of seven soil samples (WHSSB030, 3.2 to 3.5 feet bgs; and WHSSBD07, 1.5 to 2.3 feet bgs). Both locations are near the wood hogger machinery in the southwestern portion of the Wood Hogger Site. TPH as gasoline and TPH as motor oil were detected in both samples at concentrations up to 26 and 8,900 mg/kg, respectively. The sample collected from soil boring WHSSB030 contained the highest concentrations. The sample collected from soil boring WHSSB030 also contained TPH as diesel at a concentration of 2,300 mg/kg. As discussed previously in this section, a black liquid resembling motor oil was observed in the soil of boring WHSSB030. Additional borings were drilled in the immediate area around soil boring WHSSB030 to define the extent of motor oil in the soil. Visual observations and field screening indicated that motor oil was not present in soil samples from these borings; therefore, no samples from these borings were analyzed. The motor oil in the area of soil boring WHSSB030 appears to be localized.

Dioxins

Two dioxins (1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin [HpCDD] and octachlorodibenzo-p-dioxin [OCDD]) and one furan (1,2,3,4,6,7,8-heptachlorodibenzo-p-furan [HpCDF]) were detected in the surface soil sample collected at WHSSB019, near the former incinerator at the Wood Hogger Site (see Figure 1-2). Concentrations ranged from 0.1 to 4 µg/kg. OCDD was detected in the surface sample collected at WHSSB020, also located near the former incinerator, at a concentration of 0.4 µg/kg. Because of these detections and preliminary human health and risk evaluations, additional polychlorinated dibenzo-dioxins and furans were analyzed in soil samples from the Wood Hogger Site, near the location of the former incinerator. Analytical results were as follows:

Analyte	Sampling Location Concentration (micrograms per kilogram)	
	WHSSB019 (0 - 0.5 foot bgs)	WHSSB020 (0 - 0.5 foot bgs)
1,2,3,4,6,7,8-HpCDD	0.0005	ND
1,2,3,4,6,7,8-HpCDF	0.0001	ND
Total HpCDD	0.0008	ND
Total HpCDF	0.0003	ND
OCDD	0.004	0.0004

Notes:

bgs Below ground surface
HpCDD Heptachlorodibenzodioxin
HpCDF Heptachlorodibenzofuran
ND Not detected
OCDD Octachlorodibenzodioxin

Because dioxins were detected in these two samples, a more extensive analysis was completed in 1998. The results of this study are presented below. Only 4 of 12 individual dioxins and furans were detected in any of the samples. These were, 1,2,3,4,6,7,8,9-OCDD and its corresponding furan and 1,2,3,4,6,7,8-HpCDD and its corresponding furan.

Sampling Location	Matrix Type	Total Detected PCDD/PCDFs (micrograms per kilogram)
WHSSB008	SOIL	2
WHSSB009	SOIL	115
WHSSB010	SOIL	0
WHSSB016	SOIL	172
WHSSB109	SOIL	10
WHSSB050	SOIL	11.7
WHSSB050	SOIL	4.6
WHSSB051	SOIL	0
WHSSB051	SOIL	7
OSLSL005	SEDIMENT	0
OSLSL007	SEDIMENT	0
OSLSL008	SEDIMENT	0

Notes:

PCDD Polychlorinated dibenzodioxin
PCDF Polychlorinated dibenzofuran

The concentration of detected-only polychlorinated dibenzodioxin (PCDD) and polychlorinated dibenzofuran (PCDF) shows variability in concentrations among samples.

Dioxin and furan compounds are known to enter the environment from a variety of sources, including from use of PCP (Moore and Ramamoorthy 1984) or combustion of wood products (Thomas and Spiro 1996). Wood dunnage believed to contain PCPs was chipped at the wood hogger and disposed of at the site. Before the wood hogger was installed, a wood incinerator was used at the site. Dioxins in soil are also ubiquitous, resulting from fallout from numerous sources. EPA has estimated that the average soil toxicity equivalent factor (TEF) in North America is 0.00796 µg/kg (plus or minus [±] 0.0057 µg/kg). The estimated upper range of average soil TEFs (0.0137 µg/kg) in North America is greater than the TEF for the surface sample collected at WHSSB018 (0.01 µg/kg).

Inorganic Chemicals in Soil and Sediment

The statistical methods described in Section 5.1 were used to determine whether concentrations of each inorganic chemical in soil at the Wood Hogger Site were elevated compared with Tidal Area ambient concentrations. Concentrations of aluminum, antimony, barium, beryllium, cadmium, cobalt, copper, lead, manganese, mercury, silver, vanadium, and zinc in both surface and subsurface soil at Wood Hogger Site exceeded Tidal Area ambient concentrations (see Tables 5-13 and 5-14, respectively).

Inorganic chemicals that exceeded ambient concentrations in at least 10 percent of the 128 soil samples include antimony, beryllium, copper, lead, mercury, vanadium, and zinc. Cadmium concentrations exceeded the ambient less frequently (8.5 percent), but the maximum concentration was more than 10 times greater than ambient (10.9 times). Each of these inorganic chemicals with notable frequency or magnitude of exceedance of ambient concentrations are discussed below.

Antimony

Antimony was detected in 57 percent of the soil samples at the Wood Hogger Site, with a maximum concentration of 7.1 mg/kg; concentrations and detection frequency were higher in surface than in subsurface soil samples. Concentrations in 12.5 percent of the site samples were higher than the ambient concentration. However, the mean concentration was less than the ambient concentration, and the maximum concentration exceeded the ambient concentration by a factor of 3.2.

Beryllium

Beryllium was detected in 37 of 125 soil samples collected at the Wood Hogger Site at concentrations up to 0.84 mg/kg (WHSSB001, surface). Nineteen of the soil samples (18 surface and 1 subsurface)

contained beryllium at concentrations exceeding the estimated ambient concentration of 0.18 mg/kg. Most samples with elevated beryllium concentrations were collected at locations in the south-central area of the site and along the southern and western borders of the site. The presence of elevated beryllium concentration predominantly in surface soil may indicate an anthropogenic source.

Cadmium

Cadmium was detected in 37 of 125 soil samples obtained at the Wood Hogger Site at concentrations up to 20.8 mg/kg (WHSSBI02, surface). Eleven of the soil samples (8.5 percent, all collected at the surface) contained cadmium at concentrations exceeding the estimated ambient concentration of 1.9 mg/kg. The maximum concentration of cadmium exceeded the ambient concentration by a factor of 10.9. The samples containing highest cadmium concentrations were collected at locations throughout the site (for example, WHSSBI02, WHSSBE04, and WHSSB50).

Copper

Copper was detected in 97 percent of the soil samples from the Wood Hogger Site, and exceeded the ambient concentration in 12 percent of the samples. Mean and maximum concentrations were higher in surface soils than in subsurface soils. The average concentrations of copper in site soil are comparable to those at the Tidal Area sites, with elevated copper concentrations found mainly in the northern part of the site. The maximum concentration exceeded the ambient concentration by a factor of 7.4. The relative absence of elevated copper concentrations in the area of the wood hogger machinery indicates that the disposal of wood preserved by copper compounds (if any did occur) has not contaminated site soil.

Lead

Lead was detected in 123 of 125 soil samples collected at the Wood Hogger Site at concentrations ranging up to 728 mg/kg (WHSSBF03, 4.5 to 5.9 feet bgs). Sixteen soil samples (15 surface and 1 subsurface) contained lead at concentrations exceeding the estimated ambient concentration of 95 mg/kg. Most samples with elevated lead concentrations were collected at locations in the north-central area of the site and in the area of the former wood hogger machinery. The presence of elevated lead concentrations chiefly in surface soil indicates an anthropogenic source.

Mercury

Mercury was detected in 57 percent of soil samples collected at the Wood Hogger Site at concentrations ranging up to 18.5 mg/kg (at location WHSSB022, at the southwestern corner of the Wood Hogger Site). Concentrations in 17 percent of the soil samples exceeded the ambient concentration; the maximum concentration exceeded the ambient concentration (0.32 mg/kg) by a factor of 58. Other significant

exceedances occurred at location WHSSB018, a bit further downstream along the edge of Otter Sluice, and location WHSSBB05, at the far western corner of SWMU 37.

Vanadium

Vanadium was detected in all of the surface and subsurface soil samples collected from the Wood Hogger Site. Although 10 percent of the samples exceeded the ambient concentration of 96.0 mg/kg, the maximum concentration was less than twice the ambient concentration. The mean concentration was less than the ambient concentration. In general, vanadium concentrations at the Wood Hogger Site do not appear to be significantly elevated above the ambient concentration.

Zinc

Zinc was detected in 91 percent of the soil samples collected at the Wood Hogger Site. The maximum concentration was 3010 mg/kg in surface soil at location WHSSB002, near the northwestern corner of the site. The maximum concentration exceeds the ambient concentration by a factor of 11.4. Location WHSSBA02, which is immediately adjacent to the location with the maximum concentration, also had elevated zinc. Overall, 16 percent of the samples exceeded the ambient concentration. Mean concentrations were greater in surface than in subsurface soils, indicating a possible anthropogenic source of zinc.

5.2.3.2 Surface Water

Extent of surface water at the Wood Hogger Site varies seasonally as certain locations become inundated, then dry out. Rainfall may collect in low areas of the Wood Hogger Site and mix with water from Suisun Bay that flows into the site when Otter Sluice overflows its banks. Surface water samples were collected from permanent and ephemeral bodies of water.

Surface water samples collected from 12 locations were analyzed for inorganic and organic chemicals. Four rounds of surface water sampling were conducted during the RI. Surface water was collected in July and October 1995 and January and May 1996 at three locations in the Wood Hogger Site. Unfiltered surface water samples were analyzed for TPH, VOCs, SVOCs, pesticides, PCBs, explosive compounds, and inorganic chemicals.

Complete analytical results for surface water samples collected during the RI are presented in Appendix E, Table E-2. Statistical summaries of surface water analytical results for the four surface water sampling events are presented in Tables 5-29 through 5-32. Summary statistics for the site overall are in Table 5-18.

Organic Compounds in Surface Water

Xylene was detected in one sample, collected in July 1996 at WHSSW006, at a concentration of 8 µg/L. No other organic compounds were detected in surface water samples.

Inorganic Compounds in Surface Water

Unfiltered surface water samples collected from the Wood Hogger Site were analyzed for CLP inorganic compounds. Detection frequency ranged from 8 percent (mercury) to 100 percent (barium and manganese). Maximum concentrations of cadmium, lead, and zinc were detected at WHSSW005, near the northern corner of SWMU 37.

5.2.4 Otter Sluice

Sediment and surface water were collected from the entire length of Otter Sluice as part of the supplemental sampling effort in summer 1998. Complete analytical results for sediment samples collected in 1998 are presented in Appendix F, Table F-1. Samples collected from Otter Sluice in 1995 include two that were designated as part of the R Area Site (RADSL001 and RADSL002) and three that were part of the Wood Hogger Site (WHSSL001, WHSSL002, and WHSSL003). These samples are included in the Otter Sluice data set for this revised draft final RI; the raw data for these samples can be found in the Otter Sluice data set in Appendix F.

5.2.4.1 Sediment

Sediment samples from 0 to 0.5 foot bgs were analyzed for inorganic and organic chemicals at 14 locations in Otter Sluice. Table 5-1 summarizes the samples collected at Tidal Area sites.

Organic Chemicals

Organic chemicals detected in sediment in Otter Sluice include PAHs, pesticides, and PCBs. Low concentrations of several SVOCs were detected, but only infrequently (up to 3 samples). Concentrations of DDT compounds detected in all of the sediment samples did not differ from the San Francisco Bay ambient concentrations reported by the RWQCB (RWQCB 1998). Chlordane compounds were detected in 50 percent of the sediment samples, and PCBs in 9 of 14 sediment samples.

Inorganic Chemicals

Based on the methods described in Section 5.1, concentrations of aluminum, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver,

thallium, vanadium, and zinc in Otter Sluice sediment were statistically different than Tidal Area ambient concentrations (see Table 5-8). However, most of these differences were the result of small sample size (14 samples). In fact, only aluminum, beryllium, chromium, mercury, and vanadium exceeded the ambient concentration in more than 1 sample. Because the ambient concentration was set at the detection limit for selenium and silver, these two chemicals are considered to have exceeded ambient concentrations whenever they were detected. In Otter Sluice samples, selenium was detected in 5 of 14 samples, and silver in 6 of 14 samples. Maximum concentrations of inorganic chemicals in sediment in Otter Sluice were scattered throughout the sluice; none exceeded the ambient concentration by more than a factor of 6. The spatial distribution of inorganic chemicals is discussed below.

Location RADSL001, near the mouth of Otter Sluice, had the highest concentrations of mercury. Location RADSL002, at the bend in Otter Sluice at the southwestern corner of the R Area Site, had the highest concentrations of chromium. Cadmium was highest in sediment at location OSLSL005, along the western edge of the Wood Hogger Site; however, this concentration was equal to the ambient concentration. The only sample in which thallium exceeded the ambient concentration was at location OSLSL007, at the southwestern edge of the Wood Hogger Site. Concentrations of beryllium, copper and zinc were highest at location OSLSL008, near the southeastern edge of the Wood Hogger Site; maximum concentrations of selenium and silver were reported as not detected (U qualifier) at this location. Arsenic, aluminum, and vanadium were highest at the most upstream sampling location in Otter Sluice, WHSSL003. Arsenic was not elevated above the ambient concentration.

Sediment in Otter Sluice is in direct contact with surface water of Suisun Bay through partial tidal exchange twice daily. To focus the RI on chemicals that may have originated at the site, exposure concentrations in sediment from Otter Sluice were compared with ambient concentrations in fine sediments of San Francisco Bay (RWQCB 1998). Sediment above the ambient threshold concentration is considered to be contaminated (RWQCB 1998). RWQCB ambient concentrations are available for 10 inorganic chemicals, total PAHs, PCBs, and selected chlorinated pesticides. Total DDTs were higher in the Bay than in Otter Sluice, so this chemical group was determined not to be site-related in Otter Sluice.

5.2.4.2 Surface Water

Thirty-three surface water samples were collected from the entire length of Otter Sluice, the only perennially inundated habitat in the Tidal Area sites. Surface water in Otter Sluice is partially exchanged through tidal action twice daily. The composition of surface water in Otter Sluice is expected to change both daily with the tidal cycle and annually with the rainy season.

Complete analytical results for surface water samples collected during the RI are presented in Appendix F, Table F-2. Statistical summaries of surface water analytical results for the four surface water sampling events are presented in Tables 5-33 through 5-37. Summary statistics for the site overall are in Table 5-19.

Organic Compounds in Surface Water

Organic chemicals were notably absent in surface water samples from Otter Sluice. Chlorormethane, bis(2-ethylhexyl)phthalate, alpha-chlordane, and heptachlor were each detected in a single sample. Table 5-19 provides a statistical summary of surface water concentrations in Otter Sluice.

Inorganic Compounds in Surface Water

Aluminum, barium, iron, and manganese were detected in all of the surface water samples. Other inorganic chemicals were detected less frequently (see Table 5-19).

5.3 GROUNDWATER CHARACTERIZATION IN THE TIDAL AREA SITES

This section briefly summarizes the groundwater chemical characterization based on results of the October 1997 confirmation groundwater sampling (TtEMI 1998b). All monitoring wells were sampled for metals, TDS, TSS, and stable isotopes of oxygen and hydrogen to verify existing metals data and to obtain hydrological data. The seven monitoring wells near the Landfill were also sampled for a full range of analytes (VOCs, SVOCs, metals, pesticides, and PCBs). Hydrocarbon compounds, such as BTEX and PAHs, are included in the VOC and SVOC analyte lists. Wells RTW-5, RTW-6, and FTW-3 were sampled for pesticides, PCBs, and/or SVOCs because these analytes were detected in nearby surface soils (PRC 1997a). In addition, selected wells were sampled for radioisotopes to determine whether groundwater in the Tidal Area is contaminated by radiological sources.

5.3.1 Inorganics

Analytical data for metals, TDS, and TSS samples collected during the confirmation groundwater sampling event in October 1997 are presented in Table 5-39. The analytical results from the confirmation groundwater sampling are also presented alongside all historical data for each well in Appendix L.

The quarterly metals samples were collected using traditional purging and filtering techniques, and the samples were filtered in the field with 0.45 micron filters (IT Corporation 1992). Recent EPA studies have shown that filtered samples may not be representative of the metals that are mobile under natural groundwater flow conditions and that low flow rate purging techniques can be used to obtain more

accurate and representative groundwater samples for metals (Puls and Powell 1992). By using low flow rate purging techniques, the sampling process more closely matches natural groundwater flow conditions and transport of suspended solids, and analytical problems and uncertainties caused by turbidity are reduced.

The groundwater samples collected during this investigation were collected using low-flow-rate sampling techniques where possible. Nine of the 23 wells were sampled using low-flow-rate techniques. Recharge rates in the remaining 14 wells were too low to support low flow rate sampling. Recharge rates in these 14 wells did not meet the lowest pumping rate recommended by EPA (0.1 L/min) (EPA 1996c). These wells were purged dry, allowed to recharge, and sampled the following day. Suspended solids in these wells were allowed to settle out of the water column naturally. None of the samples collected for metals analysis were filtered.

The turbidity, TDS, and TSS data demonstrate that both sampling techniques were able to successfully reduce the amount of solids present in the samples. With the exception of samples from three wells (TLW-1, WHW-3, and FTW-2), all of the samples had turbidities lower than 25 NTU. All but four wells (TLW-1, TLW-2, RDW-2, and RDW-3) had suspended solids concentrations below 100 milligrams per liter (mg/L). Turbidities and suspended solids concentrations are roughly comparable between the wells sampled using the natural settling technique and the low-flow-rate purging. Therefore, the different sampling techniques used in the confirmation groundwater sampling are not expected to have an influence on reported metals concentrations.

Both the quarterly data from 1990/1991 and the more recent confirmation groundwater sampling data appear to be accurate and representative. The comparability of the data sets from 1990/1991 and 1997 indicates that conditions in the subsurface are somewhat static and that metals concentrations have no long-term trend.

TDS is generally quite high in the Tidal Area sites. A TDS distribution map is presented in the technical memorandum (TtEMI 1998b). TDS concentrations in each well exceed 3,000 mg/L and exceed that of seawater (35,000 mg/L) over much of the area. TDS concentrations are generally high in the R Area Site and are lowest at the upgradient edge of the Landfill.

Under State Water Resources Control Board (SWRCB) Resolution No. 88-63 (SWRCB 1991), all groundwater is considered potentially suitable for municipal or domestic supply unless at least one of the following conditions applies:

1. TDS concentration exceeds 3,000 mg/L, and the groundwater is not reasonably expected by Regional Boards to supply a public water system.
2. Groundwater is contaminated, either by natural processes or by human activity, to the degree that it cannot reasonably be treated for domestic use.

Because TDS concentrations exceed 3,000 mg/L in each of the wells, groundwater in the Tidal Area sites is not considered potable (RWQCB 1995).

Federal groundwater classification criteria considers groundwater to be a potential source of drinking water if both of the following criteria are met:

1. TDS concentration is less than 10,000 mg/L.
2. Well yields a minimum of 150 gallons per day (gpd) or 0.104 gallon per minute.

Data presented in the Confirmation Groundwater Sampling TM indicate that four of the 23 Tidal Area wells have TDS concentrations below 10,000 mg/L and could therefore be considered potentially potable. The Navy has not quantitatively evaluated sustainable well yield in these four wells, but the material the wells are screened in (silty clay) is typically unable to support withdrawal rates of 150 gpd. Further, the areas where TDS concentrations are below 10,000 mg/L are situated in close proximity to areas where TDS concentrations are substantially higher. Prolonged withdrawal of water from the wells with TDS concentrations below 10,000 mg/L would rapidly draw in nearby water with higher TDS. Wells with more saline groundwater are located a maximum of approximately 500 feet from the wells containing low TDS concentrations; therefore, the wells could not withdraw water at a sustained rate of 150 gpd without experiencing an increase in TDS concentrations in a short period of time. For these reasons, groundwater in the Tidal Area is not potable.

Because both precipitation and local surface water are expected to have low concentrations of dissolved solids, the hypersaline groundwater conditions provide evidence that evaporative concentration is an important process occurring in the Tidal Area. The hydrodynamics of the Tidal Area appears to be dominated by overland flow of brackish surface water from Otter Sluice during winter storm-related tidal extremes, entrapment of the surface water by road berms and other surface features, and evaporative concentration of salts, resulting in high salinity groundwater. The progressive accumulation of salts in the groundwater also provides evidence that groundwater does not discharge to Suisun Bay. If groundwater discharged continuously from the Tidal Area sites to Suisun Bay, salts would continually discharge along with the groundwater rather than accumulating. In effect, salts appear to be impounded in groundwater beneath the low parts of the Tidal Area by evaporative processes and phreatophytic pumping.

Figures 5-1 through 5-6 show the geographic distribution of TDS and selected metals (arsenic, chromium, iron, nickel, and zinc). Based on groundwater confirmation groundwater sampling, concentration contour maps were prepared for metals that exceeded the lower of the marine or freshwater chronic ambient water quality criteria (AWQC) (EPA 1992d) in at least one well. Maps were not constructed for copper or silver because these compounds were detected at low estimated concentrations in only a few wells. AWQC have not been selected as appropriate regulatory limits for SBD Concord groundwater. Rather they have been used as preliminary screening criteria to select metals that could conceivably pose a risk to marine aquatic organisms; however, risk resulting from chemicals in groundwater was not evaluated in the revised draft final ERA because there is no exposure pathway.

The geographic distribution of metals in groundwater varies from metal to metal but is generally characterized by isolated hot spots. Metal concentrations were generally highest in the center of the R Area Site and the north central part of the Wood Hogger Site, but it is important to note that each metal was also detected at relatively high concentrations in at least one of the upgradient wells along Taylor or Johnson Roads. The highest chemical concentrations observed in groundwater were summarized in the response to comments on the confirmation groundwater sampling (Navy 2003a, Appendix A). For example, the second highest arsenic concentration was detected in well FTW-4, and the highest concentration of nickel was detected in TLW-5 (Figure 5-5). Although chloride and salinity concentrations are not available for the suggested covariant analysis, the TDS map (Figure 5-1) shows hyper saline TDS values of 65,600 mg/L (more than twice the TDS concentration of sea water), providing further evidence for evaporative processes. The potentiometric surface and observed TDS values support the concept that evaporative processes are an important factor in the Tidal Area. This distribution suggests that metals are concentrated in the R Area Site by evaporative processes and that local geochemical and hydrogeologic conditions are also significant. The distribution of TDS and metal concentrations as presented in Figures 5-1 through 5-6 may also be affected by the analytical difficulties associated with analyzing water with high dissolved solids contents, as discussed above. These figures do not show evident plumes of metal-contaminated groundwater emanating from the Tidal Area sites.

5.3.2 Organic Compounds

Ten of the monitoring wells were sampled for organic compounds during the confirmation groundwater sampling in October 1997. These wells included the seven Landfill monitoring wells and three wells (FTW-3, RDW-5, and RDW-6) where SVOCs, pesticides, or PCBs were detected in nearby soils. Analytical results from the confirmation groundwater sampling are presented on Table 5-40. All of the historical groundwater sample data are presented in Appendix L.

Analytical results presented in Table 5-40 indicate that Tidal Area groundwater is not significantly affected by organic compounds. The common laboratory contaminants bis(2-ethylhexyl)phthalate and 2-butanone were detected in two samples, and carbon disulfide was detected at trace concentrations in three of the Landfill monitoring wells. Carbon disulfide occurs naturally in marshy environments (U.S. Department of Health and Human Services 1996), so it is unlikely that the trace amounts of carbon disulfide represent contamination by anthropogenic sources. Phenanthrene and 4-methyl-2-pentanone were detected at estimated trace concentrations of 1 µg/L in one well each.

The analytical results for the most recent sampling event are consistent with earlier sampling events. Historical analytical data presented in Appendix L indicate that organic compounds other than carbon disulfide were not detected consistently in any of the Tidal Area monitoring wells. The lack of organic contamination of groundwater has been confirmed by the quarterly groundwater sampling in 1990/1991, the limited Tidal Area Sites Confirmation Study in 1993, (James M. Montgomery Consulting Engineers 1993) and by the October 1997 Confirmation Groundwater Sampling TM (TtEMI 1998b). Groundwater in the Tidal Area is not affected to any significant extent by organic compounds.

5.3.3 Radionuclides

Cobalt was consistently detected in groundwater in several wells in the Wood Hogger Site at concentrations up to 133 µg/L during the 1990/1991 quarterly sampling, and it was detected at lower concentrations (up to 30.7 µg/L) during the groundwater confirmation sampling. Detection of cobalt at these concentrations is unusual, and because some isotopes of cobalt are radioactive, additional testing was suggested to investigate whether high concentrations of radioactive cobalt are present in groundwater at the site. To determine whether the cobalt represents a potential radioisotope contamination problem, groundwater samples from four wells in which cobalt was detected were analyzed using gamma spectroscopy techniques. Samples from Suisun Bay and from five other wells in which cobalt was not detected were also analyzed to evaluate ambient concentrations of gamma-emitting radionuclides in groundwater and surface water at the site. Radioisotope data collected during this investigation are presented in Table 5-41. Radioisotope data laboratory reports are included as Appendix F of the Confirmation Groundwater Sampling TM (TtEMI 1998b).

Groundwater samples were not analyzed for gross alpha or gross beta radioactivity because the high dissolved solids in the groundwater were expected to interfere with the analytical procedures and because those methods are not specific to cobalt. When samples are evaporated for alpha analysis, dissolved solids are expected to form a crust that will impede the movement of alpha particles. For beta analysis, the high potassium concentrations in groundwater are expected to create elevated levels of naturally

occurring beta radiation that will dominate beta emissions from other radioisotopes. Potassium concentrations in the site groundwater generally ranged from 50 to 500 mg/kg.

Because gamma spectroscopy results are often difficult to distinguish from background, a relative error ratio (RER) approach described by the International Organization of Standardization was used to assess data quality for the radioisotope analyses. RERs for the matrix duplicate sample from well RDW-4 were well below 2.0, indicating that the radioisotope data is of acceptable quality.

Cobalt-60 (^{60}Co), the radioactive isotope of cobalt, was not detected in any of the samples at a detection limit of 5 picocuries per liter (pCi/L); therefore, the cobalt detected in the groundwater does not appear to result from nuclear-related activities. Quantification of other radionuclides was not specifically requested from the laboratory; however, the laboratory will specify detected radionuclides and indicate the concentration. Nondetected radioisotopes are not listed except for ^{60}Co.

Isotopes were detected at low concentrations in both the samples and the method blank (see Table 5-41). Most of these compounds were detected at concentrations very close to the method detection limit and at comparable concentrations to the method blank; therefore, these detections are not considered significant and may be only an artifact of the analytical method. Several isotopes related to fallout from atmospheric nuclear testing (cerium-141 and cesium-137) were also detected at low concentrations.

Potassium-40 (^{40}K) and radium-226 (^{226}Ra) were detected in groundwater samples from each of the wells at concentrations of more than 100 pCi/L. These compounds occur naturally in sea water and were detected in the background sample from Suisun Bay. The concentrations in the groundwater samples were greater than in the Suisun Bay sample and appear to be related to the evaporative concentration process active in the Tidal Area sites.

Radium-224 (^{224}Ra) was detected in groundwater samples from each of the monitoring wells, but not in the sample from Suisun Bay. ^{224}Ra occurs naturally in sea water as a decay product of thorium (Shleien and others 1998), and is probably present at low concentrations in Suisun Bay. Concentrations of both ^{40}K and ^{226}Ra were higher in groundwater than in the sample from Suisun Bay. Because the concentrations of ^{224}Ra identified in groundwater were generally close to the method detection limit, it is likely that ^{224}Ra was present at a lower concentration in the sample from Suisun Bay, but it was not detected because the level was below the detection limit. The distribution of ^{224}Ra in groundwater does not indicate a plume of contamination emanating from the Landfill or from other site sources.

In summary, groundwater in the Tidal Area sites does not appear to be contaminated by radioactive isotopes. Groundwater samples were subjected to testing by gamma spectroscopy to determine whether the cobalt detected in the quarterly sampling represented a possible radioactive contamination problem. Radioactive isotopes of cobalt were not detected in the samples. The radioisotopes ^{40}K, ^{224}Ra, and ^{226}Ra were detected in each of the groundwater samples and are ubiquitous in sea water. As these radioisotopes occur naturally and the distribution of the isotopes in groundwater does not indicate a plume of contamination emanating from the Landfill or from other site sources, they will not be considered further. Traces of several fallout-related isotopes were also detected at low concentrations.

5.4 SAMPLING AND DATA ANALYSIS

Data were used to evaluate site conditions for all Tidal Area sites, including Otter Sluice; measurements obtained from samples must be used to estimate the true population parameters of interest, and each of these estimates has associated error (Gilbert 1987).

Based on reviews of the draft and draft final RI and QEA (PRC 1997a; TtEMI 1999a) and discussions at agency meetings (TtEMI 2000a, 2000b), sample sizes and spatial coverage of the sites are considered to be adequate for characterizing the nature and extent of contamination at Tidal Area sites. For PCBs and some pesticides, low-level analytical methods were used. However, a large percentage of nondetects occurred in some data sets. In the ERA, conservative estimates of total concentrations of DDT and PCBs were used to guard against underestimating risk.

Data used in this draft final RI were validated and determined to be of high usability. Data quality, as identified and defined in the QAPP (PRC 1995b), is not considered to be an important source of uncertainty; most of the uncertainty associated with chemistry data reflects limitations in analytical methods and instruments, and does not appreciably affect conclusions of the risk assessment.

5.5 CALCULATED TOTALS FOR CLASSES OF ORGANIC CHEMICALS

All organic chemicals detected at a site were subjected to evaluation in the HHRA and ERA. Because many of the benchmarks used in risk assessment are based on total concentrations of a class of chemical, such as PCBs, concentrations of chemicals at a site were summed to reflect the constituents represented by the benchmark. Total concentrations of DDTs, PCBs, chlordanes, and PAHs were calculated as described below. For nondetect concentrations, one-half of the detection limit was used in the sum to calculate totals.

The total concentration of DDTs at each location was calculated by adding detected concentrations and one-half the detection limit for nondetect results of the following congeners: 2,4'-DDD; 2,4'-DDE; 2,4'-DDT; 4,4'-DDD; 4,4'-DDE; and 4,4'-DDT. The total concentration of PCBs at each location was calculated by adding detected concentrations and one-half the detection limit of nondetect concentrations of 18 congeners and then multiplying the total by 2 (NOAA 1993). The 18 congeners used in the totals were PCBs 8, 18, 28, 44, 52, 66, 101, 105, 118, 128, 138, 153, 170, 180, 187, 195, 206, and 209. PCB congeners 77 and 126 were not included in the totals, based on the methods outlined in NOAA (1993).

Total chlordanes were calculated as the sum of alpha-chlordane, gamma-chlordane, heptachlor, heptachlor epoxide, hexachlorobenzene, oxychlordane, and trans-Nonachlor. Concentrations of both detected concentrations and one-half of the detection limit for nondetected concentrations were used in the calculation of total chlordanes.

In accordance with NOAA methods, total concentrations of PAHs were calculated (NOAA 1993). Low-molecular weight (LMW) PAHs include acenaphthene; acenaphthylene; anthracene; biphenyl; fluorene; naphthalene; phenanthrene; 1-methylnaphthalene;2-methylnaphthalene; 1-methylphenanthrene; 2,3,5-trimethylnaphthalene; and 2,6-dimethylnaphthalene. The high-molecular weight (HMW) PAH group includes benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; dibenzothiophene; dibenzo(a,h)anthracene; fluoranthene; indeno(1,2,3-cd)pyrene; perylene; and pyrene. Total PAHs are considered to be the sum of the LMW and HMW groups. Both low-level and CLP PAHs were measured at the Tidal Area; some PAHs were analyzed using both methods. Therefore, total PAHs are reported based on a combination of low-level and CLP analyses; whenever both low-level and CLP analyses exist for a particular compound, the low-level analysis detected concentration (or one-half of the detection limit of the low-level analysis) was used preferentially in the calculation of total PAHs.

TABLE 5-1

NUMBER OF SAMPLES AND TYPES OF ANALYSES
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Analysis	R Area	Wood Hogger	Froid and Taylor Roads	Otter Sluice
Surface Soil/Sediment (0 - 0.5 foot below ground surface)				
Number of Locations	111	68	14	14
Metals	111	68	12	14
PCBs and Pesticides	65	47	12[a]	14
Dioxins	--	11	--	4
SVOCs	65	49	12	14
VOCs	--	1	--	--
TPH	--	1	9	--
Subsurface Soil/Sediment (0.5 – maximum depth)[b]				
Number of Locations[c]	15	25	9	--
Metals	20	57	9	--
PCBs and Pesticides	20	55[d]	9[d]	--
Dioxins	--	--	--	--
SVOCs	20	58	9	--
VOCs	20	55	9	--
TPH	--	6	9	--
Surface Water				
Number of Locations	13	3	5	15
Number of samples	36	12	9	33
Metals	36	12	9	33
PCBs and Pesticides	35	12	9	33
VOCs	36	12	6[e]	24

Notes:

a Two additional soil samples were analyzed for technical chlordane.
b Maximum depth of samples varied by site: R Area (6 feet below ground surface), Wood Hogger (20 feet below ground surface), Froid and Taylor Roads (3 feet below ground surface)
c At some locations, samples were taken at multiple depths.
d Aroclors, not PCB congeners, were analyzed for at this depth.
e These samples were also analyzed for TPH.

PCB Polychlorinated biphenyl
SVOC Semivolatile organic compound
TPH Total petroleum hydrocarbons
VOC Volatile organic compound
-- No subsurface sampling or analysis was conducted in this area.

TABLE 5-2

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SURFACE SOILS AT THE R AREA SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Soils (0 to 0.5 foot bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)	Chemicals Retained
Aluminum	111/111	100%	18,300	16,800	4,420	33,700	Reject	NT	**Retain**	**Aluminum**
Antimony	74/100	74%	1.2	0.97	0.53	7.1	Reject	Reject	**Retain**	**Antimony**
Arsenic	110/111	99%	12.4	10.1	3.8	47.2	Reject	NT	**Retain**	**Arsenic**
Barium	111/111	100%	150	122	42.5	7,710	Reject	NT	**Retain**	**Barium**
Beryllium	15/111	14%	0.074	0.03	0.11	0.57	Fail to Reject	Reject	**Retain**	**Beryllium**
Cadmium	4/111	4%	0.048	0.03	0.43	0.83	Fail to Reject	Fail to Reject	Drop	
Chromium	105/111	95%	56.6	52.8	18.1	319	Reject	NT	**Retain**	**Chromium**
Cobalt	111/111	100%	16.1	15.2	7.2	31.5	Reject	NT	**Retain**	**Cobalt**
Copper	111/111	100%	45.6	41.3	17.3	272	Reject	NT	**Retain**	**Copper**
Iron	111/111	100%	31,800	28,500	12,800	135,000	Reject	NT	**Retain**	**Iron**
Lead	111/111	100%	64.9	45.5	7.5	300	Reject	NT	**Retain**	**Lead**
Manganese	111/111	100%	515	470	59	2,090	Reject	NT	**Retain**	**Manganese**
Mercury	85/111	77%	0.2	0.14	0.05	0.92	Reject	Reject	**Retain**	**Mercury**
Molybdenum	23/111	21%	0.7	0.2	0.32	53.7	Fail to Reject	Fail to Reject	Drop	
Nickel	111/111	100%	72.1	71.4	29	146	Reject	NT	**Retain**	**Nickel**
Selenium[d]	2/111	2%	0.54	0.47	1	1.3	Fail to Reject	Fail to Reject	Drop	
Silver[d]	9/111	8%	0.12	0.09	0.21	0.72	Reject	Reject	**Retain**	**Silver**

TABLE 5-2 (Continued)

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SURFACE SOILS AT THE R AREA SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Soils (0 to 0.5 foot bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)	Chemicals Retained
Thallium	8/111	7%	0.37	0.29	0.66	2.4	Fail to Reject	Fail to Reject	Drop	
Vanadium	111/111	100%	67.6	66.1	32.3	130	Fail to Reject	Reject	**Retain**	**Vanadium**
Zinc	111/111	100%	149	115	46.9	959	Reject	NT	**Retain**	**Zinc**

Notes: Bold cells indicate that the chemical was retained based on the Tidal Area ambient value.
"Reject" means that site concentrations are greater than ambient concentrations and the chemical is therefore retained.

a To calculate the mean and median, substitute values of one-half of the sample quantitation limit were used for all analytical data reported as not detected.

b The WRS Test was performed if the detection frequency was greater that 50 percent in both the site and ambient data sets. The F Test was performed if the detection frequency was less than 50 percent in either the site or ambient data sets.

c The Quantile Test was performed only for chemicals not rejected by the WRS Test (that is, if site concentrations were not elevated with respect to ambient concentrations on the basis of the WRS Test).

d An ambient data set was not developed because of the low detection frequency for this chemical; the ambient concentration was set equal to the detection limit.

bgs Below ground surface
F Test Fisher's Exact Test (test of proportions)
H_o Null hypothesis
mg/kg Milligrams per kilogram
NT Not tested
WRS Wilcoxon Rank Sum Test

TABLE 5-3

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SOIL AT THE R AREA SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Soil (0 to 6 feet bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)	Chemicals Retained
Aluminum	131/131	100%	18,300	17,000	4,420	33,700	Reject	NT	**Retain**	**Aluminum**
Antimony	76/129	59%	1.1	0.9	0.53	7.1	Reject	Reject	**Retain**	**Antimony**
Arsenic	126/131	96%	12.5	10.1	2.3	47.2	Reject	NT	**Retain**	**Arsenic**
Barium	131/131	100%	112	112	25.7	7,710	Reject	NT	**Retain**	**Barium**
Beryllium	16/131	12%	0.025	0.025	0.11	0.57	Fail to Reject	NV	Drop	
Cadmium	5/131	4%	0.03	0.03	0.4	0.83	Fail to Reject	NV	Drop	
Chromium	124/131	95%	52.8	52.8	18.1	319	Reject	NT	**Retain**	**Chromium**
Cobalt	131/131	100%	14.6	14.6	3.7	108	Reject	NT	**Retain**	**Cobalt**
Copper	131/131	100%	44.2	39.6	13	272	Reject	NT	**Retain**	**Copper**
Lead	130/131	99%	63.2	40.9	4.7	1,160	Reject	NT	**Retain**	**Lead**
Manganese	131/131	100%	520	432	59	6,300	Reject	NT	**Retain**	**Manganese**
Mercury	91/131	69%	0.11	0.11	0.05	0.92	Reject	Reject	**Retain**	**Mercury**
Molybdenum	35/131	27%	0.24	0.24	0.32	53.7	Fail to Reject	Fail to Reject	Drop	
Nickel	131/131	100%	70.8	68.5	25	242	Reject	NT	**Retain**	**Nickel**
Selenium[d]	3/131	2%	0.48	0.48	1	2.8	Fail to Reject	NV	Drop	
Silver[d]	9/131	7%	0.085	0.085	0.21	0.72	Reject	NV	**Retain**	**Silver**
Thallium	10/131	8%	0.29	0.29	0.66	5.4	Fail to Reject	NV	Drop	
Vanadium	131/131	100%	67.4	66.1	32.3	130	Fail to Reject	Reject	**Retain**	**Vanadium**
Zinc	131/131	100%	108	108	40.4	959	Reject	NT	**Retain**	**Zinc**

TABLE 5-3 (Continued)

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SOIL AT THE R AREA SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Notes: Bolded text indicate chemical was retained based on the Tidal Area ambient value.
"Reject" means that site concentrations are different than ambient concentrations; therefore, the chemical is retained.

a	To calculate the mean and median, substitute values of one-half the sample quantitation limit were used for all analytical data reported as not detected.
b	The WRS test was performed if the detection frequency was greater than 50 percent in both the site and ambient data sets. The F test was performed if the detection frequency was less than 50 percent in either the site or ambient data sets
c	The quantitle test was performed only for chemicals not rejected by the WRS test (that is, if site concentrations were not elevated witih respect to ambient concentrations on the basis of the WRS test).
d	An ambient data set was not developed because of the low detection frequency for this chemical; the ambient concentration was set equal to the detection limit.
bgs	Below ground surface
F test	Fisher's exact test (test of proportions)
H_o	Null hypothesis
mg/kg	Milligram per kilogram
NT	Not tested
NV	No valid test could be performed; one or more of the largest r measurements in the combined site and ambient data set was below the detection limit
WRS	Wilcoxon Rank Sum Test

Reference:

Gilbert, R. O. 1987. *Statistical Methods for Environmental Pollution Monitoring* . John Wiley & Sons, Inc. New York, NY. 320 p.

TABLE 5-4

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SURFACE SEDIMENT AND SOIL AT FROID AND TAYLOR ROADS SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Sediments and Soils (0 to 0.5 foot bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)	Chemicals Retained
Aluminum	12/12	100%	14,600	13,900	7,020	37,500	Fail to Reject	Fail to Reject	Drop	
Antimony	3/6	50%	1.3	1.13	1.1	2.2	Fail to Reject	Fail to Reject	Drop	
Arsenic	11/12	92%	10.7	10	4.5	23.2	Fail to Reject	Fail to Reject	Drop	
Barium	12/12	100%	152	164	48.7	234	Reject	NT	**Retain**	**Barium**
Beryllium	1/12	8%	0.060	0.03	0.35	0.35	Fail to Reject	Fail to Reject	Drop	
Cadmium	7/12	58%	0.65	0.4	0.32	1.9	Reject	Fail to Reject	**Retain**	**Cadmium**
Chromium	12/12	100%	42.2	36.8	25.1	106	Fail to Reject	Fail to Reject	Drop	
Cobalt	12/12	100%	11.1	10.8	4.7	20.6	Fail to Reject	Fail to Reject	Drop	
Copper	12/12	100%	51.1	49.4	25.3	92	Reject	NT	**Retain**	**Copper**
Iron	12/12	100%	22,500	19,200	15,400	47,100	Fail to Reject	Fail to Reject	Drop	
Lead	12/12	100%	133	82.8	14.3	515	Reject	NT	**Retain**	**Lead**
Manganese	12/12	100%	560	186	135	3,530	Fail to Reject	Fail to Reject	Drop	
Mercury	9/12	75%	0.21	0.17	0.07	0.49	Reject	Reject	**Retain**	**Mercury**
Molybdenum	2/12	17%	0.60	0.17	0.22	4.3	Fail to Reject	Fail to Reject	Drop	
Nickel	12/12	100%	50.9	51.3	22.7	90.9	Fail to Reject	Fail to Reject	Drop	
Selenium[d]	2/12	17%	0.70	0.54	1.2	1.5	Fail to Reject	Fail to Reject	Drop	
Silver[d]	7/12	58%	0.25	0.18	0.15	0.63	Reject	Reject	**Retain**	**Silver**

TABLE 5-4 (Continued)

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SURFACE SEDIMENT AND SOIL AT FROID AND TAYLOR ROADS SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Sediments and Soils (0 to 0.5 foot bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)	Chemicals Retained
Thallium	2/12	17%	0.74	0.38	1.1	3.8	Fail to Reject	Fail to Reject	Drop	
Vanadium	12/12	100%	56.1	52.7	38.4	113	Fail to Reject	Fail to Reject	Drop	
Zinc	12/12	100%	157	146	58.5	436	Reject	NT	**Retain**	**Zinc**

Notes: Bold cells indicate that the chemical was retained based on the Tidal Area ambient value.
"Reject" means that site concentrations are greater than ambient concentrations and the chemical is therefore retained.

a To calculate the mean and median, substitute values of one-half of the sample quantitation limit were used for all analytical data reported as not detected.

b The WRS Test was performed if the detection frequency was greater that 50 percent in both the site and ambient data sets. The F Test was performed if the detection frequency was less than 50 percent in either the site or ambient data sets.

c The Quantile Test was performed only for chemicals not rejected by the WRS Test (that is, if site concentrations were not elevated with respect to ambient concentrations on the basis of the WRS Test).

d An ambient data set was not developed because of the low detection frequency for this chemical; the ambient concentration was set equal to the detection limit.

bgs Below ground surface
F Test Fisher's Exact Test (test of proportions)
H_o Null hypothesis
mg/kg Milligrams per kilogram
NT Not tested
WRS Wilcoxon Rank Sum Test

TABLE 5-5

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SEDIMENT AND SOIL AT FROID AND TAYLOR ROADS SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Sediments and Soils (0 to 3 feet bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop	Chemicals Retained
Aluminum	21/21	100%	13,700	11,000	4,810	37,500	Fail to Reject	Fail to Reject	Drop	
Antimony	3/6	50%	1.1	1.1	1.1	2.2	Fail to Reject	Fail to Reject	Drop	
Arsenic	18/21	86%	9.8	7.8	4.5	26.6	Fail to Reject	Fail to Reject	Drop	
Barium	21/21	100%	110	110	27.7	234	Fail to Reject	Fail to Reject	Drop	
Beryllium	1/21	5%	0.035	0.035	0.35	0.35	Fail to Reject	NV	Drop	
Cadmium	8/21	38%	0.34	0.095	0.32	1.9	Reject	NV	**Retain**	**Cadmium**
Chromium	21/21	100%	40.6	33.4	15.3	106	Fail to Reject	Fail to Reject	Drop	
Cobalt	21/21	100%	9.8	8.6	3.6	20.6	Fail to Reject	Fail to Reject	Drop	
Copper	21/21	100%	40.5	30.8	13.1	92	Fail to Reject	Fail to Reject	Drop	
Lead	21/21	100%	82.3	32.8	3.5	515	Reject	NT	**Retain**	**Lead**
Manganese	21/21	100%	186	186	60.7	3,530	Fail to Reject	Fail to Reject	Drop	
Mercury	14/21	67%	0.18	0.13	0.07	0.49	Reject	Reject	**Retain**	**Mercury**
Molybdenum	6/21	29%	0.26	0.26	0.22	4.3	Fail to Reject	Fail to Reject	Drop	
Nickel	21/21	100%	48.9	51.4	15.6	90.9	Fail to Reject	Fail to Reject	Drop	
Selenium[d]	2/21	10%	0.6	0.6	1.2	1.5	Fail to Reject	NV	Drop	
Silver[d]	7/21	33%	0.21	0.15	0.15	0.63	Reject	NV	**Retain**	**Silver**
Thallium	4/21	19%	0.44	0.44	0.64	3.8	Fail to Reject	Fail to Reject	Drop	
Vanadium	21/21	100%	58	50.7	32.6	136	Fail to Reject	Fail to Reject	Drop	
Zinc	21/21	100%	118	106	27.5	436	Reject	NT	**Retain**	**Zinc**

TABLE 5-5 (Continued)

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SEDIMENT AND SOIL AT FROID AND TAYLOR ROADS SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Notes: Bolded text indicate chemical was retained based on the Tidal Area ambient value.
"Reject" means that site concentrations are different than ambient concentrations; therefore, the chemical is retained.

a To calculate the mean and median, substitute values of one-half the sample quantitation limit were used for all analytical data reported as not detected.
b The WRS test was performed if the detection frequency was greater than 50 percent in both the site and ambient data sets. The F test was performed if the detection frequency was less than 50 percent in either the site or ambient data sets
c The quantitle test was performed only for chemicals not rejected by the WRS test (that is, if site concentrations were not elevated witih respect to ambient concentrations on the basis of the WRS test).
d An ambient data set was not developed because of the low detection frequency for this chemical; the ambient concentration was set equal to the detection limit.

bgs Below ground surface
F test Fisher's exact test (test of proportions)
H_o Null hypothesis
mg/kg Milligram per kilogram
NT Not tested
NV No valid test could be performed; one or more of the largest r measurements in the combined site and ambient data set was below the detection limit
WRS Wilcoxon Rank Sum Test

Reference:

Gilbert, R. O. 1987. *Statistical Methods for Environmental Pollution Monitoring* . John Wiley & Sons, Inc. New York, NY. 320 p.

TABLE 5-6

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SURFACE SEDIMENT AND SOIL AT WOOD HOGGER SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Sediments and Soils (0 to 0.5 foot bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)	Chemicals Retained
Aluminum	68/68	100%	15800	14,200	5130	42,700	Fail to Reject	Reject	**Retain**	**Aluminum**
Antimony	48/68	71%	1.7	1.2	0.44	7.1	Reject	Reject	**Retain**	**Antimony**
Arsenic	64/68	94%	9.9	6.8	1.3	27.1	Fail to Reject	Fail to Reject	Drop	
Barium	68/68	100%	128	112	7.9	353	Reject	NT	**Retain**	**Barium**
Beryllium	30/68	44%	0.15	0.05	0.010	0.84	Reject	Reject	**Retain**	**Beryllium**
Cadmium	31/68	46%	1.5	0.09	0.05	20.8	Reject	Reject	**Retain**	**Cadmium**
Chromium	68/68	100%	40.5	33.9	14.9	122	Fail to Reject	Fail to Reject	Drop	
Cobalt	68/68	100%	15.1	12.8	2.4	39.3	Reject	NT	**Retain**	**Cobalt**
Copper	65/68	96%	56.7	38.9	7.6	607	Reject	NT	**Retain**	**Copper**
Iron	68/68	100%	29,900	24,550	3,570	73,300	Reject	NT	**Retain**	**Iron**
Lead	68/68	100%	74	29.7	1.8	598	Reject	NT	**Retain**	**Lead**
Manganese	68/68	100%	511	458	55.3	1,270	Reject	NT	**Retain**	**Manganese**
Mercury	55/68	81%	0.5	0.16	0.030	18.5	Reject	Reject	**Retain**	**Mercury**
Molybdenum	27/68	40%	0.82	0.20	0.25	5.6	Fail to Reject	Fail to Reject	Drop	
Nickel	68/68	100%	46.4	37.6	10.8	123	Fail to Reject	Fail to Reject	Drop	
Selenium[d]	4/68	6%	0.63	0.43	0.67	3.5	Fail to Reject	Fail to Reject	Drop	
Silver[d]	9/68	13%	0.23	0.1	0.16	4.4	Reject	Reject	**Retain**	**Silver**

TABLE 5-6 (Continued)

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SEDIMENT AND SOIL AT WOOD HOGGER SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Sediments and Soils (0 to 0.5 foot bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)	Chemicals Retained
Thallium	9/68	13%	0.42	0.25	0.69	2.4	Fail to Reject	Fail to Reject	Drop	
Vanadium	68/68	100%	63.3	60	25.5	139	Fail to Reject	Reject	**Retain**	**Vanadium**
Zinc	68/68	100%	244	139	28.6	3010	Reject	NT	**Retain**	**Zinc**

Notes: Bold cells indicate that the chemical was retained based on the Tidal Area ambient value.
"Reject" means that site concentrations are greater than ambient concentrations and the chemical is therefore retained.

a To calculate the mean and median, substitute values of one-half of the sample quantitation limit were used for all analytical data reported as not detected.

b The WRS Test was performed if the detection frequency was greater that 50 percent in both the site and ambient data sets. The F Test was performed if the detection frequency was less than 50 percent in either the site or ambient data sets.

c The Quantile Test was performed only for chemicals not rejected by the WRS Test (that is, if site concentrations were not elevated with respect to ambient concentrations on the basis of the WRS Test).

d An ambient data set was not developed because of the low detection frequency for this chemical; the ambient concentration was set equal to the detection limit.

bgs Below ground surface
F Test Fisher's Exact Test (test of proportions)
H_o Null hypothesis
mg/kg Milligrams per kilogram
NT Not tested
WRS Wilcoxon Rank Sum Test

TABLE 5-7

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SEDIMENT AND SOIL AT WOOD HOGGER SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Sediments and Soils (0 to 11 feet bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)+B41	Chemicals Retained
Aluminum	123/123	100%	13,000	13,000	82.2	42,700	Fail to Reject	Reject	**Retain**	**Aluminum**
Antimony	68/122	56%	0.86	0.86	0.44	7.1	Reject	Reject	**Retain**	**Antimony**
Arsenic	113/123	92%	5.7	5.7	1.3	37	Fail to Reject	Fail to Reject	Drop	
Barium	123/123	100%	112	112	1.1	546	Reject	NT	**Retain**	**Barium**
Beryllium	36/123	29%	0.03	0.03	0.01	0.84	Reject	Reject	**Retain**	**Beryllium**
Cadmium	37/123	30%	0.04	0.04	0.05	20.8	Reject	NV	**Retain**	**Cadmium**
Chromium	121/123	98%	31	31	6.4	122	Fail to Reject	Fail to Reject	Drop	
Cobalt	122/123	99%	13	13	1.7	39.3	Reject	NT	**Retain**	**Cobalt**
Copper	119/123	97%	45.7	31.8	0.72	607	Fail to Reject	Reject	**Retain**	**Copper**
Lead	122/123	99%	13.9	13.9	0.35	728	Reject	NT	**Retain**	**Lead**
Manganese	123/123	100%	417	417	4.3	1,470	Reject	NT	**Retain**	**Manganese**
Mercury	69/122	57%	0.09	0.09	0.03	18.5	Fail to Reject	Reject	**Retain**	**Mercury**
Molybdenum	42/123	34%	0.14	0.14	0.25	12.9	Fail to Reject	Fail to Reject	Drop	
Nickel	121/123	98%	37.7	37.7	6.3	123	Fail to Reject	Fail to Reject	Drop	
Selenium[d]	5/123	4%	0.43	0.43	0.67	4.8	Fail to Reject	NV	Drop	
Silver[d]	10/123	8%	0.075	0.075	0.16	4.4	Reject	NV	**Retain**	**Silver**
Thallium	11/123	9%	0.25	0.25	0.69	2.4	Fail to Reject	Fail to Reject	Drop	
Vanadium	123/123	100%	56.2	56.2	0.28	163	Fail to Reject	Reject	**Retain**	**Vanadium**
Zinc	112/123	91%	172	76.8	27.7	3,010	Reject	NT	**Retain**	**Zinc**

TABLE 5-7 (Continued)

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SEDIMENT AND SOIL AT WOOD HOGGER SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Notes: Bolded text indicate chemical was retained based on the Tidal Area ambient value.
"Reject" means that site concentrations are different than ambient concentrations; therefore, the chemical is retained.

a To calculate the mean and median, substitute values of one-half the sample quantitation limit were used for all analytical data reported as not detected.
b The WRS test was performed if the detection frequency was greater than 50 percent in both the site and ambient data sets. The F test was performed if the detection frequency was less than 50 percent in either the site or ambient data sets
c The quantitle test was performed only for chemicals not rejected by the WRS test (that is, if site concentrations were not elevated witih respect to ambient concentrations on the basis of the WRS test).
d An ambient data set was not developed because of the low detection frequency for this chemical; the ambient concentration was set equal to the detection limit.

bgs Below ground surface
F test Fisher's exact test (test of proportions)
H_o Null hypothesis
mg/kg Milligram per kilogram
NT Not tested
NV No valid test could be performed; one or more of the largest r measurements in the combined site and ambient data set was below the detection limit
WRS Wilcoxon Rank Sum Test

Reference:

Gilbert, R. O. 1987. *Statistical Methods for Environmental Pollution Monitoring* . John Wiley & Sons, Inc. New York, NY. 320 p.

TABLE 5-8

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SURFACE SEDIMENT AT OTTER SLUICE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Sediments (0 to 0.5 foot bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)	Chemicals Retained
Aluminum	14/14	100%	21,200	17,900	13,400	35,200	Reject	NT	**Retain**	**Aluminum**
Antimony	11/14	79%	2.2	1.6	1.1	9.3	Reject	Reject	**Retain**	**Antimony**
Arsenic	14/14	100%	14.1	13.2	6.3	25.9	Reject	NT	**Retain**	**Arsenic**
Barium	14/14	100%	76.8	68.1	53.2	157	Fail to Reject	Fail to Reject	Drop	
Beryllium	12/14	86%	0.35	0.23	0.11	0.94	Reject	Reject	**Retain**	**Beryllium**
Cadmium	7/14	50%	0.76	0.5	0.69	1.9	Reject	Fail to Reject	**Retain**	**Cadmium**
Chromium	14/14	100%	67.2	54.8	48.3	95.5	Reject	NT	**Retain**	**Chromium**
Cobalt	14/14	100%	16.9	15.4	11.6	25.1	Reject	NT	**Retain**	**Cobalt**
Copper	14/14	100%	60.1	57.8	40.1	101	Reject	NT	**Retain**	**Copper**
Iron	14/14	100%	37,100	34,900	25,500	58,700	Reject	NT	**Retain**	**Iron**
Lead	14/14	100%	37.3	35	16.3	89.5	Reject	NT	**Retain**	**Lead**
Manganese	14/14	100%	370	356	205	607	Reject	NT	**Retain**	**Manganese**
Mercury	5/14	36%	0.29	0.15	0.35	1.6	Fail to Reject	Reject	**Retain**	**Mercury**
Molybdenum	8/14	57%	1.1	0.58	0.45	3.5	Fail to Reject	Fail to Reject	Drop	
Nickel	14/14	100%	72.5	63.8	55.5	112	Reject	NT	**Retain**	**Nickel**
Selenium[d]	5/14	36%	1.1	1.1	1.2	1.5	Reject	Reject	**Retain**	**Selenium**
Silver[d]	6/14	43%	0.36	0.29	0.26	0.6	Reject	Reject	**Retain**	**Silver**

TABLE 5-8 (Continued)

AMBIENT SCREEN FOR INORGANIC CHEMICALS IN SURFACE SEDIMENT AT OTTER SLUICE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Site Concentrations in Sediments (0 to 0.5 foot bgs)						Comparison of Site with Tidal Area Ambient Concentrations (H_o: Site Concentration Less Than or Equal to Ambient)			
	Detection Frequency		Mean[a] (mg/kg)	Median[a] (mg/kg)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	WRS or F Test[b] (Reject or Fail to Reject H_o)	Quantile Test[c] (Reject or Fail to Reject H_o)	Decision (Retain or Drop)	Chemicals Retained
Thallium	7/14	50%	1.3	1.5	1.5	2.8	Reject	Fail to Reject	**Retain**	**Thallium**
Vanadium	14/14	100%	75.0	63.5	52.1	119	Fail to Reject	Reject	**Retain**	**Vanadium**
Zinc	14/14	100%	155	162	89.4	285	Reject	NT	**Retain**	**Zinc**

Notes: Bold cells indicate that the chemical was retained based on the Tidal Area ambient value.
"Reject" means that site concentrations are greater than ambient concentrations and the chemical is therefore retained.

a To calculate the mean and median, substitute values of one-half of the sample quantitation limit were used for all analytical data reported as not detected.

b The WRS Test was performed if the detection frequency was greater that 50 percent in both the site and ambient data sets. The F Test was performed if the detection frequency was less than 50 percent in either the site or ambient data sets.

c The Quantile Test was performed only for chemicals not rejected by the WRS Test (that is, if site concentrations were not elevated with respect to ambient concentrations on the basis of the WRS Test).

d An ambient data set was not developed because of the low detection frequency for this chemical; the ambient concentration was set equal to the detection limit.

bgs Below ground surface
F Test Fisher's Exact Test (test of proportions)
H_o Null hypothesis
mg/kg Milligrams per kilogram
NT Not tested
WRS Wilcoxon Rank Sum Test

TABLE 5-9

STATISTICAL SUMMARY OF ORGANIC CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Semivolatile Organic Compound				
1-Methylphenanthrene	1/65	0.03700	0.03700	0.09175
2,4-Dimethylphenol	1/65	0.02400	0.02400	0.09222
2,6-Dimethylnaphthalene	4/65	0.05300	0.13000	0.08164
2-Methylnaphthalene	1/65	0.04200	0.04200	0.09021
4-Methylphenol	5/65	0.03400	0.74000	0.08874
Acenaphthene	3/65	0.01500	0.03000	0.08922
Anthracene	4/65	0.03000	0.10000	0.08686
Benzo(a)anthracene	13/65	0.01200	0.44000	0.07909
Benzo(a)pyrene	14/65	0.01300	0.32000	0.07909
Benzo(b)fluoranthene	15/65	0.00600	0.39000	0.08639
Benzo(e)pyrene	12/65	0.01100	0.23000	0.08039
Benzo(g,h,i)perylene	11/65	0.01500	0.22000	0.08491
Benzo(k)fluoranthene	12/65	0.01100	0.32000	0.07984
Benzoic Acid	20/65	0.01800	0.92000	0.19720
Bis(2-ethylhexyl)phthalate	2/65	0.08700	0.18000	0.10076
Carbazole	2/65	0.02400	0.04000	0.09108
Chrysene	17/65	0.00600	0.44000	0.08802
Dibenz(a,h)anthracene	5/65	0.01000	0.09400	0.08692
Dibenzothiophene	1/65	0.02300	0.02300	0.09153
Diethylphthalate	1/65	0.16000	0.16000	0.09435
Fluoranthene	19/65	0.01000	1.10000	0.09743
Fluorene	1/65	0.02500	0.02500	0.09079
Indeno(1,2,3-cd)pyrene	11/65	0.01200	0.19000	0.08195
Isophorone	1/65	0.03800	0.03800	0.09244

TABLE 5-9 (Continued)

STATISTICAL SUMMARY OF ORGANIC CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Naphthalene	3/65	0.01800	0.21000	0.09261
Perylene	7/65	0.00900	0.11000	0.08333
Phenanthrene	11/65	0.00700	0.66000	0.08991
Pyrene	19/65	0.00600	0.68000	0.08787
Pesticide				
2,4'-DDD	31/65	0.00028	0.00650	0.00078
2,4'-DDE	14/65	0.00026	0.00120	0.00017
2,4'-DDT	32/65	0.00017	0.00500	0.00046
4,4'-DDD	40/65	0.00025	0.02600	0.00211
4,4'-DDE	55/65	0.00020	0.00870	0.00156
4,4'-DDT	42/65	0.00018	0.02800	0.00207
Aldrin	11/65	0.00023	0.00075	0.00015
alpha-Chlordane	31/65	0.00017	0.00250	0.00047
Dieldrin	19/65	0.00018	0.00200	0.00024
gamma-BHC (Lindane)	7/65	0.00029	0.00089	0.00014
Heptachlor	2/65	0.00032	0.00043	0.00013
Heptachlor Epoxide	8/65	0.00018	0.00095	0.00014
Hexachlorobenzene	19/65	0.00017	0.00160	0.00020
Mirex	16/65	0.00005	0.00130	0.00015
Trans-nonachlor	29/65	0.00015	0.00240	0.00047
Polychlorinated Biphenyl				
PCB-101 (2,2',3,5,5')	26/65	0.00007	0.00100	0.00023
PCB-105 (2,3,3',4,4')	19/65	0.00014	0.00120	0.00019
PCB-118 (2,3',4,4',5)	25/65	0.00009	0.00130	0.00026
PCB-126 (3,3',4,4',5)	13/65	0.00016	0.00370	0.00023

TABLE 5-9 (Continued)

STATISTICAL SUMMARY OF ORGANIC CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
PCB-128 (2,2',3,3',4,4')	7/65	0.00016	0.00058	0.00012
PCB-138 (2,2',3,4,4',5')	31/65	0.00016	0.00170	0.00037
PCB-153 (2,2',4,4',5,5')	28/65	0.00007	0.00180	0.00028
PCB-170 (2,2',3,3',4,4',5)	6/65	0.00028	0.00090	0.00012
PCB-18 (2,2',5)	12/65	0.00013	0.00039	0.00012
PCB-180 (2,2',3,4,4',5,5')	19/65	0.00013	0.00190	0.00022
PCB-187 (2,2',3,4',5,5',6)	15/65	0.00007	0.00077	0.00016
PCB-195 (2,2',3,3',4,4',5,6)	3/65	0.00014	0.00039	0.00011
PCB-206 (2,2',3,3',4,4',5,5',6)	19/65	0.00005	0.00110	0.00015
PCB-209 (2,2',3,3',4,4',5,5',6)	2/65	0.00016	0.00038	0.00010
PCB-28 (2,4,4')	2/65	0.00037	0.00048	0.00011
PCB-44 (2,2',3,5')	3/65	0.00023	0.00028	0.00011
PCB-52 (2,2',5,5')	20/65	0.00006	0.00140	0.00017
PCB-66 (2,3',4,4')	14/65	0.00009	0.00100	0.00016
PCB-77 (3,3',4,4')	15/65	0.00009	0.00130	0.00020
PCB-8 (2,4')	20/65	0.00027	0.00370	0.00035

Notes:

BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl
SBD Seal Beach Detachment

TABLE 5-10

STATISTICAL SUMMARY OF ORGANIC CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 6 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Volatile Organic Compound				
2-Butanone	2/20	0.04300	0.07300	0.01893
Carbon Disulfide	4/20	0.00700	0.16000	0.01990
Chloromethane	1/20	0.01400	0.01400	0.01098
Semivolatile Organic Compound				
1-Methylphenanthrene	1/65	0.03700	0.03700	0.09175
2,4-Dimethylphenol	1/85	0.02400	0.02400	0.15364
2,6-Dimethylnaphthalene	4/65	0.05300	0.13000	0.08164
2-Methylnaphthalene	1/85	0.04200	0.04200	0.15210
4-Methylphenol	5/85	0.03400	0.74000	0.16136
Acenaphthene	4/85	0.01500	0.66000	0.16627
Anthracene	5/85	0.03000	1.20000	0.16835
Benzo(a)anthracene	15/85	0.01200	2.00000	0.16697
Benzo(a)pyrene	15/85	0.01300	1.50000	0.16270
Benzo(b)fluoranthene	17/85	0.00600	2.30000	0.17739
Benzo(e)pyrene	12/65	0.01100	0.23000	0.08039
Benzo(g,h,i)perylene	12/85	0.01500	0.52000	0.16142
Benzo(k)fluoranthene	13/85	0.01100	0.82000	0.15918
Benzoic Acid	20/65	0.01800	0.92000	0.19720
Bis(2-ethylhexyl)phthalate	2/85	0.08700	0.18000	0.16017
Carbazole	3/85	0.02400	1.10000	0.16318
Chrysene	19/85	0.00600	1.80000	0.17883
Dibenz(a,h)anthracene	5/85	0.01000	0.09400	0.15989
Dibenzofuran	1/85	0.50000	0.50000	0.15702
Dibenzothiophene	1/65	0.02300	0.02300	0.09153
Diethylphthalate	1/85	0.16000	0.16000	0.15527

TABLE 5-10 (Continued)

STATISTICAL SUMMARY OF ORGANIC CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 6 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Fluoranthene	21/85	0.01000	5.00000	0.20549
Fluorene	2/85	0.02500	0.60000	0.15708
Indeno(1,2,3-cd)pyrene	12/85	0.01200	0.53000	0.15890
Isophorone	1/85	0.03800	0.03800	0.15381
Naphthalene	4/85	0.01800	0.30000	0.16544
Perylene	7/65	0.00900	0.11000	0.08333
Phenanthrene	13/85	0.00700	5.90000	0.19516
Phenol	2/85	0.47000	0.60000	0.15999
Pyrene	21/85	0.00600	4.30000	0.19084
Pesticide				
2,4'-DDD	31/65	0.00028	0.00650	0.00078
2,4'-DDE	14/65	0.00026	0.00120	0.00017
2,4'-DDT	32/65	0.00017	0.00500	0.00046
4,4'-DDD	40/85	0.00025	0.02600	0.00338
4,4'-DDE	55/85	0.00020	0.00870	0.00243
4,4'-DDT	42/85	0.00018	0.02800	0.00313
Aldrin	11/85	0.00023	0.00075	0.00052
alpha-Chlordane	31/85	0.00017	0.00250	0.00094
Dieldrin	19/85	0.00018	0.00200	0.00112
gamma-BHC (Lindane)	7/85	0.00029	0.00089	0.00051
Heptachlor	2/85	0.00032	0.00043	0.00053
Heptachlor Epoxide	8/85	0.00018	0.00095	0.00050
Hexachlorobenzene	19/65	0.00017	0.00160	0.00020
Mirex	16/65	0.00005	0.00130	0.00015
Trans-Nonachlor	29/65	0.00015	0.00240	0.00047

TABLE 5-10 (Continued)

STATISTICAL SUMMARY OF ORGANIC CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 6 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Polychlorinated Biphenyl				
PCB-101 (2,2',3,5,5')	26/65	0.00007	0.00100	0.00023
PCB-105 (2,3,3',4,4')	19/65	0.00014	0.00120	0.00019
PCB-118 (2,3',4,4',5)	25/65	0.00009	0.00130	0.00026
PCB-126 (3,3',4,4',5)	13/65	0.00016	0.00370	0.00023
PCB-128 (2,2',3,3',4,4')	7/65	0.00016	0.00058	0.00012
PCB-138 (2,2',3,4,4',5')	31/65	0.00016	0.00170	0.00037
PCB-153 (2,2',4,4',5,5')	28/65	0.00007	0.00180	0.00028
PCB-170 (2,2',3,3',4,4',5)	6/65	0.00028	0.00090	0.00012
PCB-18 (2,2',5)	12/65	0.00013	0.00039	0.00012
PCB-180 (2,2',3,4,4',5,5')	19/65	0.00013	0.00190	0.00022
PCB-187 (2,2',3,4',5,5',6)	15/65	0.00007	0.00077	0.00016
PCB-195 (2,2',3,3',4,4',5,6)	3/65	0.00014	0.00039	0.00011
PCB-206 (2,2',3,3',4,4',5,5',6	19/65	0.00005	0.00110	0.00015
PCB-209 (2,2',3,3',4,4',5,5',6	2/65	0.00016	0.00038	0.00010
PCB-28 (2,4,4')	2/65	0.00037	0.00048	0.00011
PCB-44 (2,2',3,5')	3/65	0.00023	0.00028	0.00011
PCB-52 (2,2',5,5')	20/65	0.00006	0.00140	0.00017

Notes:

BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
mg/kg Milligrams per kilogran
PCB Polychlorinated biphen
SBD Seal Beach Detachment

TABLE 5-11

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Semivolatile Organic Compound				
1,1'-Biphenyl	1/9	0.00900	0.00900	0.10417
1-Methylnaphthalene	2/9	0.00500	0.03000	0.10478
2,4-Dimethylphenol	2/12	0.00500	0.01200	0.19083
2,6-Dimethylnaphthalene	3/9	0.00500	0.04100	0.09311
2-Methylnaphthalene	2/12	0.00900	0.04600	0.19400
4-Methylphenol	2/12	0.00500	0.30000	0.15821
Acenaphthylene	1/12	0.02900	0.02900	0.18725
Anthracene	1/12	0.03700	0.03700	0.18792
Benzo(a)anthracene	3/12	0.05300	0.09100	0.17550
Benzo(a)pyrene	2/12	0.12000	0.13000	0.19400
Benzo(b)fluoranthene	2/12	0.11000	0.24000	0.20233
Benzo(e)pyrene	1/9	0.28000	0.28000	0.12589
Benzo(g,h,i)perylene	2/12	0.17000	0.21000	0.20483
Benzo(k)fluoranthene	2/12	0.08300	0.12000	0.19008
Benzoic Acid	4/9	0.02400	0.53000	0.20389
Bis(2-ethylhexyl)phthalate	1/12	2.50000	2.50000	0.31817
Carbazole	1/12	0.02400	0.02400	0.18683
Chrysene	5/12	0.03600	0.24000	0.12684
Dibenzofuran	1/12	0.00700	0.00700	0.19171
Fluoranthene	6/12	0.04300	0.19000	0.13955
Fluorene	1/12	0.00600	0.00600	0.19163
Indeno(1,2,3-cd)pyrene	1/12	0.14000	0.14000	0.19650
Naphthalene	1/12	0.01400	0.01400	0.19229
Phenanthrene	3/12	0.03100	0.04900	0.16958
Pyrene	4/12	0.11000	0.20000	0.16801

TABLE 5-11 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Pesticide				
2,4'-DDD	6/12	0.00030	0.00700	0.00207
2,4'-DDE	4/12	0.00040	0.00060	0.00026
2,4'-DDT	4/12	0.00100	0.00300	0.00075
4,4'-DDD	9/12	0.00030	0.01400	0.00506
4,4'-DDE	9/12	0.00030	0.01500	0.00517
4,4'-DDT	5/12	0.00060	0.01900	0.00396
Aldrin	1/12	0.00040	0.00040	0.00015
alpha-BHC	1/3	0.00070	0.00070	0.00030
alpha-Chlordane	9/12	0.00030	0.01100	0.00192
Dieldrin	2/12	0.00040	0.00080	0.00024
gamma-BHC (Lindane)	1/12	0.00040	0.00040	0.00015
gamma-Chlordane	3/3	0.00040	0.01200	0.00480
Hexachlorobenzene	3/12	0.00040	0.00050	0.00023
Technical Chlordane	2/2	0.02100	0.19000	0.10550
Trans-nonachlor	7/12	0.00020	0.00400	0.00111
Polychlorinated Biphenyl				
PCB-101 (2,2',3,5,5')	2/12	0.00010	0.00040	0.00015
PCB-105 (2,3,3',4,4')	2/12	0.00020	0.00030	0.00015
PCB-118 (2,3',4,4',5)	3/12	0.00010	0.00070	0.00019
PCB-126 (3,3',4,4',5)	2/12	0.00010	0.00010	0.00013
PCB-128 (2,2',3,3',4,4')	3/12	0.00010	0.00200	0.00030
PCB-138 (2,2',3,4,4',5')	5/12	0.00030	0.00200	0.00043
PCB-153 (2,2',4,4',5,5')	4/12	0.00010	0.00090	0.00025
PCB-180 (2,2',3,4,4',5,5')	3/12	0.00010	0.00040	0.00018
PCB-187 (2,2',3,4',5,5',6)	3/12	0.00007	0.00040	0.00016

TABLE 5-11 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
PCB-206 (2,2',3,3',4,4',5,5',6	5/12	0.00020	0.00200	0.00038
PCB-209 (2,2',3,3',4,4',5,5',6	3/12	0.00008	0.00080	0.00020
PCB-77 (3,3',4,4')	1/12	0.00030	0.00030	0.00015
Total Petroleum Hydrocarbon				
Motor Oil Range Organics	8/9	18.00000	23,000.00000	6,731.89833

Notes:

BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl
SBD Seal Beach Detachment

TABLE 5-12

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 3 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Volatile Organic Compound				
4-Methyl-2-Pentanone	1/9	0.02700	0.02700	0.01900
Semivolatile Organic Compound				
1,1'-Biphenyl	1/9	0.00900	0.00900	0.10417
1-Methylnaphthalene	2/9	0.00500	0.03000	0.10478
2,4-Dimethylphenol	2/21	0.00500	0.01200	0.31786
2,6-Dimethylnaphthalene	3/9	0.00500	0.04100	0.09311
2-Methylnaphthalene	2/20	0.00900	0.04600	0.28815
4-Methylphenol	2/21	0.00500	0.30000	0.29921
Acenaphthylene	1/20	0.02900	0.02900	0.28410
Anthracene	1/20	0.03700	0.03700	0.28450
Benzo(a)anthracene	3/20	0.05300	0.09100	0.27705
Benzo(a)pyrene	2/20	0.12000	0.13000	0.28815
Benzo(b)fluoranthene	2/20	0.11000	0.24000	0.29315
Benzo(e)pyrene	1/9	0.28000	0.28000	0.12589
Benzo(g,h,i)perylene	2/20	0.17000	0.21000	0.29465
Benzo(k)fluoranthene	2/20	0.08300	0.12000	0.28580
Benzoic Acid	4/9	0.02400	0.53000	0.20389
Bis(2-ethylhexyl)phthalate	1/20	2.50000	2.50000	0.36265
Carbazole	1/20	0.02400	0.02400	0.28385
Chrysene	5/20	0.03600	0.24000	0.28639
Dibenzofuran	1/20	0.00700	0.00700	0.28678
Fluoranthene	6/20	0.04300	0.19000	0.29422
Fluorene	1/20	0.00600	0.00600	0.28673
Indeno(1,2,3-cd)pyrene	1/20	0.14000	0.14000	0.28965
Naphthalene	1/20	0.01400	0.01400	0.28713

TABLE 5-12 (Continued

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 3 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Phenanthrene	3/20	0.03100	0.04900	0.27350
Phenol	3/21	0.16000	0.50000	0.32395
Pyrene	4/20	0.11000	0.20000	0.25940
Pesticide				
2,4'-DDD	6/12	0.00030	0.00700	0.00207
2,4'-DDE	4/12	0.00040	0.00060	0.00026
2,4'-DDT	4/12	0.00100	0.00300	0.00075
4,4'-DDD	10/21	0.00030	0.01400	0.00656
4,4'-DDE	10/21	0.00030	0.01500	0.00418
4,4'-DDT	6/21	0.00060	0.01900	0.00461
Aldrin	1/21	0.00040	0.00040	0.00190
alpha-BHC	1/12	0.00070	0.00070	0.00325
alpha-Chlordane	10/21	0.00030	0.03500	0.00385
Dieldrin	2/21	0.00040	0.00080	0.00379
gamma-BHC (Lindane)	1/21	0.00040	0.00040	0.00190
gamma-Chlordane	4/12	0.00040	0.02500	0.00495
Hexachlorobenzene	3/12	0.00040	0.00050	0.00023
Technical Chlordane	2/2	0.02100	0.19000	0.10550
Trans-Nonachlor	7/12	0.00020	0.00400	0.00111
Polychlorinated Biphenyl				
PCB-101 (2,2',3,5,5')	2/12	0.00010	0.00040	0.00015
PCB-105 (2,3,3',4,4')	2/12	0.00020	0.00030	0.00015
PCB-118 (2,3',4,4',5)	3/12	0.00010	0.00070	0.00019
PCB-126 (3,3',4,4',5)	2/12	0.00010	0.00010	0.00013
PCB-128 (2,2',3,3',4,4')	3/12	0.00010	0.00200	0.00030
PCB-138 (2,2',3,4,4',5')	5/12	0.00030	0.00200	0.00043

TABLE 5-12 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 3 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
PCB-153 (2,2',4,4',5,5')	4/12	0.00010	0.00090	0.00025
PCB-180 (2,2',3,4,4',5,5')	3/12	0.00010	0.00040	0.00018
PCB-187 (2,2',3,4',5,5',6)	3/12	0.00007	0.00040	0.00016
PCB-206 (2,2',3,3',4,4',5,5',6	5/12	0.00020	0.00200	0.00038
PCB-209 (2,2',3,3',4,4',5,5',6	3/12	0.00008	0.00080	0.00020
PCB-77 (3,3',4,4')	1/12	0.00030	0.00030	0.00015
Total Petroleum Hydrocarbon				
Motor Oil Range Organics	15/18	9.00000	23,000.00000	2,977.32528

Notes:

BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
mg/kg Milligram per kilogram
PCB Polychlorinated biphenyl
SBD Seal Beach Detachment

TABLE 5-13

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Semivolatile Organic Compound				
1-Methylphenanthrene	2/47	0.03000	0.35000	0.72524
2,6-Dimethylnaphthalene	1/47	0.03700	0.03700	0.72267
Acenaphthene	4/49	0.02700	0.28000	0.65526
Acenaphthylene	1/49	0.27000	0.27000	0.70289
Anthracene	10/49	0.01400	2.10000	0.68751
Benzo(a)anthracene	12/49	0.01200	3.80000	0.66140
Benzo(a)pyrene	14/49	0.01900	2.70000	0.66464
Benzo(b)fluoranthene	15/49	0.02500	3.10000	0.75434
Benzo(e)pyrene	24/47	0.01900	2.40000	0.62986
Benzo(g,h,i)perylene	11/49	0.02100	1.10000	0.61372
Benzo(k)fluoranthene	13/49	0.02000	3.40000	0.69766
Benzoic Acid	8/47	0.04000	2.30000	1.97840
Butylbenzylphthalate	1/49	0.07800	0.07800	0.69672
Carbazole	12/49	0.01800	0.88000	0.59658
Chrysene	18/49	0.02300	6.40000	0.77943
Dibenz(a,h)anthracene	4/49	0.03200	0.60000	0.62128
Dibenzofuran	2/49	0.08400	0.17000	0.69909
Dibenzothiophene	3/47	0.02500	0.17000	0.71818
Fluoranthene	31/49	0.01400	14.00000	0.79164
Fluorene	4/49	0.02000	0.35000	0.66312
Indeno(1,2,3-cd)pyrene	9/49	0.01700	1.20000	0.66785
Naphthalene	1/49	0.11000	0.11000	0.69809
Pentachlorophenol	4/44	0.12000	0.78000	1.83306
Perylene	4/47	0.02600	0.84000	0.67091

TABLE 5-13 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Phenanthrene	19/49	0.02200	4.00000	0.67051
Phenol	2/49	0.45000	0.90000	0.71932
Pyrene	30/49	0.01900	13.00000	0.70678
Pesticide				
2,4'-DDD	22/47	0.00030	0.00800	0.00109
2,4'-DDE	6/47	0.00036	0.00300	0.00047
2,4'-DDT	17/47	0.00010	0.03400	0.00164
4,4'-DDD	32/47	0.00020	0.28000	0.00986
4,4'-DDE	37/47	0.00024	0.03200	0.00322
4,4'-DDT	30/47	0.00030	0.23000	0.01171
Aldrin	5/47	0.00020	0.00048	0.00041
alpha-Chlordane	34/47	0.00018	0.07800	0.00512
Dieldrin	14/47	0.00024	0.00600	0.00074
gamma-BHC (Lindane)	5/47	0.00042	0.00200	0.00047
Heptachlor	3/47	0.00029	0.00074	0.00041
Heptachlor Epoxide	4/47	0.00021	0.00600	0.00051
Hexachlorobenzene	4/47	0.00020	0.00037	0.00040
Mirex	10/47	0.00014	0.00500	0.00052
Trans-nonachlor	33/47	0.00021	0.06500	0.00441
Polychlorinated Biphenyl				
PCB-101 (2,2',3,5,5')	24/47	0.00007	0.00700	0.00084
PCB-105 (2,3,3',4,4')	18/47	0.00010	0.00300	0.00059
PCB-118 (2,3',4,4',5)	19/47	0.00010	0.00500	0.00078
PCB-126 (3,3',4,4',5)	5/47	0.00010	0.00056	0.00040
PCB-128 (2,2',3,3',4,4')	5/47	0.00022	0.00300	0.00044

TABLE 5-13 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
PCB-138 (2,2',3,4,4',5')	26/47	0.00016	0.01200	0.00147
PCB-153 (2,2',4,4',5,5')	18/47	0.00013	0.00960	0.00116
PCB-170 (2,2',3,3',4,4',5)	10/47	0.00014	0.00660	0.00058
PCB-18 (2,2',5)	7/47	0.00013	0.00081	0.00041
PCB-180 (2,2',3,4,4',5,5')	20/47	0.00013	0.01500	0.00122
PCB-187 (2,2',3,4',5,5',6)	17/47	0.00009	0.00670	0.00069
PCB-195 (2,2',3,3',4,4',5,6)	4/47	0.00016	0.00130	0.00043
PCB-206 (2,2',3,3',4,4',5,5',6	11/47	0.00018	0.00086	0.00045
PCB-209 (2,2',3,3',4,4',5,5',6	3/47	0.00018	0.00025	0.00039
PCB-28 (2,4,4')	4/47	0.00019	0.00210	0.00043
PCB-44 (2,2',3,5')	8/47	0.00024	0.00170	0.00047
PCB-52 (2,2',5,5')	16/47	0.00008	0.00200	0.00051
PCB-66 (2,3',4,4')	5/47	0.00016	0.00100	0.00042
PCB-77 (3,3',4,4')	2/47	0.00033	0.00087	0.00040
PCB-8 (2,4')	6/47	0.00016	0.00590	0.00055
Dioxins/Furans				
1,2,3,4,6,7,8,9-OCDD	9/11	0.00036	0.14000	0.03144
1,2,3,4,6,7,8,9-OCDF	3/11	0.00050	0.01300	0.00194
1,2,3,4,6,7,8-HPCDD	4/11	0.00047	0.01600	0.00342
1,2,3,4,6,7,8-HPCDF	4/11	0.00013	0.00300	0.00060
Total HPCDD	7/11	0.00080	0.04100	0.01947
Total HPCDF	5/11	0.00029	0.01300	0.00193
Total HXCDF	2/11	0.00100	0.00400	0.00054
Total TCDD	9/11	0.00200	0.01300	0.00446

TABLE 5-13 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Notes:

BHC	Benzenehexachloride	mg/kg	Milligrams per kilogram
DDD	Dichlorodiphenyldichloroethane	OCDD	Octachlorodibenzo-p-dioxin
DDE	Dichlorodiphenyldichloroethene	OCDF	Octachlorodibenzo-p-furan
DDT	Dichlorodiphenyltrichloroethane	PCB	Polychlorinated biphenyl
HPCDD	Heptachlorodibenzo-p-dioxin	SBD	Seal Beach Detachment
HPCDF	Heptachlorodibenzo-p-furan	TCDD	Tetrachlorodibenzo-p-dioxin
HXCDD	Hexachlorodibenzo-p-dioxin		

TABLE 5-14

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Volatile Organic Compound				
2-Butanone	3/53	0.02000	0.72000	0.03050
Acetone	1/53	0.30000	0.30000	0.07308
Carbon Disulfide	7/53	0.02300	0.29000	0.01544
Ethylbenzene	1/54	0.16000	0.16000	0.01308
Xylene (Total)	3/54	0.02600	0.22000	0.01469
Semivolatile Organic Compound				
1-Methylphenanthrene	2/47	0.03000	0.35000	0.72524
2,6-Dimethylnaphthalene	1/47	0.03700	0.03700	0.72267
Acenaphthene	4/105	0.02700	0.28000	0.50546
Acenaphthylene	1/105	0.27000	0.27000	0.60006
Anthracene	10/105	0.01400	2.10000	0.51670
Benzo(a)anthracene	12/105	0.01200	3.80000	0.51023
Benzo(a)pyrene	14/105	0.01900	2.70000	0.51176
Benzo(b)fluoranthene	16/105	0.02500	3.10000	0.53619
Benzo(e)pyrene	24/47	0.01900	2.40000	0.62986
Benzo(g,h,i)perylene	11/105	0.02100	1.10000	0.49271
Benzo(k)fluoranthene	13/105	0.02000	3.40000	0.51992
Benzoic Acid	8/47	0.04000	2.30000	1.97840
Butylbenzylphthalate	1/105	0.07800	0.07800	0.59719
Carbazole	13/105	0.01800	0.88000	0.48735
Chrysene	19/105	0.02300	6.40000	0.54137
Dibenz(a,h)anthracene	4/105	0.03200	0.60000	0.49287
Dibenzofuran	2/105	0.08400	0.17000	0.59829
Dibenzothiophene	3/47	0.02500	0.17000	0.71818
Fluoranthene	32/105	0.01400	14.00000	0.55209

TABLE 5-14 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Fluorene	4/105	0.02000	0.35000	0.50900
Indeno(1,2,3-cd)pyrene	9/105	0.01700	1.20000	0.51079
Naphthalene	1/105	0.11000	0.11000	0.59782
Pentachlorophenol	4/100	0.12000	0.78000	1.29757
Perylene	4/47	0.02600	0.84000	0.67091
Phenanthrene	20/105	0.02200	4.00000	0.51322
Phenol	16/105	0.20000	4.60000	0.65657
Pyrene	31/105	0.01900	13.00000	0.52456
Pesticide				
2,4'-DDD	22/47	0.00030	0.00800	0.00109
2,4'-DDE	6/47	0.00036	0.00300	0.00047
2,4'-DDT	17/47	0.00010	0.03400	0.00164
4,4'-DDD	36/100	0.00020	0.28000	0.00703
4,4'-DDE	38/100	0.00024	0.03200	0.00454
4,4'-DDT	33/100	0.00030	0.23000	0.00675
Aldrin	5/100	0.00020	0.00048	0.00160
alpha-Chlordane	35/100	0.00018	0.07800	0.00293
Dieldrin	14/100	0.00024	0.00600	0.00382
Endrin Ketone	1/53	0.00370	0.00370	0.00414
gamma-BHC (Lindane)	5/100	0.00042	0.00200	0.00167
Heptachlor	3/100	0.00029	0.00074	0.00128
Heptachlor Epoxide	4/100	0.00021	0.00600	0.00168
Hexachlorobenzene	4/47	0.00020	0.00037	0.00040
Mirex	10/47	0.00014	0.00500	0.00052
Trans-Nonachlor	33/47	0.00021	0.06500	0.00441

TABLE 5-14 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Polychlorinated Biphenyl				
PCB-101 (2,2',3,5,5')	24/47	0.00007	0.00700	0.00084
PCB-105 (2,3,3',4,4')	18/47	0.00010	0.00300	0.00059
PCB-118 (2,3',4,4',5)	19/47	0.00010	0.00500	0.00078
PCB-126 (3,3',4,4',5)	5/47	0.00010	0.00056	0.00040
PCB-128 (2,2',3,3',4,4')	5/47	0.00022	0.00300	0.00044
PCB-138 (2,2',3,4,4',5')	26/47	0.00016	0.01200	0.00147
PCB-153 (2,2',4,4',5,5')	18/47	0.00013	0.00960	0.00116
PCB-170 (2,2',3,3',4,4',5)	10/47	0.00014	0.00660	0.00058
PCB-18 (2,2',5)	7/47	0.00013	0.00081	0.00041
PCB-180 (2,2',3,4,4',5,5')	20/47	0.00013	0.01500	0.00122
PCB-187 (2,2',3,4',5,5',6)	17/47	0.00009	0.00670	0.00069
PCB-195 (2,2',3,3',4,4',5,6)	4/47	0.00016	0.00130	0.00043
PCB-206 (2,2',3,3',4,4',5,5',6	11/47	0.00018	0.00086	0.00045
PCB-209 (2,2',3,3',4,4',5,5',6	3/47	0.00018	0.00025	0.00039
PCB-28 (2,4,4')	4/47	0.00019	0.00210	0.00043
PCB-44 (2,2',3,5')	8/47	0.00024	0.00170	0.00047
PCB-52 (2,2',5,5')	16/47	0.00008	0.00200	0.00051
PCB-66 (2,3',4,4')	5/47	0.00016	0.00100	0.00042
PCB-77 (3,3',4,4')	2/47	0.00033	0.00087	0.00040
PCB-8 (2,4')	6/47	0.00016	0.00590	0.00055
Dioxin/Furan				
1,2,3,4,6,7,8,9-OCDD	9/11	0.00036	0.14000	0.03144
1,2,3,4,6,7,8,9-OCDF	3/11	0.00050	0.01300	0.00194
1,2,3,4,6,7,8-HPCDD	4/11	0.00047	0.01600	0.00342
1,2,3,4,6,7,8-HPCDF	4/11	0.00013	0.00300	0.00060

TABLE 5-14 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Total HPCDD	7/11	0.00080	0.04100	0.01947
Total HPCDF	5/11	0.00029	0.01300	0.00193
Total HXCDF	2/11	0.00100	0.00400	0.00054
Total TCDD	9/11	0.00200	0.01300	0.00446
Total Petroleum Hydrocarbon				
Gasoline Range Organics	2/7	0.47000	26.00000	4.00000
Diesel Range Organics	1/7	2,300.00000	2,300.00000	337.64286
Motor Oil Range Organics	2/7	640.00000	8,900.00000	1,367.28571

Notes:

BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
HPCDD Heptachlorodibenzo-p-dioxin
HPCDF Heptachlorodibenzo-p-furan
HXCDD Hexachlorodibenzo-p-dioxin
mg/kg Milligrams per kilogram
OCDD Octachlorodibenzo-p-dioxin
OCDF Octachlorodibenzo-p-furan
PCB Polychlorinated biphenyl
SBD Seal Beach Detachment
TCDD Tetrachlorodibenzo-p-dioxin

TABLE 5-15

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Semivolatile Organic Compound				
2,6-Dimethylnaphthalene	1/5	0.01300	0.01300	0.16160
4-Methylphenol	2/11	0.09200	0.20000	0.45836
Anthracene	1/11	0.02400	0.02400	0.54264
Benzo(a)anthracene	1/11	0.11000	0.11000	0.55045
Benzo(a)pyrene	2/11	0.03900	0.14000	0.53945
Benzo(b)fluoranthene	1/11	0.13000	0.13000	0.55227
Benzo(e)pyrene	1/5	0.09900	0.09900	0.17880
Benzo(g,h,i)perylene	1/11	0.11000	0.11000	0.55045
Benzo(k)fluoranthene	1/11	0.13000	0.13000	0.55227
Chrysene	1/11	0.14000	0.14000	0.55318
Fluoranthene	3/11	0.05300	0.22000	0.48636
Indeno(1,2,3-cd)pyrene	1/11	0.07600	0.07600	0.54736
Perylene	2/5	0.05900	0.16000	0.16480
Phenanthrene	1/11	0.05900	0.05900	0.54582
Pyrene	3/11	0.06800	0.41000	0.44482
Pesticide				
2,4'-DDD	2/11	0.00056	0.00067	0.00030
2,4'-DDT	1/11	0.00032	0.00032	0.00024
4,4'-DDD	10/11	0.00060	0.00200	0.00099
4,4'-DDE	10/11	0.00100	0.00200	0.00129
4,4'-DDT	1/11	0.00036	0.00036	0.00031
alpha-BHC	1/6	0.00050	0.00050	0.00033
alpha-Chlordane	6/11	0.00050	0.00110	0.00051
gamma-BHC (Lindane)	1/11	0.00060	0.00060	0.00025
gamma-Chlordane	1/6	0.00070	0.00070	0.00034

TABLE 5-15 (Continued)

STATISTICAL SUMMARY OF ALL ORGANIC CHEMICALS DETECTED IN SOIL AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)
Heptachlor	1/11	0.00180	0.00180	0.00036
Hexachlorobenzene	1/11	0.00040	0.00040	0.00035
Methoxychlor	1/6	0.00500	0.00500	0.00142
Trans-nonachlor	4/11	0.00040	0.00093	0.00037
Polychlorinated Biphenyl				
PCB-101 (2,2',3,5,5')	1/11	0.00009	0.00009	0.00022
PCB-105 (2,3,3',4,4')	1/11	0.00019	0.00019	0.00023
PCB-138 (2,2',3,4,4',5')	3/11	0.00020	0.00100	0.00036
PCB-153 (2,2',4,4',5,5')	4/11	0.00017	0.00080	0.00032
PCB-170 (2,2',3,3',4,4',5)	1/11	0.00100	0.00100	0.00027
PCB-180 (2,2',3,4,4',5,5')	1/11	0.00070	0.00070	0.00027
PCB-44 (2,2',3,5')	2/11	0.00047	0.00057	0.00028
PCB-52 (2,2',5,5')	2/11	0.00075	0.00089	0.00033
PCB-66 (2,3',4,4')	1/11	0.00022	0.00022	0.00023
PCB-8 (2,4')	2/11	0.00057	0.00074	0.00127
Dioxins/Furans				
1,2,3,4,6,7,8,9-OCDD	1/4	0.00080	0.00080	0.00108
Total HPCDD	2/4	0.03800	0.04100	0.02038
Total HXCDD	1/4	0.00100	0.00100	0.00070
Total TCDD	4/4	0.00800	0.02400	0.01300

Notes:

BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
HPCDD Heptachlorodibenzo-p-dioxin
HXCDD Hexachlorodibenzo-p-dioxin
mg/kg Milligrams per kilogram
OCDD Octachlorodibenzo-p-dioxin
TCDD Tetrachlorodibenzo-p-dioxin
PCB Polychlorinated biphenyl
SBD Seal Beach Detachment

TABLE 5-16

SURFACE WATER FROM THE R AREA SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical[a]	Detection Frequency		Mean[b]	Median[b]	Minimum Detected	Maximum Detected	UCL_{95}[b]
Inorganic Chemicals (mg/L)							
Aluminum	28/36	78%	1.721268	0.29	0.048	37.7	2.8
Antimony	1/36	3%	0.0012	0.0015	0.0035	0.0035	0.0035
Arsenic	25/36	69%	0.0061	0.0032	0.0015	0.024	0.0079[c]
Barium	36/36	100%	0.098	0.056	0.019	0.32	0.119[c]
Cadmium	8/36	22%	0.00066	0.00011	0.00042	0.0083	0.0011[c]
Chromium	13/36	36%	0.0047	0.0009	0.0014	0.1	0.0092[c]
Cobalt	27/36	75%	0.01689375	0.0035	0.00051	0.13	0.072
Copper	22/36	61%	0.00976	0.0081	0.0034	0.082	0.013
Iron	36/36	100%	22.645	2.77	0.29	239	52.8
Lead	8/36	22%	0.0044	0.00085	0.0015	0.057	0.0075[c]
Manganese	36/36	100%	2.4	1.59	0.063	11.3	3.18[c]
Mercury	4/35	11%	0.000099	0.00005	0.00026	0.00066	0.00066[c]
Molybdenum	16/36	44%	0.0035	0.0015	0.0014	0.02	0.0047[c]
Nickel	23/36	64%	0.03395694	0.011	0.0049	0.21	0.07
Selenium	4/36	11%	0.0018	0.0017	0.0024	0.0041	0.0041[c]
Thallium	2/36	6%	0.0017	0.001	0.0044	0.0081	0.0081
Vanadium	19/36	53%	0.00948583	0.0028	0.0023	0.14	0.018
Zinc	22/36	61%	0.0563	0.022	0.009	0.35	0.09
Organic Chemicals (µg/L)							
4,4'-DDT	1/35	3%	0.06	0.05	0.03	0.03	0.03
Aldrin	2/35	6%	0.03	0.025	0.01	0.03	0.03
alpha-BHC	3/35	9%	0.03	0.025	0.03	0.07	0.07
beta-BHC	1/35	3%	0.03	0.025	0.03	0.03	0.03
Dieldrin	1/35	3%	0.06	0.05	0.03	0.03	0.03
Endrin	1/35	3%	0.06	0.05	0.03	0.03	0.03
gamma-BHC (Lindane)	1/35	3%	0.03	0.025	0.01	0.01	0.01
Heptachlor	1/35	3%	0.03	0.025	0.01	0.01	0.01
Heptachlor Epoxide	2/35	6%	0.0067	0.005	0.01	0.04	0.04

Notes:

a All detected chemicals are listed.

b Mean and median values and UCL_{95}s were calculated using one-half of the detection limit for nondetected concentrations.

TABLE 5-16 (Continued)

SURFACE WATER FROM THE R AREA SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

c When the chemical was detected in three or fewer samples or when the UCL_{95} was greater than the maximum concentration, the maximum detected concentration was used. When the sample distribution was nonparametric or when the detection frequency was less than 40 percent, the UCL_{95} was calculated using the standard bootstrap method (Singh and others 1997).

Reference: Singh, A.K and others. 1997. "The Lognormal Distribution in Environmental Applications." EPA/600/R-97/006. December.

BHC	Hexachlorocyclohexane (benzene hexachloride)
DDT	Dichlorodiphenyltrichloroethane
µg/L	Microgram per liter
mg/L	Milligram per liter
UCL_{95}	95th percentile upper confidence limit of the arithmetic mean concentration

TABLE 5-17

SURFACE WATER FROM THE FROID AND TAYLOR ROADS SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical[a]	Detection Frequency		Mean[b]	Median[b]	Minimum Detected	Maximum Detected	UCL_{95}[c]
Inorganic Chemicals (mg/L)							
Aluminum	6/9	67%	0.382	0.304	0.11	1.6	3.5
Antimony	2/9	22%	0.002	0.001	0.001	0.01	0.01
Arsenic	9/9	100%	0.042	0.012	0.002	0.28	0.29
Barium	9/9	100%	0.261	0.22	0.11	0.81	0.43
Cadmium	1/9	11%	0.0002	0.0001	0.001	0.002	0.002
Chromium	2/9	22%	0.002	0.00125	0.002	0.007	0.007
Cobalt	7/9	78%	0.002	0.0018	0.001	0.005	0.003
Copper	8/9	89%	0.007	0.0078	0.003	0.01	0.01
Iron	9/9	100%	2.598	2.35	0.19	8.5	14.1
Lead	1/9	11%	0.001	0.0004	0.004	0.004	0.004
Manganese	9/9	100%	1.113	0.585	0.21	4.5	3.03
Mercury	2/9	22%	0.0001	0.00005	0.0001	0.0002	0.0002
Molybdenum	6/9	67%	0.002	0.00165	0.0009	0.005	0.003
Nickel	6/9	67%	0.013	0.0091	0.004	0.05	0.02
Selenium	4/9	44%	0.002	0.00175	0.001	0.002	0.002
Silver	2/9	22%	0.0003	0.0003	0.0003	0.0003	0.0003
Thallium	1/9	11%	0.002	0.001	0.008	0.008	0.008
Vanadium	7/9	78%	0.089	0.0064	0.004	0.03	0.049
Zinc	2/9	22%	0.022	0.00835	0.022	0.1	0.1
Organic Chemicals (µg/L)							
Carbon Disulfide	1/6	17%	7.500	5	20	20	20
4-Methylphenol	1/9	11%	7.056	5	3	3	3
Chrysene	1/9	11%	6.733	5	0.6	0.6	0.6
Phenol	1/9	11%	6.822	5	0.9	0.9	0.9
Diesel-Range Organics	5/6	83%	0.0002	0.000185	0.000084	0.002	9.53
Motor Oil-Range Organics	6/6	100%	0.001	0.000585	0.00011	0.0023	7.98

Notes:

a All detected chemicals are listed.

b Mean and median values and UCL_{95}s were calculated using one-half of the detection limit for nondetected concentrations.

c The UCL_{95} was calculated using one-half the detection limit for all nondetected concentrations. When the chemical was detected in three or fewer samples or when the UCL_{95} was greater than the maximum concentration, the maximum detected concentration was substituted for the UCL_{95}. When the sample distribution was nonparametric or when the detection frequency was less than 40 percent, the UCL_{95} was calculated using the standard bootstrap method (Singh and others 1997).

Reference:

Singh, A.K. and others. 1997. "The Lognormal Distribution in Environmental Applications." EPA/600/R-97/006. December.

µg/L Microgram per liter

mg/L Milligram per liter

UCL_{95} 95th percentile upper confidence limit of the arithmetic mean concentration

TABLE 5-18

SURFACE WATER FROM THE WOOD HOGGER SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical[a]	Detection Frequency		Mean[b] (mg/L)	Median[b] (mg/L)	Minimum Detected	Maximum Detected	UCL_{95}[b]
Aluminum	9/12	75%	0.58775	0.269	0.17	2.1	2.3
Antimony	2/12	17%	0.001	0.0115	0.003	0.004	0.004
Arsenic	4/12	33%	0.003	0.021	0.002	0.01	0.004[c]
Barium	12/12	100%	0.09	0.08985	0.04	0.17	0.11
Cadmium	3/12	25%	0.0004	0.0001275	0.0005	0.003	0.003
Chromium	6/12	50%	0.002	0.001	0.001	0.006	0.005
Cobalt	8/12	67%	0.0008	0.000645	0.0005	0.001	0.0009
Copper	10/12	83%	0.007	0.0073	0.003	0.01	0.009
Lead	2/12	17%	0.001	0.000925	0.003	0.004	0.004
Manganese	12/12	100%	0.36	0.1635	0.11	2	2[c]
Mercury	1/12	8%	0.00007	0.00005	0.0002	0.0002	0.0002
Molybdenum	4/12	33%	0.002	0.001125	0.001	0.007	0.003
Nickel	9/12	75%	0.004	0.00425	0.003	0.008	0.006
Thallium	1/12	8%	0.001	0.0001	0.002	0.002	0.002
Vanadium	5/12	42%	0.004	0.001825	0.005	0.01	0.006[c]
Zinc	9/12	75%	0.10134	0.05325	0.02	0.33	0.12
Xylene	1/12	8%	5.250	5	8	8	8

Notes:

a All detected chemicals are listed.

b Mean and median values and UCL_{95}s were calculated using one-half of the detection limit for nondetected concentrations.

c When the chemical was detected in three or fewer samples or when the UCL_{95} was greater than the maximum concentration, the maximum detected concentration was used. When the sample distribution was nonparametric or when the detection frequency was less than 40 percent, the UCL_{95} was calculated using the standard bootstrap method (Singh and others 1997).

Reference:

Singh, A.K. and others. 1997. "The Lognormal Distribution in Environmental Applications." EPA/600/R-97/006. December

µg/L Microgram per liter

mg/L Milligram per liter

UCL_{95} 95th percentile upper confidence limit of the arithmetic mean concentration

TABLE 5-19

SURFACE WATER FROM OTTER SLUICE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical[a]	Detection Frequency		Mean[b]	Median[b]	Minimum Detected	Maximum Detected	UCL_{95}[c]
Inorganic Chemicals (mg/L)							
Aluminum	33/33	100%	0.76	0.772	0.167[d]	1.5	0.86
Arsenic	15/33	45%	0.002	0.002	0.002	0.005	0.003
Barium	33/33	100%	0.07	0.0332	0.02	1.2	0.13
Cadmium	3/33	9%	0.0002	0.0001	0.0004	0.0005	0.0005
Chromium	19/33	58%	0.002	0.0016	0.0006	0.005	0.002
Cobalt	15/33	45%	0.0006	0.00055	0.0003	0.001	0.0007
Copper	25/33	76%	0.005	0.0043	0.003[d]	0.01[d]	0.006
Iron	33/33	100%	1.4	1.36	0.4	2.6	1.5
Lead	4/33	12%	0.0009	0.00075	0.001	0.003	0.001
Manganese	33/33	100%	0.11	0.0823	0.03	0.26	0.14
Mercury	1/33	3%	0.000063	0.00005	0.0002	0.0002	0.0002
Molybdenum	12/33	36%	0.0009	0.0006	0.0004	0.002	0.001
Nickel	23/33	70%	0.004	0.0036	0.003	0.007	0.004
Selenium	3/33	9%	0.002	0.0017	0.0008	0.001	0.001
Thallium	2/33	6%	0.001	0.00095	0.002	0.002	0.002
Vanadium	27/33	82%	0.005	0.0054	0.004	0.01	0.006
Zinc	9/33	27%	0.03	0.0129	0.007	0.43	0.05
Organic Chemicals (µg/L)							
Chloromethane	1/24	4%	5.25	5	11[d]	11[d]	11[d]
Bis(2-ethylhexyl)phthalate	1/33	3%	3.303	2	29[d]	29[d]	29[d]
alpha-Chlordane	1/33	3%	0.03	0.025	0.04	0.04	0.04
Heptachlor	1/33	3%	0.02	0.025	0.1	0.1	0.1

Notes:

a All inorganic chemicals that exceeded Tidal Area ambient concentrations (see Section 2.0) and all detected organic chemicals are included.

b Means and medians were calculated using one-half of the detection limit for nondetected concentrations.

c The UCL_{95} was calculated using one-half the detection limit for all nondetected concentrations. When the chemical was detected in three or fewer samples or when the UCL_{95} was greater than the maximum concentration, the maximum detected concentration was substituted for the UCL_{95}. When the sample distribution was nonparametric or when the detection frequency was less than 40 percent, the UCL_{95} was calculated using the standard bootstrap method (Singh and others 1997).

d Value has been corrected since the revised draft final ecological risk assessment (Tetra Tech EM Inc. 2002).

References:

Singh, A.K. and others. 1997. "The Lognormal Distribution in Environmental Applications." EPA/600/R-97/006. December.

Tetra Tech EM Inc. 2002. "Revised Draft Final Ecological Risk Assessment, Tidal Area Sites 2, 9, 11, Naval Weapons Station, Seal Beach Detachment Concord, Concord, California." January.

µg/L Microgram per liter

mg/L Milligram per liter

TtEMI Tetra Tech EM, Inc.

UCL_{95} 95th percentile upper confidence limit of the arithmetic mean concentration

Table 5-20

R Area - First Quarter, July 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	14	5,400	610	7/10
TOTAL METALS	ALUMINUM	UG/L	158	5,570	738	6/10
	ARSENIC	UG/L	16.7	23.9	8.6	3/10
	BARIUM	UG/L	22.9	316	126	10/10
	CALCIUM	UG/L	31,100	555,000	213,000	10/10
	COBALT	UG/L	0.51	129	21.6	8/10
	COPPER	UG/L	9.7	32.0	7.1	3/10
	IRON	UG/L	384	239,000	35,100	10/10
	LEAD	UG/L	1.5	41.5	5.9	4/10
	MAGNESIUM	UG/L	56,900	1,540,000	466,000	10/10
	MANGANESE	UG/L	113	11,300	3,050	10/10
	MERCURY	UG/L	0.35	0.35	0.080	1/10
	MOLYBDENUM	UG/L	6.3	10.2	3.0	3/10
	NICKEL	UG/L	211	211	28.9	1/10
	POTASSIUM	UG/L	18,600	309,000	101,000	10/10
	SODIUM	UG/L	463,000	9,360,000	3,140,000	10/10
	THALLIUM	UG/L	8.1	8.1	1.7	1/10
	VANADIUM	UG/L	18.5	33.7	6.4	2/10
	ZINC	UG/L	57.6	265	63.6	5/10

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-21

R Area - Second Quarter, October 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	47	130	100	3/3
PESTICIDES	4,4'-DDT	UG/L	0.03	0.03	0.04	1/3
	ALDRIN	UG/L	0.01	0.01	0.02	1/3
	DIELDRIN	UG/L	0.03	0.03	0.04	1/3
	ENDRIN	UG/L	0.03	0.03	0.04	1/3
	GAMMA-BHC (LINDANE)	UG/L	0.01	0.01	0.02	1/3
	HEPTACHLOR	UG/L	0.01	0.01	0.02	1/3
	TOTAL DDTs	UG/L	0.1	0.1	0.1	1/3
TOTAL METALS	ALUMINUM	UG/L	1,040	37,700	13,400	3/3
	ANTIMONY	UG/L	3.5	3.5	2.2	1/3
	ARSENIC	UG/L	9.7	9.7	4.2	1/3
	BARIUM	UG/L	41.3	211	98.3	3/3
	CALCIUM	UG/L	47,100	62,300	54,700	3/3
	CHROMIUM	UG/L	2.7	102	36.3	3/3
	COBALT	UG/L	1.1	27.6	10.1	3/3
	COPPER	UG/L	6.1	82.0	32.1	3/3
	IRON	UG/L	1,980	62,800	22,300	3/3
	LEAD	UG/L	57.3	57.3	19.7	1/3
	MAGNESIUM	UG/L	120,000	148,000	137,000	3/3

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-21 (Continued)

R Area - Second Quarter, October 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
TOTAL METALS	MANGANESE	UG/L	90.6	582	267	3/3
	MERCURY	UG/L	0.66	0.66	0.25	1/3
	MOLYBDENUM	UG/L	1.4	2.5	1.9	3/3
	NICKEL	UG/L	5.2	118	43.7	3/3
	POTASSIUM	UG/L	32,700	45,000	39,000	3/3
	SODIUM	UG/L	926,000	1,080,000	1,020,000	3/3
	VANADIUM	UG/L	6.6	139	51.8	3/3
	ZINC	UG/L	346	346	130	1/3

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

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Table 5-22

R Area - Third Quarter, January 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	27	110	50	12/13
TOTAL METALS	ALUMINUM	UG/L	141	1,330	449	9/13
	ARSENIC	UG/L	1.5	3.6	2.3	12/13
	BARIUM	UG/L	26.2	230	72.7	13/13
	CADMIUM	UG/L	1.8	1.8	0.34	1/13
	CALCIUM	UG/L	18,500	339,000	166,000	13/13
	CHROMIUM	UG/L	2.8	4.2	1.1	3/13
	COBALT	UG/L	3.5	80.4	18.8	8/13
	COPPER	UG/L	8.0	17.0	9.7	11/13
	IRON	UG/L	292	10,900	3,330	13/13
	LEAD	UG/L	2.3	2.3	0.64	1/13
	MAGNESIUM	UG/L	24,000	543,000	210,000	13/13
	MANGANESE	UG/L	62.8	5,360	1,820	13/13
	MOLYBDENUM	UG/L	6.6	6.6	1.7	2/13
	NICKEL	UG/L	4.9	171	48.9	13/13
	POTASSIUM	UG/L	6,710	117,000	45,700	13/13
	SELENIUM	UG/L	2.4	2.5	1.4	2/13
	SODIUM	UG/L	147,000	3,220,000	1,290,000	13/13
	THALLIUM	UG/L	4.4	4.4	1.4	1/13

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-22 (Continued)

R Area - Third Quarter, January 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
TOTAL METALS	VANADIUM	UG/L	3.8	7.3	2.4	4/13
	ZINC	UG/L	29.4	234	58.7	7/13

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-23

R Area - Fourth Quarter, April - May 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	10	1,800	280	10/10
PESTICIDES	ALDRIN	UG/L	0.03	0.03	0.03	1/9
	ALPHA-BHC	UG/L	0.03	0.07	0.03	3/9
	BETA-BHC	UG/L	0.03	0.03	0.03	1/9
	HEPTACHLOR EPOXIDE	UG/L	0.01	0.04	0.009	2/9
TOTAL METALS	ALUMINUM	UG/L	47.6	3,460	865	10/10
	ARSENIC	UG/L	5.1	22.9	9.0	9/10
	BARIUM	UG/L	18.6	282	101	10/10
	CADMIUM	UG/L	0.42	8.3	1.8	7/10
	CALCIUM	UG/L	22,100	504,000	228,000	10/10
	CHROMIUM	UG/L	1.4	8.0	3.1	7/10
	COBALT	UG/L	2.2	40.4	11.7	8/10
	COPPER	UG/L	3.4	17.9	5.8	5/10
	IRON	UG/L	1,090	221,000	35,400	10/10
	LEAD	UG/L	2.9	21.2	3.1	2/10
	MAGNESIUM	UG/L	31,400	991,000	406,000	10/10
	MANGANESE	UG/L	105	9,030	3,190	10/10
	MERCURY	UG/L	0.26	0.30	0.14	2/9
	MOLYBDENUM	UG/L	2.2	19.8	6.7	8/10

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-23 (Continued)

R Area - Fourth Quarter, April - May 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
TOTAL METALS	NICKEL	UG/L	8.6	40.0	16.7	6/10
	POTASSIUM	UG/L	12,600	155,000	75,400	10/10
	SELENIUM	UG/L	3.9	4.1	2.2	2/10
	SODIUM	UG/L	240,000	5,220,000	2,310,000	10/10
	VANADIUM	UG/L	2.3	26.1	9.2	10/10
	ZINC	UG/L	9.0	58.5	23.9	9/10

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-24

Froid & Taylor Roads - First Quarter, July 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	57	320	190	2/2
TOTAL METALS	ALUMINUM	UG/L	304	343	324	2/2
	ARSENIC	UG/L	20.9	29.7	25.3	2/2
	BARIUM	UG/L	220	221	221	2/2
	CALCIUM	UG/L	231,000	314,000	273,000	2/2
	COBALT	UG/L	3.9	4.0	4.0	2/2
	COPPER	UG/L	9.6	12.7	11.2	2/2
	IRON	UG/L	785	8,480	4,630	2/2
	LEAD	UG/L	4.0	4.0	2.4	1/2
	MAGNESIUM	UG/L	452,000	623,000	538,000	2/2
	MANGANESE	UG/L	532	1,060	796	2/2
	MERCURY	UG/L	0.13	0.17	0.15	2/2
	POTASSIUM	UG/L	74,200	99,200	86,700	2/2
	SODIUM	UG/L	3,400,000	4,020,000	3,710,000	2/2
	VANADIUM	UG/L	10.0	15.7	12.9	2/2
	ZINC	UG/L	95.2	95.2	58.6	1/2
TPH EXTRACTABLES	DIESEL RANGE ORGANICS	MG/L	0.3	0.3	0.3	2/2
	MOTOR OIL RANGE ORGANICS	MG/L	0.6	0.8	0.7	2/2

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-25

Froid & Taylor Roads - Second Quarter, October 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	5,500	5,500	5,500	1/1
TOTAL METALS	ALUMINUM	UG/L	1,610	1,610	1,610	1/1
	ANTIMONY	UG/L	9.9	9.9	9.9	1/1
	ARSENIC	UG/L	275	275	275	1/1
	BARIUM	UG/L	809	809	809	1/1
	CALCIUM	UG/L	1,950,000	1,950,000	1,950,000	1/1
	CHROMIUM	UG/L	6.9	6.9	6.9	1/1
	COBALT	UG/L	5.1	5.1	5.1	1/1
	COPPER	UG/L	10.8	10.8	10.8	1/1
	IRON	UG/L	3,230	3,230	3,230	1/1
	MAGNESIUM	UG/L	5,280,000	5,280,000	5,280,000	1/1
	MANGANESE	UG/L	4,480	4,480	4,480	1/1
	MOLYBDENUM	UG/L	1.3	1.3	1.3	1/1
	NICKEL	UG/L	44.7	44.7	44.7	1/1
	POTASSIUM	UG/L	552,000	552,000	552,000	1/1
	SODIUM	UG/L	28,300,000	28,300,000	28,300,000	1/1
	THALLIUM	UG/L	8.4	8.4	8.4	1/1
	VANADIUM	UG/L	29.8	29.8	29.8	1/1
TPH EXTRACTABLES	DIESEL RANGE ORGANICS	MG/L	2	2	2	1/1

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-25 (Continued)

Froid & Taylor Roads - Second Quarter, October 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
TPH EXTRACTABLES	MOTOR OIL RANGE ORGANICS	MG/L	2	2	2	1/1
VOLATILES	CARBON DISULFIDE	UG/L	20	20	20	1/1

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-26

Froid & Taylor Roads - Third Quarter, January 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	15	15	13	1/2
TOTAL METALS	ARSENIC	UG/L	2.2	3.0	2.6	2/2
	BARIUM	UG/L	106	115	111	2/2
	CALCIUM	UG/L	68,800	182,000	125,000	2/2
	COPPER	UG/L	7.8	13.4	10.6	2/2
	IRON	UG/L	186	477	332	2/2
	MAGNESIUM	UG/L	55,700	209,000	132,000	2/2
	MANGANESE	UG/L	207	310	259	2/2
	MOLYBDENUM	UG/L	4.6	4.6	3.1	1/2
	NICKEL	UG/L	3.8	9.1	6.5	2/2
	POTASSIUM	UG/L	14,800	41,000	27,900	2/2
	SELENIUM	UG/L	2.4	2.4	1.8	1/2
	SODIUM	UG/L	485,000	1,360,000	923,000	2/2
TPH EXTRACTABLES	DIESEL RANGE ORGANICS	MG/L	0.08	0.1	0.1	2/2
	MOTOR OIL RANGE ORGANICS	MG/L	0.1	0.2	0.1	2/2

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-27

Froid & Taylor Roads - Fourth Quarter, April - May 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	23	23	23	1/1
TOTAL METALS	ALUMINUM	UG/L	116	116	116	1/1
	ARSENIC	UG/L	10.0	10.0	10.0	1/1
	BARIUM	UG/L	159	159	159	1/1
	CADMIUM	UG/L	1.1	1.1	1.1	1/1
	CALCIUM	UG/L	185,000	185,000	185,000	1/1
	CHROMIUM	UG/L	1.7	1.7	1.7	1/1
	COBALT	UG/L	2.3	2.3	2.3	1/1
	IRON	UG/L	1,830	1,830	1,830	1/1
	MAGNESIUM	UG/L	239,000	239,000	239,000	1/1
	MANGANESE	UG/L	585	585	585	1/1
	MOLYBDENUM	UG/L	2.3	2.3	2.3	1/1
	POTASSIUM	UG/L	61,700	61,700	61,700	1/1
	SODIUM	UG/L	1,600,000	1,600,000	1,600,000	1/1
	VANADIUM	UG/L	4.1	4.1	4.1	1/1
TPH EXTRACTABLES	MOTOR OIL RANGE ORGANICS	MG/L	0.6	0.6	0.6	1/1

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-28

Froid & Taylor Roads - Final Sampling Event, June 1998
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SEMIVOLATILES	4-METHYLPHENOL	UG/L	3	3	5	1/3
	CHRYSENE	UG/L	0.6	0.6	4	1/3
	HIGH MOLECULAR PAHs	UG/L	45	45	45	1/3
	PHENOL	UG/L	0.9	0.9	4	1/3
	TOTAL PAHs	UG/L	72	72	71	1/3
TOTAL METALS	ALUMINUM	UG/L	446	461	335	2/3
	ANTIMONY	UG/L	1.0	1.0	0.67	1/3
	ARSENIC	UG/L	12.2	12.5	12.4	3/3
	BARIUM	UG/L	220	253	238	3/3
	CALCIUM	UG/L	86,200	190,000	152,000	3/3
	COBALT	UG/L	1.2	1.8	1.6	3/3
	COPPER	UG/L	2.9	3.8	3.4	3/3
	IRON	UG/L	2,350	3,060	2,800	3/3
	MAGNESIUM	UG/L	99,100	263,000	204,000	3/3
	MANGANESE	UG/L	452	1,740	948	3/3
	MOLYBDENUM	UG/L	0.92	1.1	0.99	3/3
	NICKEL	UG/L	5.3	11.9	9.5	3/3
	POTASSIUM	UG/L	32,200	60,800	50,300	3/3
	SELENIUM	UG/L	1.0	2.3	1.5	3/3

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-28 (Continued)

Froid & Taylor Roads - Final Sampling Event, June 1998
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
TOTAL METALS	SILVER	UG/L	0.27	0.30	0.23	2/3
	SODIUM	UG/L	859,000	1,830,000	1,470,000	3/3
	VANADIUM	UG/L	5.5	7.0	6.3	3/3
	ZINC	UG/L	21.9	21.9	10.5	1/3

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-29

Wood Hogger - First Quarter, July 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	9	14	11	3/3
TOTAL METALS	ALUMINUM	UG/L	187	187	107	1/3
	BARIUM	UG/L	64.0	94.5	81.2	3/3
	CALCIUM	UG/L	47,100	56,400	50,500	3/3
	COBALT	UG/L	0.52	1.0	0.78	3/3
	COPPER	UG/L	9.5	11.6	8.1	2/3
	IRON	UG/L	782	1,500	1,020	3/3
	LEAD	UG/L	2.8	2.8	1.4	1/3
	MAGNESIUM	UG/L	80,200	113,000	97,700	3/3
	MANGANESE	UG/L	115	330	252	3/3
	POTASSIUM	UG/L	23,400	34,900	30,000	3/3
	SODIUM	UG/L	654,000	910,000	799,000	3/3
	ZINC	UG/L	67.7	329	156	3/3
VOLATILES	XYLENE (TOTAL)	UG/L	8	8	6	1/3

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-30

Wood Hogger - Second Quarter, October 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	25	140	65	3/3
TOTAL METALS	ALUMINUM	UG/L	428	1,510	667	2/3
	ANTIMONY	UG/L	3.6	3.6	2.2	1/3
	BARIUM	UG/L	64.6	173	116	3/3
	CALCIUM	UG/L	57,600	87,700	73,900	3/3
	CHROMIUM	UG/L	1.1	4.8	2.1	2/3
	COBALT	UG/L	0.59	1.4	0.92	3/3
	COPPER	UG/L	5.7	7.7	6.5	3/3
	IRON	UG/L	537	3,240	1,490	3/3
	MAGNESIUM	UG/L	154,000	268,000	200,000	3/3
	MANGANESE	UG/L	107	278	169	3/3
	MOLYBDENUM	UG/L	1.3	3.0	2.0	3/3
	NICKEL	UG/L	3.6	7.6	5.4	3/3
	POTASSIUM	UG/L	45,000	73,300	56,900	3/3
	SODIUM	UG/L	1,240,000	2,200,000	1,640,000	3/3
	THALLIUM	UG/L	2.4	2.4	1.4	1/3
	VANADIUM	UG/L	9.7	9.7	4.0	1/3
	ZINC	UG/L	160	160	74.2	1/3

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-31

Wood Hogger - Third Quarter, January 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	24	28	21	2/3
TOTAL METALS	ALUMINUM	UG/L	166	1,180	517	3/3
	ARSENIC	UG/L	2.4	2.6	2.5	3/3
	BARIUM	UG/L	36.5	130	70.1	3/3
	CALCIUM	UG/L	36,300	108,000	61,500	3/3
	CHROMIUM	UG/L	3.9	3.9	1.6	1/3
	COBALT	UG/L	0.56	0.56	0.54	1/3
	COPPER	UG/L	7.8	11.6	7.0	2/3
	IRON	UG/L	583	2,460	1,250	3/3
	MAGNESIUM	UG/L	50,100	155,000	90,700	3/3
	MANGANESE	UG/L	144	469	253	3/3
	NICKEL	UG/L	2.6	6.1	4.0	3/3
	POTASSIUM	UG/L	15,100	29,300	21,300	3/3
	SODIUM	UG/L	415,000	989,000	634,000	3/3
	VANADIUM	UG/L	7.5	7.5	3.1	1/3
	ZINC	UG/L	32.5	110	48.6	2/3

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-32

Wood Hogger - Fourth Quarter, April - May 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	39	54	48	3/3
TOTAL METALS	ALUMINUM	UG/L	332	2,100	1,060	3/3
	ANTIMONY	UG/L	2.6	2.6	1.6	1/3
	ARSENIC	UG/L	11.8	11.8	5.1	1/3
	BARIUM	UG/L	64.1	119	96.4	3/3
	CADMIUM	UG/L	0.51	2.5	1.2	3/3
	CALCIUM	UG/L	44,700	51,500	48,900	3/3
	CHROMIUM	UG/L	1.5	6.1	3.2	3/3
	COBALT	UG/L	1.2	1.2	0.77	1/3
	COPPER	UG/L	3.0	13.7	7.9	3/3
	IRON	UG/L	1,530	3,300	2,440	3/3
	LEAD	UG/L	3.7	3.7	1.6	1/3
	MAGNESIUM	UG/L	75,200	129,000	98,800	3/3
	MANGANESE	UG/L	157	1,950	759	3/3
	MERCURY	UG/L	0.20	0.20	0.13	1/3
	MOLYBDENUM	UG/L	7.3	7.3	3.4	1/3
	NICKEL	UG/L	5.9	7.1	6.4	3/3
	POTASSIUM	UG/L	34,400	58,100	42,400	3/3
	SODIUM	UG/L	640,000	1,250,000	868,000	3/3

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-32 (Continued)

Wood Hogger - Fourth Quarter, April - May 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
TOTAL METALS	VANADIUM	UG/L	5.1	11.3	8.9	3/3
	ZINC	UG/L	24.3	318	127	3/3

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-33

Otter Sluice - First Quarter, July 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	10	20	12	3/6
TOTAL METALS	ALUMINUM	UG/L	167	393	308	6/6
	BARIUM	UG/L	46.7	54.1	49.9	6/6
	CALCIUM	UG/L	38,400	42,300	40,000	6/6
	COBALT	UG/L	0.51	0.75	0.49	4/6
	COPPER	UG/L	8.3	9.4	5.0	2/6
	IRON	UG/L	396	849	724	6/6
	MAGNESIUM	UG/L	91,200	102,000	97,200	6/6
	MANGANESE	UG/L	44.6	224	133	6/6
	POTASSIUM	UG/L	27,300	31,100	29,800	6/6
	SODIUM	UG/L	732,000	826,000	791,000	6/6
	ZINC	UG/L	53.9	53.9	26.4	1/6
VOLATILES	CHLOROMETHANE	UG/L	11	11	6	1/6

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-34

Otter Sluice - Second Quarter, October 1995
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	21	39	30	6/6
TOTAL METALS	ALUMINUM	UG/L	281	785	648	6/6
	BARIUM	UG/L	28.7	58.2	39.9	6/6
	CALCIUM	UG/L	43,000	58,200	49,200	6/6
	CHROMIUM	UG/L	0.63	2.2	1.8	6/6
	COBALT	UG/L	0.64	1.3	0.90	6/6
	COPPER	UG/L	4.3	8.6	5.6	6/6
	IRON	UG/L	625	1,620	1,220	6/6
	MAGNESIUM	UG/L	111,000	150,000	129,000	6/6
	MANGANESE	UG/L	31.1	223	98.3	6/6
	MOLYBDENUM	UG/L	1.4	2.2	1.5	4/6
	NICKEL	UG/L	3.0	6.9	4.8	6/6
	POTASSIUM	UG/L	32,600	43,700	37,000	6/6
	SODIUM	UG/L	818,000	1,170,000	984,000	6/6
	THALLIUM	UG/L	2.4	2.4	1.4	2/6
	VANADIUM	UG/L	5.1	6.2	5.6	6/6

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-35

Otter Sluice - Third Quarter, January 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	17	40	25	6/6
TOTAL METALS	ALUMINUM	UG/L	619	1,450	1,110	6/6
	ARSENIC	UG/L	1.9	2.7	2.5	5/6
	BARIUM	UG/L	25.5	33.2	28.7	6/6
	CALCIUM	UG/L	18,700	30,400	22,500	6/6
	CHROMIUM	UG/L	2.4	4.1	3.2	5/6
	COPPER	UG/L	5.3	9.5	7.1	6/6
	IRON	UG/L	1,030	2,230	1,780	6/6
	LEAD	UG/L	1.3	3.1	1.7	4/6
	MAGNESIUM	UG/L	26,100	61,600	39,500	6/6
	MANGANESE	UG/L	28.8	82.3	65.2	6/6
	NICKEL	UG/L	3.9	5.9	5.3	6/6
	POTASSIUM	UG/L	7,890	20,000	12,700	6/6
	SODIUM	UG/L	172,000	504,000	300,000	6/6
	VANADIUM	UG/L	4.7	7.5	6.2	6/6
	ZINC	UG/L	19.6	31.5	15.2	3/6

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-36

Otter Sluice - Fourth Quarter, April - May 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SOLIDS	TOTAL SUSPENDED SOLIDS	MG/L	14	120	41	6/6
PESTICIDES	ALPHA-CHLORDANE	UG/L	0.04	0.04	0.03	1/6
	HEPTACHLOR	UG/L	0.1	0.1	0.04	1/6
TOTAL METALS	ALUMINUM	UG/L	424	1,300	944	6/6
	ARSENIC	UG/L	4.1	5.0	3.3	3/6
	BARIUM	UG/L	38.5	77.2	56.9	6/6
	CADMIUM	UG/L	0.44	0.52	0.34	3/6
	CALCIUM	UG/L	34,600	45,400	42,000	6/6
	CHROMIUM	UG/L	1.6	4.5	2.9	6/6
	COPPER	UG/L	4.2	6.0	3.4	3/6
	IRON	UG/L	1,090	2,560	1,800	6/6
	MAGNESIUM	UG/L	70,900	95,800	83,400	6/6
	MANGANESE	UG/L	64.1	256	155	6/6
	MERCURY	UG/L	0.24	0.24	0.12	1/6
	MOLYBDENUM	UG/L	1.7	1.7	1.2	2/6
	NICKEL	UG/L	5.5	6.1	3.2	2/6
	POTASSIUM	UG/L	26,600	34,800	31,200	6/6
	SODIUM	UG/L	499,000	700,000	627,000	6/6
	VANADIUM	UG/L	6.0	9.8	7.6	6/6

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-36 (Continued)

Otter Sluice - Fourth Quarter, April - May 1996
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
TOTAL METALS	ZINC	UG/L	11.1	14.5	8.2	3/6

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

Table 5-37

Otter Sluice - Final Sampling Event, June 1998
Statistical Summary of Surface Water Sample Analytical Results
Revised Draft Final Remedial Investigation
Tidal Area, Naval Weapons Station SBD Concord

Analysis	Analyte	Unit	Detected Results			
			Minimum	Maximum	Arithmetic Mean	Total
SEMIVOLATILES	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	29	29	5	1/9
TOTAL METALS	ALUMINUM	UG/L	543	1,140	786	9/9
	ARSENIC	UG/L	2.0	3.7	2.5	7/9
	BARIUM	UG/L	17.7	1,160	148	9/9
	CALCIUM	UG/L	11,200	17,000	13,300	9/9
	CHROMIUM	UG/L	2.8	3.4	1.5	2/9
	COBALT	UG/L	0.30	0.80	0.51	5/9
	COPPER	UG/L	2.9	5.6	3.3	8/9
	IRON	UG/L	973	2,120	1,410	9/9
	MAGNESIUM	UG/L	8,940	18,900	12,600	9/9
	MANGANESE	UG/L	37.4	227	92.6	9/9
	MOLYBDENUM	UG/L	0.42	0.69	0.58	6/9
	NICKEL	UG/L	2.5	5.2	3.5	9/9
	POTASSIUM	UG/L	3,150	6,100	4,540	9/9
	SELENIUM	UG/L	0.77	1.0	0.97	3/9
	SODIUM	UG/L	44,000	123,000	76,300	9/9
	VANADIUM	UG/L	4.4	6.1	5.2	9/9
	ZINC	UG/L	7.1	430	52.6	2/9

UG/L = Micrograms per liter MG/L = Milligrams per liter NA = Not Analyzed

The minimum and the maximum results, and the arithmetic and geometric means were calculated using the detected values.

The Total column shows the ratio of the number of the analyte detected to the number of the analyte analyzed.

Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.

Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.

TABLE 5-38

COMPARISON OF THE SEDIMENT SAMPLES FROM THE WESTERN AND EASTERN SIDES OF THE R AREA SITE REVISED DRAFT FINAL REMEDIAL INVESTIGATION TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Exposure Concentration (mg/kg)[a]		West -East Difference (mg/kg)[c]	Percent Difference[d]
	West Side[b]	East Side[b]		
Inorganic Chemicals				
Beryllium	0.1	0.15	-0.05	-33.33%
Manganese	565	580	-15.00	-2.59%
Nickel	79.8	74.6	5.20	6.97%
Antimony	1.5	1.4	0.10	7.14%
Vanadium	74.1	68.6	5.50	8.02%
Cobalt	17.8	16.4	1.40	8.54%
Arsenic	14.7	13.5	1.20	8.89%
Aluminum	20,600	18,800	1,800.00	9.57%
Iron	36,600	32,300	4,300.00	13.31%
Chromium	68.4	56.9	11.50	20.21%
Barium	197	156	41.00	26.28%
Silver	0.17	0.13	0.04	30.77%
Copper	57.3	42.7	14.60	34.19%
Zinc	214	119	95.00	79.83%
Lead	100	53	47.00	88.68%
Mercury	0.35	0.15	0.20	133.33%
Organic Chemicals				
2,4'-DDT	0.0008	0.0008	0.00	0.00%
Hexachlorobenzene	0.0003	0.0003	0.00	0.00%
Total Chlordanes[e]	0.002	0.002	0.00	0.00%
Aldrin	0.0002	0.0002	0.00	0.00%
Heptachlor Epoxide	0.0002	0.0002	0.00	0.00%
Total PCBs[f]	0.009	0.008	0.00	12.50%
trans-Nonachlor	0.0007	0.0006	0.00	16.67%
alpha-Chlordane	0.0007	0.0006	0.00	16.67%
4,4'-DDD	0.004	0.003	0.00	33.33%
4,4'-DDT	0.004	0.003	0.00	33.33%
Dieldrin	0.0004	0.0003	0.00	33.33%
Benzoic Acid	0.28	0.2	0.08	40.00%
Benzo(b)fluoranthene	0.1	0.07	0.03	42.86%
Benzo(g,h,i)perylene	0.1	0.07	0.03	42.86%
Benzo(k)fluoranthene	0.1	0.07	0.03	42.86%
Total LMW PAHs[g]	1.07	0.73	0.34	46.58%
Mirex	0.0003	0.0002	0.00	50.00%
Dibenz(a,h)anthracene	0.09	0.06	0.03	50.00%
Total PAHs[g]	2.6	1.51	1.09	72.19%

TABLE 5-38 (Continued)

COMPARISON OF THE SEDIMENT SAMPLES FROM THE WESTERN AND EASTERN SIDES OF THE R AREA SITE REVISED DRAFT FINAL REMEDIAL INVESTIGATION TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Exposure Concentration (mg/kg)[a]		West -East Difference (mg/kg)[c]	Percent Difference[d]
	West Side[b]	East Side[b]		
Organic Chemicals (Continued)				
Indeno(1,2,3-cd)pyrene	0.13	0.07	0.06	85.71%
Perylene	0.13	0.07	0.06	85.71%
Total HMW PAHs[g]	1.47	0.74	0.73	98.65%
Total DDTs[h]	0.02	0.01	0.01	100.00%
4,4'-DDE	0.002	0.001	0.00	100.00%
Pyrene	0.16	0.08	0.08	100.00%
Chrysene	0.15	0.07	0.08	114.29%
Bis(2-ethylhexyl)phthalate	0.2	0.09	0.11	122.22%
Benzo(a)pyrene	0.14	0.06	0.08	133.33%
Benzo(e)pyrene	0.14	0.06	0.08	133.33%
Fluoranthene	0.2	0.08	0.12	150.00%
Phenanthrene	0.17	0.06	0.11	183.33%
Benzo(a)anthracene	0.2	0.06	0.14	233.33%
gamma-BHC (Lindane)	0.0008	0.0002	0.00	300.00%
2,4'-DDE	0.001	0.0002	0.00	400.00%
2,4'-DDD	0.007	0.001	0.01	600.00%
Chemicals Detected on One Side Only				
Heptachlor	0.0004	ND		
Carbazole	0.04	ND		
Naphthalene	0.2	ND		
1-methylphenanthrene	0.04	ND		
2,6-dimethylnaphthalene	0.1	ND		
2-Methylnaphthalene	0.04	ND		
4-Methylphenol	0.15	ND		
Acenaphthene	0.03	ND		
Anthracene	0.1	ND		
Dibenzothiophene	0.02	ND		
Diethylphthalate	0.2	ND		
Fluorene	0.03	ND		
Isophorone	ND	0.04		

TABLE 5-38 (Continued)

COMPARISON OF THE SEDIMENT SAMPLES FROM THE WESTERN AND EASTERN SIDES OF THE R AREA SITE REVISED DRAFT FINAL REMEDIAL INVESTIGATION TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Notes:

a The exposure concentration is generally the UCL_{95}, which was calculated using one-half of the detection limit for all nondetected concentrations. When the chemical was detected in three or fewer samples or when the UCL_{95} was greater than the maximum concentration, the maximum detected concentration was used as the exposure concentration. When the sample distribution was nonparametric or when the detection frequency was less than 40 percent, the UCL_{95} was calculated using the standard bootstrap method (Singh and others 1997).

b The R Area site was divided approximately in half along the pipeline (see Figure 1-2). Sampling locations included in each side are identified in Appendix C of the ecological risk assessment (Tetra Tech EM Inc. 2002).

c The exposure concentration for the eastern side was subtracted from the western side exposure concentration.

d Inorganic and organic chemicals are sorted separately by percent difference. The percent difference is based on the change from the east side to the west side.

e Sum of detected concentrations of alpha-chlordane, gamma-chlordane, heptachlor, heptachlor epoxide, hexachlorobenzene, oxychlordane, and trans-nonachlor. Total chlordanes includes one-half of the detection limit for nondetected compounds.

f Sum of detected concentrations of 18 congeners (PCBs 101, 105, 118, 128, 138, 153, 170, 18, 180, 187, 195, 206, 209, 28, 44, 52, 66, and 8), multiplied by 2 (NOAA 1993).

g LMW PAHs include 1-methylnaphthalene; 2-methylnaphthalene; 1-methylphenanthrene; 2,3,5-trimethylnaphthalene; 2,6-dimethylnaphthalene; acenaphthene; acenaphthylene; anthracene; biphenyl; fluorene; naphthalene; and phenanthrene. HMW PAHs include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzothiophene, fluoranthene, indeno(1,2,3-cd)pyrene, perylene, and pyrene. Total PAHs include one-half the detection limit for nondetected compounds. Total PAHs is the sum of the LMW and HMW PAH groups. Totals are reported based on both low-level and CLP analyses; low-level analysis was used preferentially in the totals calculation.

h Sum of 2,4'-DDD; 2,4'-DDE; 2,4'-DDT; 4,4'-DDD; 4,4'-DDE; and 4,4'-DDT. Total DDTs includes one-half of the detection limit for nondetected compounds.

References:

NOAA. 1993. "Sampling and Analytical Methods of the National Status and Trends Program, National Benthic Surveillance and Mussel Watch Projects. 1984-1992." NOAA Technical Memorandum, NOS ORCA 71. July.

Singh, A.K. and others. 1997. "The Lognormal Distribution in Environmental Applications." EPA/600/R-97/006. December.

Tetra Tech EM Inc. 2002. "Revised Draft Final Ecological Risk Assessment, Tidal Area Sites 2, 9, and 11, Naval Weapons Station, Seal Beach Detachment, Concord, California." January.

BHC	Hexachlorocyclohexane (benzene hexachloride)
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
HMW	High molecular weight
LMW	Low molecular weight
mg/kg	Milligrams per kilogram
NOAA	National Oceanic and Atmospheric Administration
PAH	Polynuclear aromatic hydrocarbons
PCB	Polychlorinated biphenyl
UCL_{95}	95th percentile upper confidence limit of the arithmetic mean concentration

TABLE 5-39

CONFIRMATION GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR INORGANICS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Well ID	AWQC	TLW-1	TLW-2	TLW-3	TLW-4	TLW-5	TLW-5 Dup.	TLW-6	TLW-7
Sampling Method			low flow rate		low flow rate	low flow rate	low flow rate		
Metals (μg/L)									
Aluminum		--	427	--	86.5	--	--	--	--
Antimony		--	--	--	--	--	--	--	--
Arsenic	36 (190)	29.8	83.5	--	23.8	6.1 J	4.2 J	12.7 J	14.4
Barium		267	275	52.4 J	13.3 J	110 J	112 J	565	189 J
Beryllium	(5.3)	0.97 J	--	0.97 J	1.2 J	--	--	--	--
Cadmium	9.3 (1.1)	--	--	--	--	--	--	--	--
Calcium		665,000	247,000	557,000	9,310	49,100	50,100	313,000	184,000
Chromium	50 (11)	19.7	--	--	20.7	--	4.7 J	--	--
Cobalt		--	--	--	--	--	--	--	--
Copper	2.9 (12)	--	--	--	8.9 J	--	--	--	--
Iron	(1000)	5,480	415	1,960	227	957	1,010	3,240	839
Lead	8.5 (3.2)	--	--	--	--	--	--	--	--
Magnesium		1,750,000	1,320,000	2,680,000	29,000	90,600	91,700	426,000	462,000
Manganese		10,300	155	2,620	21.7	639	650	3,600	89.5 J
Mercury	0.025 (0.012)	--	--	--	--	0.2 J	0.16 J	--	--
Molybdenum		76	49 J	118	118	71.5	65.6	44 J	50.9
Nickel	8.3 (160)	156	--	147	30.9 J	287	292	55.2	--
Potassium		247,000	223,000	442,000	39,400	47,900	48,200	71,000	103,000
Selenium	71 (5)	--	--	--	--	--	--	--	--
Silver	(0.12)	--	--	--	--	--	--	--	--
Sodium		8,550,000	8,400,000	15,600,000	1,470,000	1,850,000	1,850,000	2,360,000	3,230,000
Thallium		--	1.8 J	--	--	1.7 J	--	--	--
Vanadium		54.3	--	--	50.7	--	6.9 J	--	68.9 J
Zinc	86 (110)	--	--	--	--	--	--	39.2	--
Solids (mg/L)									
Total dissolved solids		34,100	31,400	61,000	3,930	5,580	5,480	9,790	11,800
Total suspended solids		226	155	--	--	--	--	--	--
Turbidity (NTU)		54	15.4	5.3	0.7	13	13	17	3

Notes:

Turbidity is reported in nephelometric turbidity units (NTU).
Samples collected in October 1997.

-- Not detected
J Estimated concentration
μg/L Micrograms per liter
mg/L Milligrams per liter
AWQC Ambient Water Quality Criteria, marine chronic (freshwater chronic values are shown in parenthesis).

TABLE 5-39 (Continued)

CONFIRMATION GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR INORGANICS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA NAVAL WEAPONS STATION SBD CONCORD

Well ID	RDW-1	RDW-1 Dup.	RDW-2	RDW-3	RDW-4	RDW-5	RDW-6	RDW-7
Sampling Method				low flow rate				low flow rate
Metals (μg/L)								
Aluminum	--	--	200	807	--	104	94.6	350
Antimony	8.2	6.3	--	--	--	--	--	--
Arsenic	35.2	57	38.8	6.4 J	14.4 J	65	32.8	7.6 J
Barium	399	495	642	306	78.9 J	1,010	170 J	121 J
Beryllium	1.2 J	0.73 J	1.2 J	--	--	--	--	--
Cadmium	--	--	--	--	--	--	--	--
Calcium	189,000	185,000	464,000	245,000	196,000	876,000	285,000	732,000
Chromium	--	--	5.3 J	--	53.4	8.4 J	14.5 J	43.6
Cobalt	--	--	--	--	--	--	--	16.1 J
Copper	--	--	--	--	--	--	--	--
Iron	2,110	4,470	1,150	36,200	4,300	5,190	2,230	7,050
Lead	--	--	--	--	--	--	--	--
Magnesium	478,000	465,000	1,470,000	459,000	321,000	1,520,000	758,000	2,740,000
Manganese	1,150	1,470	209	3,010	520	10,600	1,320	16,000
Mercury	--	--	--	--	--	--	--	--
Molybdenum	33.5 J	30.9 J	56.8 J	68.9	14.4 J	72.5	55.7	88.8
Nickel	45	41.6	--	--	91.8	19 J	59	69.8
Potassium	137,000	123,000	184,000	98,000	113,000	48,600	159,000	425,000
Selenium	--	--	--	--	--	3.6 J	--	4.4 J
Silver	--	--	--	2.1 J	1.4 J	--	--	--
Sodium	2,740,000	2,810,000	7,880,000	2,980,000	2,920,000	4,510,000	4,060,000	14,100,000
Thallium	--	--	--	--	2 J	--	--	--
Vanadium	115	83.8	42 J	14.2 J	7.5 J	26.2 J	36.5 J	--
Zinc	--	68	--	14.4 J	12 J	10.5 J	19.6 J	47
Solids (mg/L)								
Total dissolved solids	9,600	9,470	27,300	12,500	11,300	25,200	17,700	65,600
Total suspended solids	67	58	163	158	--	9	--	32
Turbidity (NTU)	7.9	7.9	18	16	1.9	0.5	19	41

Notes:

Turbidity is reported in nephelometric turbidity units (NTU).
Samples collected in October 1997.

-- Not detected
J Estimated concentration
μg/L Micrograms per liter
mg/L Milligrams per liter
AWQC Ambient Water Quality Criteria, marine chronic (freshwater chronic values are shown in parenthesis).

TABLE 5-39 (Continued)

CONFIRMATION GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR INORGANICS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA NAVAL WEAPONS STATION SBD CONCORD

Well ID	WHW-1	WHW-2	WHW-3	WHW-4	FTW-1	FTW-1 Dup.	FTW-2	FTW-3	FTW-4	FTW-5
Sampling Method					low flow rate	low flow rate			low flow rate	low flow rate
Metals (μg/L)										
Aluminum	--	276	--	--	--	--	84.3	--	--	412
Antimony	--	--	--	--	--	--	--	--	--	--
Arsenic	14.9 J	42.5	23.7	31.7	11.2 J	15.3 J	25.7	24.5	76.4	3.3 J
Barium	397	992	2,740	1140	1,500	1,500	826	3370	264	2,370
Beryllium	--	--	--	--	--	0.61 J	0.73 J	0.97 J	--	--
Cadmium	--	--	--	--	--	--	--	--	--	--
Calcium	748,000	302,000	296,000	914,000	1,100,000	1,170,000	385,000	283,000	301,000	257,000
Chromium	--	--	--	93.9	--	--	--	--	--	39.6
Cobalt	--	10.6 J	--	--	30.1 J	30.7 J	--	--	--	--
Copper	--	--	--	--	--	--	--	--	--	--
Iron	9,120	504	6,560	6,790	22,600	22,400	11,900	562	30,400	666
Lead	--	--	--	--	--	--	--	--	--	--
Magnesium	2,140,000	620,000	519,000	1,670,000	1,230,000	1,310,000	700,000	490,000	714,000	673,000
Manganese	6,580	3,950	5,680	7,060	16,400	16,500	4,910	449	459	--
Mercury	--	--	--	--	--	--	--	--	0.16 J	--
Molybdenum	80	62.1	46.5 J	67.8	69.1	90.4	62.8	22.1 J	60.2	--
Nickel	6.5 J	68.5	12.9 J	--	34.9 J	38.8 J	27.6 J	--	--	27.1 J
Potassium	160,000	112,000	65,100	170,000	16,100	16,800	126,000	107,000	131,000	120,000
Selenium	--	--	--	--	--	--	--	--	--	--
Silver	--	--	--	--	--	--	--	--	--	2.4 J
Sodium	15,200,000	3,640,000	3,410,000	8,940,000	5,410,000	5,950,000	3,890,000	2,990,000	5,550,000	4,360,000
Thallium	--	--	--	--	--	--	--	--	--	1.6 J
Vanadium	25.6 J	61.4 J	13.2 J	33.4 J	--	9.3 J	44.6 J	16.3 J	--	11.7 J
Zinc	11.5 J	36.8	18.6 J	7.4 J	--	5.8 J	--	--	164	16.4 J
Solids (mg/L)										
Total dissolved solids	53,100	14,300	14,000	35,700	25,800	26,500	14,200	11,400	20,100	18,000
Total suspended solids	40	--	14	--	60	60	38	--	74	23
Turbidity (NTU)	21	22.5	26	16	2.5	2.5	46	1.2	0.1	0.5

Notes:

Turbidity is reported in nephelometric turbidity units (NTU).
Samples collected in October 1997.

-- Not detected
J Estimated concentration
μg/L Micrograms per liter
mg/L Milligrams per liter
AWQC Ambient Water Quality Criteria, marine chronic (freshwater chronic values are shown in parenthesis).

TABLE 5-40

CONFIRMATION GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR ORGANIC COMPOUNDS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Compound Name	TLW-1	TLW-2	TLW-3	TLW-4	TLW-5	TLW-5 Dup.
VOCs (µg/L)						
2-Butanone	---	---	14	---	---	---
4-Methyl-2-Pentanone	1 J	---	---	---	---	---
Carbon Disulfide	2	---	10	---	---	---
Bis (2-Ethylhexyl) Phthala	38	---	---	---	---	---
SVOCs						
Phenanthrene	---	---	---	1 J	---	---
Pesticides/PCBs						
none detected	---	---	---	---	---	---

Compound Name	TLW-6	TLW-7	FTW-3	RDW-5	RDW-6
VOCs (µg/L)					
2-Butanone	---	---	..	..	..
4-Methyl-2-Pentanone	---	---	..	..	..
Carbon Disulfide	---	2 J	..	..	..
Bis (2-Ethylhexyl) Phthala	---	---	..	..	..
SVOCs					
Phenanthrene	---	---	---	..	..
Pesticides/PCBs					
none detected	---	---	---	---	---

Notes:

Compounds that were not detected in any sample are not shown on this table.
Samples collected in October 1997.

--- Not detected
.. Not analyzed
µg/L Micrograms per liter
J Estimated concentration

TABLE 5-41

CONFIRMATION SAMPLING ANALYTICAL RESULTS FOR RADIOISOTOPES
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Compound Name	TLW-2	TLW-5	TLW-5 Dup	RDW-1	RDW-3	RDW-4	RDW-4 Lab Dup.
Radio Isotopes (pCi/L)							
Bismuth-211	--	52.3 ± 34.1	--	24.1 ± 19.3	--	--	--
Cerium-141	--	--	9.82 ± 9.3	9.15 ± 8.3	--	--	--
Cesium-137	--	2.38 ± 3.6	--	--	--	--	--
Cobalt-60	--	--	--	--	--		--
Krypton-85	--	--	--	--	--	--	--
Lead-212	10.8 ± 7.5	8.7 ± 7.1	9.7 ± 6.5	9.7 ± 5.7	7.5 ± 6.8	9.1 ± 5.8	5.6 ± 5.0
Lead-214	--	--	--	8.39 ± 6.7	--	--	--
Molybdenum-99	--	--	--	--	--	--	--
Potassium-40	340 ± 104	317 ± 100	144 ± 63	157 ± 64	180 ± 77	175 ± 77	173 ± 69
Radium-224	121 ± 85	98.3 ± 80	109 ± 74	110 ± 65	84.6 ± 77	102 ± 66	63.1 ± 56
Radium-226	101 ± 84	151 ± 108	443 ± 205	415 ± 184	235 ± 141	123 ± 91	175 ± 106
Strontium-85	--	--	--	--	--	--	--
Technetium-99m	--	--	--	--	--	--	--
Tellurium-123M	--	--	--	--	--	2.7 ± 2.6	--
Thallium-208	2.6 ± 3.8	3.8 ± 3.9	--	--	--	--	--
Uranium-235	--	--	26.9 ± 12.5	25.2 ± 11.2	--	--	--
Xenon-131M	--	--	727 ± 901.0	--	--	--	--

Compound Name	RDW-7	FTW-1	FTW-4	WHW-1	Suisun Bay	Method Blank
Radio Isotopes (pCi/L)						
Bismuth-211	--	37.4 ± 30.8	15.2 ± 18.5	--	--	24.5 ± 10.0
Cerium-141	--	--	11.5 ± 8.2	15.4 ± 8.1	--	--
Cesium-137	--	--	--	--	--	--
Cobalt-60	--	--	--	--	--	--
Krypton-85	--	--	--	--	--	--
Lead-212	8.5 ± 6.1	12.4 ± 7.7	8.0 ± 5.2	10.0 ± 6.3	--	6.7 ± 2.6
Lead-214	--	--	--	--	--	--
Molybdenum-99	--	--	--	--	--	4.9 ± 1.6
Potassium-40	602 ± 163	284 ± 89	210 ± 71	175 ± 61	228 ± 75	--
Radium-224	95.6 ± 69	140 ± 87	90.7 ± 59	113 ± 72	--	75.1 ± 29.4
Radium-226	88.6 ± 75	221 ± 130	485 ± 218	483 ± 209	201 ± 114	145 ± 49
Strontium-85	--	--	--	--	--	3.2 ± 1.7
Technetium-99m	--	--	--	--	--	20.2 ± 6.4
Tellurium-123M	--	--	--	--	--	--
Thallium-208	5.8 ± 4.2	4.1 ± 3.6	--	--	--	6.9 ± 2.3
Uranium-235	--	--	29.5 ± 13.3	29.3 ± 12.7	--	--
Xenon-131M	--	--	--	--	--	--

Notes:

Concentrations are reported in picoCuries per liter (pCi/L)

-- = Below minimum detectable concentration (MDC). The nuclide was not identified by the Canberra Nuclear NID program.

Reported error is total propagated error

Figures 4-14 to 5-6

These detailed station maps have been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

6.0 REVISED HUMAN HEALTH RISK ASSESSMENT

This section presents the revised draft final HHRA (revised HHRA) for the following Tidal Area sites and AOI at Naval Weapons Station SBD Concord, California:

- R Area (Site 2)
- Froid and Taylor Road (Site 9)
- Wood Hogger (Site 11)
- Otter Sluice (AOI)

This revised HHRA was conducted to provide risk managers with a basis for evaluating whether action is warranted to mitigate potential health effects from exposure to contaminants in soil, sediment, and surface water at each of the these sites. This revised HHRA is a revision of the HHRA included in the 1999 RI (TtEMI 1999). The assessment characterizes potential risks of cancer and adverse noncancer health effects associated with exposure to contaminants in soil, sediment, and surface water under both current and potential future land use conditions. Groundwater, which is not considered a potential source of drinking water (Section 5.3.1), was not evaluated in this revised HHRA. HHRAs evaluate baseline conditions at the sites under which it is assumed that no remedy is implemented to address existing chemical contamination.

An HHRA for the Tidal Area was completed previously as part of the 1999 draft final RI (TtEMI 1999). The 1999 HHRA included an evaluation of R Area Site, Froid and Taylor Road Site, Wood Hogger Site, and the Landfill. The Landfill is not included in this revised HHRA because it is currently the subject of a separate response action for which a revised draft final ROD has been prepared (TtEMI 2001). Otter Sluice was not evaluated in the 1999 HHRA, but it is evaluated in this revised HHRA.

The 1999 HHRA was based on soil, sediment, and surface water data collected in 1995, 1996, and 1998. No additional sampling activities have been conducted since that time. This revised HHRA is based on the same analytical data used to conduct the 1999 HHRA, but differs in the following ways:

- Current EPA Region 9 Preliminary remediation goals (PRG) and Cal/EPA toxicity values were incorporated (EPA 2002b; Cal/EPA 2003a).
- The statistical analysis of ambient conditions was updated for consistency with recent Navy guidance (2000) and agreements reached with the regulatory agencies (TtEMI 2000b).
- The approach for evaluating PCBs was updated on the basis of more recent EPA (1996a; 2000a) and Cal/EPA (2003b) guidance.

- The soil depth interval evaluated at Wood Hogger Site was extended from 0 to 10 feet to 0 to 11 feet bgs to include evaluation of elevated concentrations of metals, as discussed in Section 6.1.1.2.
- Analytical results from selected samples collected from locations immediately adjacent to Otter Sluice that were previously included in the 1999 HHRA data sets for R Area Site and Wood Hogger Site were moved to the data sets used to represent Otter Sluice surface water and sediments.

The remainder of this section is organized as follows. Section 6.1 describes the methods used to conduct the HHRA, Section 6.2 presents the results of the HHRA, and Section 6.3 presents a qualitative discussion of uncertainties associated with the HHRA. Figures and tables follow Section 6.3. Overall conclusions and recommendations of the revised RI and HHRA for R Area Site, Froid and Taylor Road Site, Wood Hogger Site, and Otter Sluice are presented in Section 9.0.

6.1 METHODS

The following two approaches were used to estimate cancer risks and noncancer health hazards in the HHRA:

- A PRG assessment to estimate risks from exposure to soils and sediments
- Calculations to estimate risks from exposure to surface water using a forward calculation methodology

The PRG assessment used a streamlined approach to estimate cancer risks and hazard indices (HI) based on the ratio of detected contaminant concentrations to EPA Region 9 PRGs. This approach is outlined by EPA in its memorandum on deriving PRGs (EPA 2002b) and by DTSC in its memorandum on the use of PRGs for screening-level risk assessments at military facilities (DTSC 1994).

PRGs are risk-based concentrations that correspond to an excess lifetime cancer risk of 1×10^{-6} or an hazard quotient (HQ) of 1, based on standardized equations that combine standard exposure assumptions and EPA toxicity values. EPA has developed PRGs for residential and industrial exposure to soil. (PRGs are also available for other media, but they were not used in this HHRA.) Exposure pathways evaluated in development of PRGs for soil are incidental ingestion, dermal contact, and inhalation of airborne particles and VOCs released from soil to ambient air. The risk estimates developed using PRGs represent the risk for all exposure pathways evaluated within the PRG framework. These risk estimates are numerically equivalent to risk estimates obtained using the forward calculation methodology (see Section 6.1.5.2) typically used for an HHRA if the exposure pathways and assumptions used to derive

PRGs are the same as those used in the forward calculations. A detailed description of the approach and equations used to calculate cancer risks and HIs using PRGs is presented in Section 6.1.5.1.

PRGs do not account for dermal exposure to chemicals in water, the only complete exposure pathway associated with exposure to surface water at the Tidal Area sites and Otter Sluice (see Section 6.1.3.3). For this reason, potential health impacts associated with exposure to surface water were evaluated using standard EPA methods based on the forward calculation methodology used in conventional HHRAs (EPA 1989a). Site-specific values for exposure parameters were used in these calculations, as discussed in Section 6.1.3.5.

Although PRGs were used as a calculational tool to estimate cancer risks and HIs for soils and sediments, the PRG assessment followed the same risk assessment process used in conventional HHRAs (EPA 1989a). The remainder of this section is organized to reflect this process as follows: Section 6.1.1 presents an evaluation of the analytical data, including grouping of the data for analysis in the revised HHRA; Section 6.1.2 identifies COPCs; Section 6.1.3 presents the exposure assessment; Section 6.1.4 presents the toxicity assessment; and Section 6.1.5 presents the risk characterization methodology. Results of the HHRA are then presented in Section 6.2, and uncertainties are discussed in Section 6.3.

6.1.1 Data Evaluation and Data Grouping

The following sections describe the evaluation of analytical data for usability in the HHRA and the grouping of analytical data by site and medium.

6.1.1.1 Data Evaluation

Analytical results for soils, sediments, and surface water were available from the SI, RFA, Tidal Area Sites Confirmation Study, and RI previously described in Section 5.0. As part of the data evaluation process, all analytical data were reviewed to verify that the data met EPA data quality criteria for use in risk assessments. On the basis of this review, all analytical data collected as part of the SI were considered to be unusable for the HHRA. Much of the analytical data obtained during the SI were qualified as "estimated" (IT Corporation 1992). Data qualified as estimated indicates that the reported concentration was estimated and not definitive. The common qualifier "J," indicating that a result was estimated, was assigned to all types of quality control problems and did not identify whether the problem was a result of interferences in the analytical measurements or from chemicals detected in QA/QC samples. In addition, IT Corporation did not evaluate whether the chemicals detected were actually present in the samples below the quantitation limit or resulted from laboratory or sampling contamination. Furthermore,

during the limited Tidal Area Sites Confirmation Study performed by PRC in 1992, most of the "J"-qualified detected chemicals reported by IT Corporation (IT Corporation 1991) were not detected (PRC 1997b). This result indicates that most of the chemicals qualified as "J" likely were attributable to laboratory or sampling contamination. Because the SI data was qualified, the data could only be used for a qualitative evaluation and were not used in the HHRA. In designing the sampling plan for the subsequent RI, PRC recognized that much of the data obtained in the SI was of limited value and resampled areas previously sampled during the SI as appropriate.

Samples collected during the RFA, Tidal Area Sites Confirmation Study, and RI were validated in accordance with EPA data validation guidelines (EPA 1994a, 1994b) described in the QAPP (PRC 1995b). To summarize the data validation process, all analytical data were subject to a cursory review, and 10 percent of the data was fully validated. The cursory review evaluated key QA/QC information such as holding times, calibration requirements, and spiking accuracy. During the full validation, additional QA/QC criteria were evaluated, and the raw data were used to check calculations and analyte identifications. The overall objective of data validation was to verify that the analytical data met EPA guidelines for adequacy based on PARCC parameters. At each stage of the validation, qualifiers were assigned to the results according to EPA guidelines (1994a, 1994b), the QAPP (PRC 1995b), and associated analytical methods.

The results of the data validation process are documented in a QCSR presented in Appendix H of this RI report. The QCSR includes a discussion of PARCC parameters, an evaluation of how well data met PARCC parameter goals established in the QAPP, and a summary of how meeting these PARCC goals helps achieve DQOs for the RI. All data without qualifiers and all data qualified as estimated (J) were used in the HHRA. Data qualified as not detected (U) were incorporated into the HHRA by using a proxy concentration of one-half of the sample quantitation limit (SQL). Consistent with EPA guidance (1989a, 1992b), only data qualified as rejected (R) were considered to be unusable for risk assessment purposes.

As part of the data evaluation process, detection limits were compared to EPA Region 9 soil PRGs for residential land use (EPA 2002b). The purpose of this comparison was to identify analytes with SQLs greater than their health-based PRGs; such analytes could be present at concentrations that represent a health risk, even though they were reported as not detected (ND). This comparison and a discussion of the findings are presented in Section 6.3.1.1.

6.1.1.2 Data Grouping

The data evaluation step included deciding how to group data for evaluation in the revised HHRA. The data grouping considered media sampled; spatial distribution of contamination; current, past, and designated future land use; physical and chemical properties of COPCs; and mechanisms by which exposure to COPCs might occur.

Soil sample analytical results were available for R Area Site, Froid and Taylor Road Site, and Wood Hogger Site, and sediment sample analytical results were available for Froid and Taylor Road Site and Otter Sluice. Analytical results for surface water samples were also available for each of the sites. Sediments at Froid and Taylor Road Site and Otter Sluice are exposed during certain times of the year so that human contact with sediment is possible. Because the mechanisms of exposure to sediment are similar to those for soil, analytical results for soil and sediment were evaluated as a single data set for Froid and Taylor Road Site, and sediment at Otter Sluice was evaluated similarly to soil. As discussed in Section 6.1.3.3, this approach results in very conservative estimates of potential exposures to sediment.

Analytical data were grouped by site to develop the data set to select COPCs and estimate exposure point concentrations (EPC), except for a few selected samples. Analytical results from select samples collected from locations immediately adjacent to Otter Sluice that were included in the data sets for R Area Site and Wood Hogger Site in the 1999 HHRA were moved into the data sets used to represent Otter Sluice surface water and sediments in this revised HHRA. A complete list of point and sample identification numbers and corresponding soil depths for all samples comprising the data set used in this revised HHRA is presented in Appendices B through F, and soil, sediment, and surface water sampling locations are shown in Figure 1-2.

For each site, analytical data for soil (and sediment) were divided into the following two subsets, corresponding to the depth intervals evaluated in the HHRA:

1. Surface soils, represented by soil (and sediment) samples collected from 0 to 0.5 foot bgs. This data set was used to evaluate potential exposures associated with the current site configuration.
2. Subsurface soils, represented by soil (and sediment) samples collected from the surface (0) up to 11 feet bgs. This data set was used to evaluate potential exposures associated with a future site configuration that considered the possibility that future regrading or excavation activities could redistribute subsurface soils to the surface.

The actual subsurface depth interval evaluated was different for each site because only one site (Wood Hogger Site) was sampled to 11 feet. Although DTSC (1992b) recommends evaluating the 0- to 10-foot depth interval in an HHRA, the depth interval was extended to 11 feet at Wood Hogger Site because a spatial analysis of the analytical results showed that concentrations of some metals were elevated in samples collected between 10 and 11 feet bgs. At the other three sites, analytical results were available to depths of 6 feet or less, so the subsurface data set consisted of analytical results from the entire depth interval sampled. As discussed in Section 2.7, a review of potential sources of contamination at R Area Site, Froid and Taylor Road Site, Wood Hogger Site, and Otter Sluice indicated that contamination, if present, would be primarily in near-surface soils.

The media and depth intervals evaluated for each site are summarized as follows:

- **R Area Site** — Surface soil from 0 to 0.5 foot bgs
Subsurface soil from 0 to 6 feet bgs
Surface water
- **Froid Road and Taylor Boulevard Site** — Surface soil and sediment from 0 to 0.5 foot bgs
Subsurface soil from 0 to 3 feet bgs
Surface water
- **Wood Hogger Site** — Surface soil from 0 to 0.5 foot bgs
Subsurface soil from 0 to 11 feet bgs
Surface water
- **Otter Sluice** — Sediment from 0 to 0.5 foot bgs
Surface water

Detected analytes and data summaries for soils (and sediments) are presented in Tables 6-1 through 6-7, and surface water results are presented in Tables 6-8 through 6-11. Analytes for which all results were reported as ND are not listed in the tables. Descriptive statistics presented for each data set include the frequency of detection, minimum detected concentration, maximum detected concentration, mean, and the UCL_{95}. Means and UCL_{95}s were calculated using distribution-dependent formulas (EPA 1992c, Gilbert 1987), and consistent with EPA guidance (1989a), a value equal to one-half of the detection limit was substituted for all ND data. To determine whether the data set distrubtion was normal, lognormal or unknown two goodness-of-fit tests were used: Shapiro-Wilk's W Test for data sets of between 4 and 50 samples and D'Agostino's Test for data sets with more than 50 samples (Gilbert 1987).

6.1.2 Identifying Chemicals of Potential Concern

COPCs comprise the subset of all detected chemicals that are selected for evaluation in the HHRA. COPCs were selected separately for each medium and data set (surface and subsurface soils and surface water) identified in Section 6.1.1.2.

6.1.2.1 Soil

All organic chemicals detected in one or more samples were selected as COPCs except for petroleum hydrocarbons. Health risks associated with potential exposures to petroleum hydrocarbons were evaluated using the detected concentrations of component chemicals for which EPA or DTSC have published toxicity values, as recommended by Cal/EPA (1993). Those chemicals include, but are not limited to, BTEX, other individual monocyclic aromatic compounds, and PAHs.

Inorganic chemicals detected in one or more soil or sediment samples were retained as COPCs if either of the following conditions applied:

- The chemical is not an essential nutrient.
- Detected concentrations exceed ambient levels established for the Tidal Area (see Appendix I).

Elements considered to be essential human nutrients (calcium, magnesium, potassium, and sodium) were reviewed for possible elimination as COPCs. EPA and DTSC guidance state that these elements can be deleted because of their low toxicity when detected at typical background concentrations (EPA 1989a; DTSC 1992b). Even if these chemicals were present at concentrations above naturally occurring levels, they were eliminated as COPCs because they are toxic only at very high doses.

Iron is also an essential nutrient, but unlike the other essential nutrients, EPA Region 9 has developed soil PRGs for iron (EPA 2002b). PRGs are typically developed using reference doses (RfD); however, the PRG for iron is based on a toxicity analysis performed by the EPA National Center for Environmental Assessment (NCEA), not on an RfD. Therefore, iron was not selected as a COPC for soil or sediment, but a semiquantitative analysis of iron is presented in Section 6.3.4.

Many substances, including metals, occur naturally in soil. EPA (1989a) and DTSC (1992b) guidance state that metals present at ambient concentrations may be eliminated as COPCs. Elimination of metals detected at ambient concentrations is also consistent with Navy policy, which states that risk assessments should not be conducted for metals present at naturally occurring levels (Navy 2000).

Ambient data sets were available for all detected metals except the essential nutrients (calcium, iron, magnesium, potassium, and sodium) and hexavalent chromium. In the absence of an ambient data set, hexavalent chromium was retained as a COPC at all sites where it was detected.

Soil and sediment concentrations were compared with the Tidal Area ambient concentrations of inorganic chemicals following Navy guidance (Navy 2000) and agreements reached between the Navy and regulatory agencies (TtEMI 2000b). The statistical analysis is described in Section 5.1, and results of the analysis are presented in Tables 5-2 and 5-3 (R Area Site), Tables 5-4 and 5-5 (Froid and Taylor Road Site), Tables 5-6 and 5-7 (Wood Hogger Site), and Table 5-8 (Otter Sluice). Inorganic chemicals retained as surface and subsurface soil COPCs on the basis of the ambient analysis are listed below:

- **R Area Site** – Aluminum, antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, silver vanadium, and zinc were retained as COPCs in surface soil. Aluminum, antimony, arsenic, barium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, silver, vanadium, and zinc were retained as COPCs in subsurface soil.
- **Froid and Taylor Road Site** – Barium, cadmium, copper, lead, mercury, silver, and zinc were retained as COPCs in surface soil. Cadmium, lead, mercury, silver, and zinc were retained as COPCs in subsurface soil.
- **Wood Hogger Site** – Aluminum, antimony, barium, beryllium, cadmium, cobalt, copper, lead, manganese, mercury, silver, vanadium and zinc were retained as COPCs in surface soil. Aluminum, antimony, barium, beryllium, cadmium, cobalt, copper, lead, manganese, mercury, silver, vanadium, and zinc were retained as COPCs in subsurface soil.
- **Otter Sluice** – Aluminum, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc were retained as COPCs in surface sediment.

COPCs identified for surface and subsurface soils for R Area Site, Froid and Taylor Road Site, Wood Hogger Site, and Otter Sluice are presented in Appendix K. As previously described in Section 6.1.1.2, summary statistics for all detected analytes in soil are presented in Tables 6-1 through 6-7. These tables, which list all detected analytes, include both COPCs and metals eliminated as COPCs.

6.1.2.2 Surface Water

Ambient data sets have not been developed for surface water, so all detected analytes (other than essential nutrients) were retained as COPCs. As for soil, surface water COPCs were identified separately for each site. COPCs identified for surface water are presented in Appendix K. Similar to the summary statistics described for soils in Section 6.1.1.2, summary statistics are presented Tables 6-8 through 6-11 for all

detected analytes in surface water. Because a COPC selection process was not applied to chemicals detected in surface water, the chemicals listed in these tables also comprise surface water COPCs.

6.1.3 Exposure Assessment

An exposure assessment includes a description of the exposure setting and land use, evaluation of contaminant sources and release and transport mechanisms, identification of potentially exposed human receptors, selection of intake assumptions, estimation of EPCs, and estimation of chemical daily intakes. This information forms the basis for the conceptual site model (CSM), which provides the framework for the HHRA. An integrated CSM for the Tidal Area sites is shown in Figure 6-1.

Several of the components of an exposure assessment have already been incorporated into development of PRGs and were not performed specifically as part of the revised HHRA. This section therefore focuses on site-specific components of the exposure assessment and discusses the relationship of the likely receptors and exposure pathways at the four sites to the receptors and pathways evaluated within the PRG framework. Additional detail is provided on the surface water pathway, which was evaluated using a forward calculation methodology.

6.1.3.1 Exposure Setting and Land Use

The exposure setting at the Tidal Area, including land use, climate, topography, geology, and hydrology, is described in detail in Section 2.5.

The Tidal Area, which consists of about 6,800 acres, includes primarily wetlands with some areas of fill. The R Area Site, Froid and Taylor Road Site, Wood Hogger Site, and Otter Sluice are described below.

- The R Area Site consists of salt marsh that is seasonally inundated and surrounded by berms (see Figure 1-2). Small portions of the site were used years ago for disposal of materials generated during segregation of conventional munitions returned from Pacific operations (E&E 1983). Typically, although no personnel work at the site, base personnel routinely work in the vicinity of a segregation complex located on the perimeter of R Area Site. A natural boundary separates the segregation complex and R Area Site.
- The Froid and Taylor Road Site consists of an area of about 800 by 300 feet that is bisected by Froid Road (see Figure 1-2). The site is bordered by Taylor Boulevard on the east, the Wood Hogger Site on the southwest, and an unnamed dirt and asphalt road on the northwest. A small, upland area north of Froid Road is vegetated by grasses. The area south of Froid Road contains a ponded area, surrounded by a small wetland. Although no specific incidents of hazardous materials disposal were linked directly to this site, its proximity to the other sites made it an area of concern during the IAS (E&E 1983). Typically, no personnel are at the site.

- The Wood Hogger Site is bordered by Otter Sluice to the west and south, Froid Road to the north, and an unnamed dirt and asphalt road to the east (see Figure 1-2). The center of the Wood Hogger Site is a rectangular paved area (SWMU 37), surrounded by uplands. Areas of ponded water occur intermittently in the southern portion of the site. Currently, the paved area is used on an intermittent basis as a storage yard for scrap metal, wood, and portable wood hoggers. The wood hogger machinery is no longer in operation. No treated or preserved wood currently is stored or handled at the site.
- Otter Sluice is a manmade channel that flows along the western and southern sides of the Tidal Area sites (see Figure 1-2). The sluice provides surface water drainage from R Area Site and Wood Hogger Site to Suisun Bay. Contaminated surface water or suspended sediment may have migrated from those sites to Otter Sluice.

Naval Weapons Station SBD Concord is an active naval base and is not scheduled to close. Infrequent and limited exposure may occur if base personnel cross through the Tidal Area sites or Otter Sluice. A limited number of base support operations and storage facilities are located in areas adjacent to the Tidal Area sites.

Land use in the area around Naval Weapons Station SBD Concord is diverse, consisting of a mixture of military, industrial, residential, agricultural, and open space zones. No residential communities are located within the immediate vicinity of the Tidal Area. The closest residential area is the civilian community of Clyde, which is about 1 mile from the Tidal Area. The closest military residence is more than 1 mile from the Tidal Area.

6.1.3.2 Potential Receptors

The two receptors evaluated within the PRG framework are a commercial/industrial worker and resident. The commercial/industrial worker receptor provides an upperbound estimate of potential risks to actual receptors at the Tidal Area sites under current and expected future land use conditions. Current land use conditions assume that current use of the site remains unchanged and no site redevelopment activities (for example, removal of current structures, excavation of soil for construction of new facilities, and regarding) occur. Under current land use conditions, surface soil is assumed to remain at the surface. Future land use conditions assume that use of the site changes or that redevelopment of the site occurs. Under future land use conditions, soil excavation is assumed to occur, such that subsurface soil is brought to the surface.

For all sites, the most likely receptors, under current and most likely future land use conditions, are base personnel. However, base personnel do not work at any of the four sites; the only activities at these areas are occasional grounds maintenance by base personnel and environmental restoration activities. A limited number of base support operations and storage facilities are located in areas adjacent to the Tidal Area

sites, and infrequent and limited exposure could occur if base personnel cross through one of the areas. For the purposes of this HHRA, activities of current base personnel were assumed to be similar to the commercial/industrial worker defined within the EPA Region 9 PRG framework (EPA 2002b). However, actual site usage and associated exposures are expected to be substantially less that those assumed for the commercial/industrial worker. This is particularly true for marsh and wetland portions of the sites that have never been filled and for Otter Sluice.

Base visitors also were identified as potential receptors at the Tidal Area. Risks were not evaluated for a base visitor, however, because exposure and risk estimates for a commercial/industrial worker would provide an upper-bound estimate of risks to a visitor. For all sites, future land use is expected to be similar to current use. Likely future receptors are therefore the same receptors identified under current site conditions, that is, base workers and site visitors.

Naval Weapons Station SBD Concord is an active base and future land use is not expected to change. Even in the event of future changes in land use, residential development is unlikely in this portion of the Tidal Area. Nonetheless, a residential receptor was evaluated to provide information to support decisions on the need for restrictions if land use were to change in the future. The residential scenario generally provides the greatest potential for exposure to site contaminants. For sites showing unacceptable risks, the risk results for the residential scenario provide information that supports risk management decisions about the need for possible restrictions on land use.

The exposure parameters used by EPA Region 9 to develop the commercial/industrial and residential PRGs are listed in Table 6-12.

6.1.3.3 Exposure Pathways

The primary exposure media at each of the Tidal Area sites are soil, sediment, and surface water. Sediment at all sites is exposed during parts of the year, so human contact with sediment is possible. Because exposure to soil or sediment may occur by the same mechanisms, these media were combined for this assessment, and no distinction was made between them. This approach results in very conservative estimates of potential exposures to sediment. That is, the exposure assumptions assumed for exposure to soil under the typical residential and industrial scenarios significantly overestimate potential exposures to sediments.

As discussed in Section 5.3, groundwater is not considered a potential source of drinking water and was not evaluated in the revised HHRA.

Complete exposure pathways associated with potential exposures to soil, sediment, and surface water are discussed in the following subsections. Soil exposure pathways considered to be incomplete or insignificant also are discussed.

Soil and Sediment

The following exposure pathways for soil and sediment are evaluated for a resident and commercial/ industrial worker within the PRG framework (EPA 2002b):

- Incidental ingestion of soil and sediment
- Dermal contact with soil and sediment
- Inhalation of airborne soil particles and vapors released from soil and sediment to ambient air

These exposure pathways are consistent with potential exposure pathways of hypothetical current and future worker and future resident receptors at the sites.

The risks associated with industrial and residential land use were evaluated using analytical data obtained from both surface soil (0 to 0.5 foot bgs) and subsurface soil (0 to up to 11 feet bgs). The surface soil scenario is referred as the "current site configuration," and the subsurface scenario is referred to as the "future site configuration." The underlying assumption in the assessment of the future site configuration is that during redevelopment activities (for example, removal of current structures, excavation of soil for construction of new facilities, and regrading), subsurface soil can be brought to the surface. Under future site conditions, DTSC (1992b) recommends evaluating soil to a depth of 10 feet bgs. However, a spatial analysis of the analytical results at Wood Hogger Site showed that the concentrations of some metals were elevated in samples collected between 10 and 11 feet bgs. For this reason, the future site configuration was evaluated using soil analytical results from samples collected in the 0- to 11-foot depth interval. At all other sites, samples were collected to depths of 6 feet or less so that the subsurface data set consisted of analytical results from the entire depth interval analyzed. These depth intervals were as follows: R Area Site, 0 to 6 feet bgs; Froid and Taylor Road Site, 0 to 3 feet bgs; Wood Hogger Site, 0 to 11 feet bgs; and Otter Sluice, 0 to 0.5 foot bgs. As discussed in Section 2.7, a review of potential sources of contamination at Tidal Area sites indicated that contamination, if present, would be primarily in near-surface soils. The 0- to 11-foot depth interval of exposure is highly unlikely in the future for those portions of the site that are marshland because development of marshland areas is now highly restricted throughout the San Francisco Bay Area.

Other potentially complete exposure pathways associated with soil were identified but not evaluated quantitatively in the HHRA. These pathways were inhalation of VOCs released from soil to indoor air and ingestion of homegrown produce. Only minimal structures are currently present at the sites, and structures are not planned for the future. Further, VOCs were detected only infrequently and at concentrations less than risk-based screening levels. The potential impact of excluding this pathway in the risk estimates is discussed in the uncertainties analysis in Section 6.3.

Although ingestion of homegrown produce is a potentially complete exposure pathway under hypothetical future conditions, this pathway was not quantitatively evaluated in the revised HHRA. Naval Weapons Station SBD Concord is an active base, and future residential land use is highly unlikely. The potential impact of excluding this pathway on the risk estimates is discussed in the uncertainties analysis in Section 6.3.2.

Surface Water

Although expected to be limited and intermittent, exposure to surface water is a potentially complete exposure pathway. The depth of surface water in Otter Sluice is only about 3 feet. Access to Otter Sluice from the Naval Weapons Station SBD Concord Tidal Area Sites is restricted by a fence located on the east side of Otter Sluice. Access to Otter Sluice from the west is restricted by the Naval Weapons Station SBD Concord security controls located on the west side of the Naval Weapons Station SBD Concord property. The sluice is not accessible to swimming as a result of these access controls and is unlikely to occur in the future, given the configuration of the sluice, ubiquitous muddy sediment, and shallow water. Standing or ponding water is present at the R Area Site, Froid and Taylor Road Site, and Wood Hogger Site only during the rainy season. Therefore, although base personnel or future workers could be exposed to surface water while performing grounds maintenance activities and future residents could be exposed while engaging in recreational activities, exposure is expected to be very limited. For completeness, dermal contact with surface water was evaluated for both the commercial/industrial worker and resident receptors. Because dermal contact with water is not accounted for within the PRG framework, a site-specific assessment was conducted using a forward calculation methodology. Intake equations and exposure parameters used to evaluate this pathway are discussed in Section 6.1.3.5.

Potential risks associated with incidental ingestion of surface water were not quantified in this revised HHRA. Surface water bodies are shallow and murky, so incidental ingestion of surface water was considered to be unlikely and the pathway was identified as incomplete.

6.1.3.4 Exposure Point Concentrations

"Exposure point" describes a location or area, often hypothetical, where human receptors might encounter one or more contaminated environmental media. Concentrations of COPCs estimated to be present at an exposure point are referred to as EPCs. EPCs were calculated for all COPCs identified for the current site configuration (0 to 0.5 foot bgs), the future site configuration (0 up to 11 feet bgs), and surface water at each site. As noted earlier, because soil PRGs account for inhalation of vapors and particles in ambient air, EPCs in air were not estimated.

Consistent with the approach used in the 1999 HHRA (TtEMI 1999), soil and surface water EPCs were calculated for each detected analyte for both a reasonable maximum exposure (RME) case and a maximum exposure (ME) case. For the RME case, the lesser of the UCL_{95} and the maximum detected concentration was used as the EPC. For the ME case, the EPC was the maximum detected concentration. Calculation of the ULC_{95} was based on the data-set distribution type (EPA 1992c). This method for calculating the EPC differs from the method used in the ERA (TtEMI 2002), to allow for development of a ME case in the HHRA.

EPCs for surface (0 to 0.5 foot bgs) and subsurface (0 up to 11 feet bgs) soils are presented in Tables 6-1 through 6-7, and surface water EPCs are presented in Tables 6-8 through 6-11.

Dioxins, furans, and PCB congeners with activity similar to dioxins were evaluated using a TEF approach. In this approach, TEFs are used to adjust the EPCs of individual congeners relative to the toxicity of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). This approach, which is based on EPA (1989b, 2000a) and Cal/EPA (2003a) guidance, is described in detail in Section 6.1.4.2. Although TEFs were used to calculate cancer risks, the concentrations of dioxins, furans, and dioxin-like PCBs listed in Tables 6-1 through 6-7 are the measured concentrations at the sites and have not been adjusted by the TEFs.

6.1.3.5 Chemical Intake Estimates for the Surface Water Pathway

For the forward calculation methodology approach, cancer risks and noncancer adverse health effects were quantified by first estimating a daily intake (or dose). This value represents the amount of a COPC a hypothetical receptor might take into their body over the course of a day. The daily intake is expressed in milligrams per kilogram per day (mg/kg-day). Chemical intake from dermal exposure to surface water was estimated using the following equation:

$$\text{Chronic daily intake (mg/kg-day)} = (EPC_{sw} \times SA \times Kp \times ET \times EF \times ED \times CF) \times (BW \times AT)^{-1}$$

where

EPC_{sw}	=	Exposure point concentration in surface water (mg/L)
SA	=	Exposed body surface area (square centimeters [cm^2])
Kp	=	Permeability constant (chemical specific) (cm/hour)
ET	=	Exposure time (hours/days)
EF	=	Exposure frequency (days per year)
ED	=	Exposure duration (years)
CF	=	Conversion factor (1 liter per cubic centimeter)
BW	=	Body weight (kg)
AT	=	Averaging time: the period over which exposure is averaged (days); for carcinogens, the averaging time is 25,550 days on the basis of a lifetime exposure of 70 years, and for noncarcinogens, the averaging time is equal to the exposure duration multiplied by the number of days in a year (365 days)

Chemical-specific dermal permeability constants (Kp) used to evaluate the surface water dermal pathway are presented in Table 6-13, and exposure parameter values for an adult and child resident are presented in Table 6-14.

EPA Region 9 (2002b) default values for a resident child and resident adult as well as a commercial/ industrial worker were used for three of the exposure parameters (ED, BW, and AT). Receptor-specific values for the remaining exposure parameters are identified as follows:

- Exposure time. The exposure time was assumed to be 2 hours per exposure event for each receptor.
- Exposure frequency (or exposure events). For each receptor, exposure to surface water was assumed to occur once weekly, for a total of 52 events per year.
- Skin surface area in contact with water. The values used for body surface area were 5,700 cm^2 for adult resident and commercial/industrial receptors and 2,900 cm^2 for the child resident. The value for the adult assumes that the exposed skin surface includes the head, hands, forearms, and lower legs. The value for the child resident assumes that the exposed skin surface includes the head, hands, forearms, lower legs, and feet. These values are very conservative, given the limited extent of surface water at the site, but were used for consistency with the values used in the 1999 HHRA.

6.1.4 Toxicity Assessment

This section identifies the PRGs used to conduct the PRG assessment for soil-related pathways and the slope factors (SF) and RfDs used to conduct forward calculations for the surface water pathway. Special considerations regarding evaluation of dioxins and furans, PCBs, and lead also are discussed.

6.1.4.1 Preliminary Remediation Goals

Soil PRGs used in the revised HHRA were taken from an electronic file available on-line from EPA Region 9 (EPA 2002b). PRGs are risk-based concentrations that correspond to a cancer risk of 1×10^{-6} or an HQ of 1. For most compounds, only one soil PRG is listed in the main PRG table. More than one PRG is listed for some compounds in supporting tables. The following decision rules were applied to compounds with more than one PRG:

- **PRGs with a "sat" notation.** Two soil PRGs are available for some VOCs: a risk-based PRG and a sat PRG that corresponds to the soil saturation limit of the compound. The saturation limit is the predicted concentration at which the compound is expected to be present in free phase, as a nonaqueous phase liquid (for compounds that are liquid at ambient temperatures) or as a solid phase (for compounds that are solid at ambient temperatures). EPA requested that the sat PRG be used in HHRAs prepared for Naval Weapon Station SBD Concord.
- **PRGs with a "ceiling" notation.** Two soil PRGs are available for some compounds of low toxicity: a risk-based PRG and a ceiling limit PRG concentration of 100,000 mg/kg. EPA assigns a ceiling limit when the risk-based concentration is greater than 100,000 mg/kg. EPA requested that the ceiling PRG be used in HHRAs prepared for Naval Weapon Station SBD Concord.
- **"Cal-modified" PRGs.** Cal/EPA (2003a) has developed cancer SFs that for a few chemicals differ significantly from EPA SFs. As a result, some chemicals have two PRGs, one developed using the EPA SF and the other based on the Cal/EPA SF. Cal-modified PRGs are lower (more health protective) than the corresponding EPA Region 9 PRGs. Cal/EPA requested that the Cal-modified PRGs be used in HHRAs prepared for Naval Weapon Station SBD Concord, if available.
- **PRGs for carcinogens.** For some carcinogens, separate PRGs are available to assess their carcinogenic effects and their noncarcinogenic effects (EPA 2002b). For these compounds, both PRGs were used to evaluate cancer risks and noncancer health effects (that is, to calculate the HI).

Finally, PRGs have not been developed for some of the COPCs at the Tidal Area sites. A surrogate (substitute) PRG was selected to evaluate COPCs lacking a PRG. Selection of surrogate compounds was based on chemical structure. Table 6-15 lists the soil PRGs used to conduct the revised HHRA for COPCs in soil. The listing identifies sat and ceiling PRGs, Cal-modified PRGs, and PRGs based on surrogate values.

6.1.4.2 Dioxins, Furans, and Polychlorinated Biphenyls

Dioxins and furans were evaluated using a TEF approach, as recommended by EPA (1989b, 2000a) and Cal/EPA (2003b). Under this approach, TEFs are used to express the potency of each carcinogenic congener relative to the potency of TCDD. TCDD is used as the frame of reference because it is the best

understood of the dioxin congeners. The TEF for TCDD is set at 1.0, and the TEFs for all other congeners are 1 or less. TEFs are not available for all dioxins, in which case the TEF is effectively 0. To implement the TEF approach, the TCDD-equivalent concentration was calculated by multiplying the EPC of each congener by the appropriate TEF. The PRG for TCDD was then used to estimate cancer risk, as described in Section 6.1.5.1. The TEFs used to evaluate dioxins and furans are the international TEFs (I-TEFs) recommended by Cal/EPA (2003b). The TEFs used in the revised HHRA are presented in Table 6-16.

PCBs are a group of synthetic organic chemicals consisting of 209 possible congeners. PCBs occur as mixtures of congeners in the environment, and historically, most environmental analyses have characterized PCBs relative to the commercial mixtures (Aroclors) formerly used. In the absence of congener-specific information, PCBs were evaluated assuming equivalent toxicity to Aroclor 1260 (to assess cancer effects) and Aroclor 1254 (to assess noncancer effects). More recently, analytical methods for individual PCB congeners have been developed, and EPA has developed guidance for evaluating potential risks associated with exposure to PCBs analyzed as Aroclors or as individual congeners (EPA 1996a, 2002a). Because chemical analyses were conducted for individual PCB congeners at each of the Tidal Area sites, risks were estimated for the individual congeners using both a TEF approach and a "mixture" approach, as described in the following text.

Recent studies have shown that both dioxin- and nondioxin-like modes of action contribute to the overall carcinogenicity and toxicity of PCBs. TEFs have been developed for PCB congeners with dioxin-like activity (see Table 6-16); however, this dioxin-like activity accounts for only a part of the toxicity of PCB mixtures. For this reason, EPA recommends evaluating PCBs using both a mixture approach and a TEF approach when congener-specific data are available. Similar to the approach used to evaluate dioxins and furans, the I-TEFs presented by Cal/EPA (2003b) were used to evaluate PCBs.

The mixture approach (for nondioxin-like congeners) and TEF approach (for dioxin-like congeners) are implemented in Appendix K. For the mixture approach, the cancer risk for each congener was estimated using the PRG for Aroclor 1260, and the noncancer risk was estimated using the PRG for Aroclor 1254. To implement the TEF approach, the TCDD-equivalent concentration was calculated by multiplying the EPC of each dioxin-like PCB congener by the appropriate TEF. The PRG for TCDD was then used to estimate cancer risk. The cancer risk from all PCBs congeners was estimated as the sum of the risks of the dioxin- and nondioxin-like congeners (EPA 1996a).

6.1.4.3 Slope Factors and Reference Doses Used for the Surface Water Pathway

For most chemicals, the SFs and RfDs used to evaluate the surface water exposure pathway were obtained from the Region 9 EPA memorandum on deriving PRGs (EPA 2002b). These values were updated with more recent toxicity values from EPA's Integrated Risk Information System (IRIS) (2003), where available. Toxicity values were also provided by Cal/EPA (2003a) in the absence of toxicity values from EPA. The toxicity values used in the forward risk calculations are listed in Table 6-13.

6.1.4.4 Lead

The potential for health effects from exposure to lead was addressed by comparing detected concentrations of lead with the EPA Region 9 industrial PRG of 750 mg/kg and residential PRG of 400 mg/kg (EPA 2002b).

EPA Region 9 developed the industrial PRG to protect the fetus of a woman exposed to lead in a nonresidential setting, including commercial and industrial exposures. The fetus is more sensitive to the adverse health effects of lead than is an adult; as a result, a PRG that is protective of a fetus also should afford protection for an adult. The Region 9 industrial PRG is based on the results of an EPA analysis that used a model (referred to as the adult lead model) to calculate lead concentrations in soil that correspond to a fetal blood-lead concentration of 10 micrograms per deciliter (µg/dL), the threshold level of concern (EPA 1996b, 1999b). The model reflects exposure from site-related and background sources. Site-related exposures assume frequent and regular occupational exposure and are based on incidental ingestion of soil and dust. Although workers also might be exposed through dermal contact with soil and inhalation of airborne dust, EPA's analysis indicated that uptake of lead from these pathways is insignificant when compared with the ingestion pathway, so these routes are not quantitatively evaluated in the model. Concentrations of lead in soil ranging from 750 to 1,750 mg/kg are obtained from the model, depending on the assumptions used. This range results from variation in the model input parameters such as interindividual and population variability, concentrations of lead in drinking water, and the bioavailability of lead (EPA 1996b, 1999b). Based on the results of the model, EPA Region 9 established a PRG for lead of 750 mg/kg as protective of human health in an occupational setting.

EPA Region 9 also presents a PRG of 400 mg/kg to protect children exposed to lead in a residential setting. The PRG is based on the results of an EPA analysis that used the Integrated Exposure Uptake Biokinetic Model for Lead in Children. The model estimates concentrations of lead in soil that correspond to a blood-lead concentration of 10 µg/dL as the threshold level of concern (EPA 1994c). The

model reflects exposure to lead by ingestion of soil; dermal contact with soil; inhalation of dust from site-related sources; and by ingestion of water, food, and air from background sources.

6.1.5 Risk Characterization

The risk characterization step estimates the potential excess lifetime cancer risk and calculates an HI to quantify the potential for adverse health effects other than cancer from exposure to contaminated media. The PRG-based methodology for estimating cancer risks and HIs from exposure to soil and sediment is presented in Section 6.1.5.1, and the forward calculation methodology for assessing cancer risks and HIs from exposure to surface water is presented in Section 6.1.5.2. The approach for evaluating health effects from exposure to lead is presented in Section 6.1.5.3.

6.1.5.1 PRG Assessment Methodology for Soil and Sediment

PRGs are typically used as a screening tool to qualitatively assess the potential risk to human health associated with exposure to a single contaminant in a single environmental medium (soil, water, or air). PRGs can also be used to develop quantitative estimates of the cancer risks and HIs associated with exposure to multiple contaminants in multiple media. The approach is outlined by EPA in its memorandum on deriving PRGs (EPA 2002b) and by DTSC in its memorandum on use of PRGs for screening-level assessments at military facilities (DTSC 1994).

In this approach, soil concentrations of all COPCs are converted to cancer risks or HQs, and COPC-specific cancer risks and HQs are then summed to estimate the total cancer risk and HI associated with exposure to site COPCs. Because soil PRGs are derived based on exposure to COPCs through multiple pathways (in particular, soil ingestion, dermal contact with soil, and inhalation of airborne particles and VOCs released from soil), the cancer risk and HI calculated using this methodology represent the cancer risk and HI associated with exposure to all COPCs for which PRGs are available for all three pathways.

The cancer risk for a single chemical was estimated using the following equation:

$$CR_i = (EPC_i \times cPRG_i^{-1}) \times 10^{-6}$$

where

CR_i	=	Excess lifetime cancer risk for chemical i (unitless)
EPC_i	=	Exposure point concentration for chemical i (mg/kg)
$cPRG_i$	=	Cancer-based preliminary remediation goal (mg/kg)
10^{-6}	=	Cancer risk value used to develop the PRG (unitless)

A "total" cancer risk estimate for the soil exposure pathways then was calculated by summing the CR_i values for all COPCs. Based on the parameters used by EPA Region 9 in developing the PRGs, for the residential exposure scenario, cancer risks estimates are based on exposure to a child resident for 6 years and an adult resident for 24 years, for a total residential exposure duration of 30 years (see Table 6-12).

The HQ provides a quantitative characterization of the potential for noncancer effects associated with exposure to a single COPC. Similar to the process described for carcinogens, an HQ was estimated by converting the detected concentrations of site COPCs to HQs using the following equation:

$$HQ_i = (EPC_i \times nPRG_i^{-1}) \times 1$$

where

HQ_i	=	Site-related hazard quotient for chemical i (unitless)
EPC_i	=	Exposure point concentration for chemical i (mg/kg for soil)
$nPRG_i$	=	Noncancer preliminary remediation goal for chemical i (mg/kg for soil)
1	=	Value of the HQ used to develop the PRG (unitless)

HQs then were summed to derive an HI for soils, the measure of the potential for noncarcinogenic health effects from exposure to multiple COPCs and through all three exposure pathways. Consistent with the methodology used by EPA in its derivation of the PRGs (EPA 2002b), for the residential exposure scenario, the noncancer HI estimates are based on exposure to a child resident for 6 years.

6.1.5.2 Forward Calculation Methodology for Surface Water

The potential cancer risk associated with exposure to individual COPCs in surface water was estimated using the following equation (EPA 1989a):

$$\text{Chemical-specific Cancer Risk} = \text{Intake (mg/kg-day)} \times \text{SF (mg/kg-day)}^{-1}$$

To estimate the cancer risk associated with exposure to multiple carcinogens in surface water, the individual chemical cancer risks, which are assumed to be additive, were summed as follows:

$$\text{Pathway-specific Cancer Risk} = \sum \text{Chemical-specific Cancer Risk}$$

This sum represents the total cancer risk from exposure to surface water.

For chemicals not classified as carcinogens and for those carcinogens known to cause adverse health effects in addition to cancer, the potential for exposure to result in adverse health effects other than cancer

was evaluated by comparing the intake with an RfD. When calculated for a single chemical, pathway, and receptor, the comparison yields an HQ as follows:

$$\text{Chemical-specific HQ} = \frac{\text{Intake (mg/kg-day)}}{\text{RfD (mg/kg-day)}}$$

To evaluate the potential for adverse health effects other than cancer from exposure to multiple chemicals, the HQs for all chemicals were summed, yielding an HI as follows:

$$\text{Pathway-specific HI} = \sum \text{Chemical-specific HQ}$$

This sum represents the total HI from exposure to surface water. If a total HI exceeds 1.0, further evaluation in the form of a segregation of HI analysis is performed to evaluate whether the noncancer HIs are a concern at a site (EPA 1989a). This analysis is conducted because adverse noncancer health effects of chemicals with different target organs are generally not additive.

6.1.5.3 Evaluating Lead Exposures

As indicated in Section 6.1.4.4, lead levels were compared to EPA Region 9 PRGs (EPA 2002b) of 400 and 750 mg/kg for the resident and commercial/industrial worker, respectively. EPCs exceeding either the residential or the industrial PRG were considered to represent a potential health risk for the associated scenario. Conversely, EPCs below lead PRGs were not considered to represent a potential health risk.

6.2 RESULTS OF THE REVISED HUMAN HEALTH RISK ASSESSMENT

This section summarizes the results of the revised HHRA completed for the Tidal Area sites. The results are presented separately for each site. Each HHRA included statistical analysis of soil and surface water data sets, selection of COPCs, exposure assessment, and risk characterization. As indicated previously in Section 6.1.3.4, both RME and ME cases were estimated for each receptor evaluated. The only difference between the two cases was the EPC: the lesser of the UCL_{95} and maximum detected concentration was used as the EPC for the RME case, and the maximum detected concentration was consistently used as the EPC for the ME case. To help focus the discussion, only the results of the RME case are presented and discussed in this section. RME risk estimates typically provide the basis for risk management decisions (EPA 1999c). Although not discussed, the ME results are fully documented in Appendix K.

Cancer risk estimates and HIs were prepared for commercial/industrial worker and resident receptors under both current and future site configurations. The current configuration evaluates the 0- to 0.5-foot

depth interval, and the future site configuration evaluates the 0- to 11-foot depth interval. Each scenario addressed the same exposure pathways: incidental ingestion of soil, dermal contact with soil, inhalation of airborne soils particles as dust, and inhalation of VOCs released from soil to outdoor air. For surface water, dermal contact was evaluated.

In the following discussions, cancer risk estimates were compared to a risk management range to aid in the interpretation of the results. EPA provides guidance on risk and exposure levels considered to be protective of human health. In the NCP (Title 40 of the *Code of Federal Regulations* 300.430), EPA states "for known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upperbound lifetime cancer risk to an individual of between 10^{-6} and 10^{-4}." The EPA directive "Memorandum Regarding the Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions" (EPA 1991) states that where cumulative cancer risk to an individual based on the RME for both current and future land use is less than 10^{-4} and no adverse noncancer effects exist, action generally is not warranted unless adverse environmental impacts exist. In comments to the Navy, EPA Region 9 and DTSC have requested a risk management evaluation to protect human health when the risks are within the range of 1×10^{-6} to 1×10^{-4}. To comply with this request, the discussions in this HHRA refer to the range 1×10^{-6} to 1×10^{-4} as the risk management range.

For noncarcinogens, an HI (or segregated HI) of 1 or less indicates that little or no potential exists for adverse noncancer health effects (EPA 1989a).

6.2.1 R Area Site

Metals, VOCs, SVOCs, pesticides, and PCBs were the soil and surface water COPCs evaluated for R Area Site. Statistical summaries of the data sets for surface soil (0 to 0.5 foot) and subsurface soil (0 to 6 feet) are provided in Tables 6-1 and 6-2, and statistical summaries of the surface water data set are provided in Table 6-8.

RME risk characterization results for R Area Site are summarized in the following table. The RME risk calculations for the R Area Site are detailed in Tables K-1-1 through K-1-6 and K-1-13 through K-1-18 of Appendix K, and totaled in Table K-1-19. Appendix K also describes the methodology used to sum the risk results for the different COPCs (VOCs, SVOCs, pesticides, nondioxin-like PCBs, and dioxin-like PCBs) and different scenarios (industrial worker, residential child and residential adult) evaluated.

Human Health Risk Assessment Reasonable Maximum Exposure Results for R Area Site				
Receptor	**Medium**	**Cancer Risk[a]**	**HI[a]**	**Soil Lead Concentration (mg/kg)**
Current Site Configuration				
Resident	Soil (0-0.5 foot)	4.7×10^{-5}	0.7 (1.5)	78
	Surface water	2.5×10^{-7}	0.02	
	Total	**4.8×10^{-5}**	**0.7 (1.5)**	
Commercial/Industrial Worker	Soil (0-0.5 foot)	1.2×10^{-5}	0.13	
	Surface water	1.6×10^{-7}	0.01	
	Total	**1.2×10^{-5}**	**0.14**	
Future Site Configuration				
Resident	Soil (0-6 feet)	5.1×10^{-5}	0.7 (1.5)	78
	Surface water	2.5×10^{-7}	0.02	
	Total	**5.1×10^{-5}**	**0.7 (1.5)**	
Commercial/Industrial Worker	Soil (0-6 feet)	1.3×10^{-5}	0.13	
	Surface water	1.6×10^{-7}	0.01	
	Total	**1.3×10^{-5}**	**0.14**	

Note:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI, and the value in parentheses is the total HI.

As shown, the RME cancer risk estimates associated with exposure to soils are within the risk management range (1×10^{-6} to 1×10^{-4}) for all scenarios evaluated. Arsenic was the largest contributor to the cancer risk, accounting for approximately 74 percent of the surface soil risk for the resident and 71 percent of the surface soil risk for the industrial worker. Arsenic contributes 70 percent of the subsurface soil for the resident and 67 percent of the subsurface soil risk to the industrial worker. Although statistical analysis indicated that site concentrations of arsenic were greater than ambient concentrations, the degree of exceedance is small. This can be seen by comparing arsenic concentrations in site soils to the arsenic concentrations in ambient soils. Concentrations of arsenic in site soils ranged from 2.3 to 47 mg/kg, with a mean concentration of 12.5 mg/kg and UCL_{95} concentrations of 13.6 mg/kg (surface soils) and 13.9 mg/kg (subsurface soils). Concentrations of arsenic in ambient soils ranged from 2.3 to 27 mg/kg, with a mean concentration of 7.1 mg/kg. The ambient limit for arsenic (99th percentile of the ambient data set) is 27 mg/kg; the cancer risk associated with this concentration is 7×10^{-5} under a residential scenario and 1×10^{-5} under an industrial scenario.

Cancer risks for benzo(a)pyrene (ranging from 1.6×10^{-6} to 3.6×10^{-6} for the resident and from 4.8×10^{-7} to 1.0×10^{-6} for the industrial worker) and dibenz(a,h)anthracene (1.5×10^{-6} for the resident) were also within the risk management range. These two chemicals, both PAHs, are formed during the incomplete

combustion of organic materials. They originate from natural sources such as volcanic eruptions and forest fires and from anthropogenic sources, primarily the incomplete combustion of fuels such as wood, coal, oil, and gas. PAHs are typically released as particulates into the atmosphere, where they can be transported both short and long distances and subsequently deposited on soil, water, and sediments. As a result of these deposition processes, low levels of PAHs appear to be widespread in the environment (Agency for Toxic Substances and Disease Registry [ATSDR] 1995). PAHs could be present at R Area Site as a result of these various processes or former operations at the site. The UCL_{95} concentrations of benzo(a)pyrene (0.1 to 0.2 mg/kg in surface and subsurface soils) and dibenzo(a,h)anthracene (0.09 mg/kg in both surface and subsurface soils) are comparable to background concentrations of PAHs ol.measured in soils in northern California (Environ Corporation and others 2002) and in soils in the United States and worldwide (ATSDR 1995). Benzo(a)pyrene was detected in 15 of 85 samples, and dibenzo(a,h)anthracene was detected in 5 of 85 samples; however, detection limits exceeded risk-based concentrations in a high percentage of samples analyzed. The impact of the elevated detection limits is discussed in Section 6.3.1.1.

Cancer risks for dioxin-like PCBs (PCB-126) at 8.2×10^{-6} for the resident and 2.0×10^{-6} for the industrial worker) were also within or below the risk management range. Cancer risks for PCB-126 contributed approximately 17 percent of the risk to the resident and the industrial worker.

HIs associated with soil exposure to the resident were greater than 1 (1.5) for surface and subsurface soils. Arsenic contributes 42 percent of the total risk in surface soil, and aluminum, manganese, and vanadium makes up an additional 47 percent. Arsenic also contributes 42 percent of the total noncancer hazard in subsurface soil, and aluminum, manganese, and vanadium makes up an additional 46 percent. No segregated HIs exceeded the threshold value of 1.0.

HIs associated with soil exposure to the industrial worker were less than the 1.0 threshold, indicating no appreciable risk of adverse noncancer effects.

Cancer risks associated with exposure to surface water were below the risk management range, and HIs were less than 1 for all scenarios evaluated.

Concentrations of lead in soil for both current and future site configurations were below the EPA Region 9 residential PRG of 400 mg/kg and industrial PRG of 750 mg/kg.

6.2.2 Froid and Taylor Road Site

Metals, VOCs, SVOCs, pesticides, and PCBs were the soil and surface water COPCs evaluated for Froid and Taylor Road Site. Statistical summaries of the data sets for surface soil (0 to 0.5 foot) and subsurface soil (0 to 3 feet) are provided in Tables 6-3 and 6-4, and statistical summaries of the surface water data set are provided in Table 6-9.

RME risk characterization results for Froid and Taylor Road Siteare summarized in the following table. The RME risk calculations for Froid and Taylor Road Site are detailed in Tables K-2-1 through K-2-6 and K-2-13 through K-2-18 of Appendix K, and totaled in Table K-2-19. Appendix K also describes the methodology used to sum the risk results for the different COPCs (VOCs, SVOCs, pesticides, nondioxin-like PCBs, and dioxin-like PCBs) and different scenarios (industrial worker, residential child, residential adult) evaluated.

Human Health Risk Assessment Reasonable Maximum Exposure Results for Froid and Taylor Road Site

Receptor	Medium	Cancer Risk[a]	HI[a]	Soil Lead Concentration (mg/kg)
Current Site Configuration				
Resident	Soil (0-0.5 foot)	6.0×10^{-6}	0.14	325
	Surface water	5.7×10^{-6}	0.06	
	Total	**1.2×10^{-5}**	**0.21**	
Commercial/Industrial Worker	Soil (0-0.5 foot)	1.6×10^{-6}	0.01	
	Surface water	3.7×10^{-6}	0.03	
	Total	**5.3×10^{-6}**	**0.04**	
Future Site Configuration				
Resident	Soil (0-3 feet)	6.0×10^{-6}	0.06	232
	Surface water	5.7×10^{-6}	0.06	
	Total	**1.2×10^{-5}**	**0.13**	
Commercial/Industrial Worker	Soil (0-3 feet)	1.6×10^{-6}	0.01	
	Surface water	3.7×10^{-6}	0.03	
	Total	**5.3×10^{-6}**	**0.03**	

Note:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years.

As shown, RME cancer risk estimates associated with the soil exposure pathways are within the risk management range for all scenarios evaluated. Benzo(a)pyrene (surface and subsurface soil cancer risks of 2.1×10^{-6} for the resident and 6.2×10^{-7} for the industrial worker) was the only chemical for which cancer risk estimates were within the risk management range. Similar to the observation at R Area Site,

the UCL_{95} concentration of benzo(a)pyrene (0.13 mg/kg) is consistent with background concentrations in northern California and the U.S. (ATSDR 1995). Benzo(a)pyrene contributes approximately 35 percent of the total soil risk for the resident and 39 percent of the total soil risk for the industrial worker.

Cancer risks for dioxin-like PCBs (specifically PCB-126 at 2.6×10^{-6} for the resident and 6.3×10^{-7} for the industrial worker) were also within or below the risk management range. Cancer risks for the dioxin-like PCB-126 contributed approximately 43 percent of the total soil risk to the resident and 39 percent of the total soil risk to the industrial worker.

HIs associated with soil exposure pathways were less than 1 for all scenarios evaluated, indicating no appreciable risk of adverse noncancer effects.

Cancer risks associated with exposure to surface water were within the risk management range for all scenarios evaluated. Arsenic was the major contributor to the cancer risk, accounting for approximately 92 percent of the risk to both the resident and industrial worker.

HIs associated with exposure to surface water were less than 1 for all scenarios evaluated.

Concentrations of lead in soil for both the current and future site configurations were below the EPA Region 9 residential PRG of 400 mg/kg and industrial PRG of 750 mg/kg.

6.2.3 Wood Hogger Site

Metals, VOCs, SVOCs, pesticides, PCBs, and dioxins and furans were the soil and surface water COPCs evaluated for Wood Hogger Site. Statistical summaries of the data sets for surface soil (0 to 0.5 foot) and subsurface soil (0 to 11 feet) are provided in Tables 6-5 and 6-6, and statistical summaries of the surface water data set are provided in Table 6-10.

RME risk characterization results for Wood Hogger Site are summarized in the following table. The RME risk calculations for Wood Hogger Site are detailed in Tables K-3-1 through K-3-6 and K-3-13 through K-3-18 of Appendix K, and totaled in Table K-3-19. Appendix K also describes the methodology used to sum the risk results for the different COPCs (VOCs, SVOCs, pesticides, dioxins, furans, nondioxin-like PCBs, and dioxin-like PCBs) and different scenarios (industrial worker, residential child, residential adult) evaluated.

Human Health Risk Assessment Reasonable Maximum Exposure Results for Wood Hogger Site				
Receptor	**Medium**	**Cancer Risk[a]**	**HI[a]**	**Soil Lead Concentration (mg/kg)**
Current Site Configuration				
Resident	Soil (0-0.5 foot)	9.2×10^{-5}	0.97	109
	Surface water	5.3×10^{-8}	0.0037	
	Total	**9.2×10^{-5}**	**0.98**	
Commercial/Industrial Worker	Soil (0-0.5 foot)	2.5×10^{-5}	0.08	
	Surface water	3.5×10^{-8}	0.0016	
	Total	**2.5×10^{-5}**	**0.08**	
Future Site Configuration				
Resident	Soil (0-11 feet)	7.6×10^{-5}	0.88	64
	Surface water	5.3×10^{-8}	0.0037	
	Total	**7.6×10^{-5}**	**0.88**	
Commercial/Industrial Worker	Soil (0-11 feet)	2.0×10^{-5}	0.07	
	Surface water	3.5×10^{-8}	0.0016	
	Total	**2.0×10^{-5}**	**0.08**	

Note:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years.

As shown, cancer risk estimates associated with soil exposure pathways are within (or at the upper end) of the risk management range for all scenarios evaluated. PAHs (benzo[a]anthracene, benzo(a)pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene), and dioxins are the risk drivers at the site. The cancer risk for carcinogenic PAHs ranged from 1.9×10^{-6} to 2.1×10^{-5} for the resident and 1.0×10^{-6} to 6.3×10^{-6} for the industrial worker. For dioxins and furans, the cancer risk ranged from 3.6×10^{-6} to 4.1×10^{-5} for the resident and was 1.0×10^{-5} for the industrial worker. Benzo(a)pyrene contributes approximately 25 percent of the surface soil risk to the resident and 27 percent of the surface soil risk to the industrial worker. In subsurface soil, benzo(a)pyrene contributes 14 percent of the risk to the resident and 16 percent to the industrial worker.

The presence of these chemicals is consistent with former incineration activities at the site. As discussed in Section 6.2.1, PAHs are formed during incomplete combustion. Dioxins and furans are known to enter the environment from a variety of sources, including use of PCPs (Moore and Ramanoorthy 1984) and the combustion of wood products (Thomas and Spiro 1996). Wood dunnage believed to contain PCPs was chipped at the wood hogger and disposed of at the site. Before the wood hogger was installed, a wood incinerator was used at the site. At the same time, dioxins in soil are ubiquitous because of fallout from numerous sources. Two dioxins (1,2,3,4,6,7,8-HpCDD and OCDD) and two furans

(1,2,3,4,6,7,8-HpCDF and 1,2,3,4,6,7,8,9-OCDF) were detected at the site at frequencies ranging from 2 of 11 to 9 of 11 samples analyzed. Historically, EPA has used a soil screening concentration of 1 µg/kg TCDD toxicity equivalents (TEQ) for residential settings and 5 to 20 µg/kg TEQ for commercial/ industrial land use, although this value may be revised as a result of EPA's ongoing assessment of dioxins. The dioxin TEQ concentration at the Wood Hogger Site is 0.31 µg/kg. The cancer risk for 1,2,3,4,6,7,8-HpCDD, a dioxin-like PCB, was a main contributor to the soil risk. For surface soil, 1,2,3,4,6,7,8-HpCDD contributed 44 percent of the risk to the resident and 40 percent to the industrial worker. In subsurface soil, 1,2,3,4,6,7,8-HpCDD contributed 54 percent of the risk to the resident and 50 percent of the risk to the industrial worker.

HIs estimated for soil exposure pathways were 1 or less for all scenarios evaluated, indicating no appreciable risk of adverse noncancer effects.

Cancer risk estimates associated with exposure to surface water were less than the risk management range, and HIs were less than 1 for all scenarios evaluated.

Concentrations of lead in soil for both the current and future site configurations were below the EPA Region 9 residential PRG of 400 mg/kg and industrial PRG of 750 mg/kg.

6.2.4 Otter Sluice

Metals, VOCs, SVOCs, pesticides, PCBs, and dioxins and furans were the sediment and surface water COPCs evaluated for Otter Sluice. Statistical summaries of the data sets for sediment (0 to 0.5 foot) are provided in Table 6-7, and statistical summaries of the surface water data set are provided in Table 6-11. A future site configuration scenario was not evaluated because sediment samples were not collected below 0.5-foot bgs.

RME risk characterization results for Otter Sluice are summarized in the following table. The RME risk calculations for Otter Sluice are detailed in Tables K-4-1 through K-4-3 and K-4-7 through K-4-12 of Appendix K, and totaled in Table K-4-13. Appendix K also describes the methodology used to sum the risk results for the different COPCs (VOCs, SVOCs, pesticides, dioxins, nondioxin-like PCBs, and dioxin-like PCBs) and different scenarios (industrial worker, residential child, residential adult) evaluated.

Human Health Risk Assessment Reasonable Maximum Exposure Results for Otter Sluice				
Receptor	**Medium**	**Cancer Risk[a]**	**HI[a]**	**Soil Lead Concentration (mg/kg)**
Current Site Configuration				
Resident	Sediment (0-0.5 foot)[b]	5.4×10^{-5}	1.2 (2.3)	52
	Surface water	8.4×10^{-8}	0.0030	
	Total	**5.4×10^{-5}**	**1.2 (2.3)**	
Commercial/Industrial Worker	Sediment (0-0.5 foot)[b]	1.3×10^{-5}	0.19	
	Surface water	5.5×10^{-8}	0.0013	
	Total	**1.4×10^{-5}**	**0.19**	

Notes:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI, and the value in parentheses is the total HI.

b A future risk scenario was not evaluated for Otter Sluice because samples were not collected at depths greater than 0.5 foot below ground surface.

As shown, cancer risk estimates associated with sediment exposure pathways are within the risk management range (1×10^{-6} to 1×10^{-4}) for all scenarios evaluated. Arsenic was the major contributor to the cancer risk, accounting for approximately 93 percent of the risk for the resident and 95 percent for the industrial worker. Although statistical analysis indicated that site concentrations of arsenic were greater than ambient concentrations, the degree of exceedance is small. This can be seen be comparing arsenic concentrations in site sediments to the arsenic concentrations in ambient soils. Concentrations of arsenic in site sediments ranged from 12.1 to 26 mg/kg, with a mean concentration of 16 mg/kg and a UCL_{95} of 20 mg/kg. Concentrations of arsenic in ambient soils ranged from 2.3 to 27 mg/kg, with a mean concentration of 7.1 mg/kg. The ambient limit for arsenic (99th percentile of the ambient data set) is 27 mg/kg; the cancer risk associated with this concentration is 7×10^{-5} under a residential scenario and 1×10^{-5} under an industrial scenario.

Benzo(a)pyrene was the only other chemical for which cancer risk estimates were within the risk management range and only affected the resident (2.3×10^{-6}). Benzo(a)pyrene was not a risk driver for the industrial worker. Benzo(a)pyrene was detected in 2 of 11 samples at concentrations of 0.039 and 0.14 mg/kg. As discussed in Section 6.2.1, these concentrations are comparable to background concentrations of PAHs measured in soils in northern California (Environ Corporation and others 2002) and in soils in the United States and worldwide (ATSDR 1995).

Cancer risks for dioxin-like PCBs were below the risk management range.

The total noncancer HI associated with the surface soil exposure pathway for the resident was greater than 1 (HI equal to 2.3). The noncancer driver arsenic had an HQ of 0.90, which contributes 39 percent to the

total HI. In addition, aluminum, antimony, manganese, thallium, and vanadium contribute 52 percent to the total HI. The highest segregated HI was for skin (1.2), which is associated primarily with arsenic and exceeds the threshold value of 1.0. As discussed, although statistical analysis indicated that site concentrations of arsenic were greater than ambient concentrations, the degree of exceedance is small. Therefore, the majority of the estimated noncancer HQ for arsenic is based on ambient concentrations at the site.

HIs associated with soil exposure to the industrial worker were less than the 1.0 threshold, indicating no appreciable risk of adverse noncancer effects.

Cancer risks associated with exposure to surface water were below the risk management range, and HIs were less than 1 for all scenarios evaluated.

The concentration of lead in sediment was below the EPA Region 9 residential PRG of 400 mg/kg and industrial PRG of 750 mg/kg.

6.3 UNCERTAINTY ANALYSIS

A number of uncertainties are inherent in the characterization of potential cancer risks and noncancer health hazards presented in this document. Key uncertainties associated with the revised HHRA are discussed below.

6.3.1 Data Evaluation and Identification of Chemicals of Potential Concern

To identify COPCs for the HHRA, the adequacy of site characterization data was reviewed, and a structured COPC selection process was employed. This section includes a discussion of uncertainties associated with data quality (including detection limits achieved) and the spatial coverage of samples collected at the sites.

6.3.1.1 Data Quality

Significant data quality issues were not identified in the analytical data set used for the HHRA. Completeness goals were met, and the validated analytical results provide data rated as “definitive,” which is acceptable for use in risk assessments. The detection limits were generally adequate for identifying COPCs at concentrations within or below the EPA risk management range for carcinogens and at concentrations less than an HQ of 1 for noncarcinogens. A discussion of the impact of detection limits on the revised HHRA follows.

The detection limits for some chemicals analyzed in the RI exceeded their respective EPA Region 9 residential PRGs for soil (EPA 2002b). The risks posed by these chemicals may be misrepresented in the findings of the HHRA. Two basic types of potential misrepresentations of risk are possible for each chemical for which one or more detection limits exceeded PRGs. Detection limits for any given chemical may differ from one sample to the next, usually only slightly, but sometimes significantly. Typically, detection limits for a given chemical exceeded PRGs in only some of the samples analyzed.

The type of potential misrepresentation of risk depends on whether all or some of the analytical results are below detection limits (that is, whether the chemical is reported as not detected in all samples or detected in one or more samples), as follows:

1. Chemicals Reported as Not Detected in All Samples. As described in Section 6.1.2, chemicals reported as not detected in all samples analyzed were excluded as COPCs. For this case, the primary impact of the high detection limits is that the chemical could be inappropriately excluded as a COPC. Excluding a chemical as a COPC would result in an underestimation of risk if the chemical were actually present at a site.
2. Chemicals Reported as Not Detected in Some Samples. For this case, the chemical would be retained as a COPC. However, because the chemical was not detected in all samples, a value equal to one-half the detection limit was used to represent the not detected concentrations. For these chemicals, the EPC may be under or overestimated, depending on the actual concentration of the chemical in samples reported as not detected.

The magnitude of these potential misrepresentations was assessed by identifying all chemicals for which one or more detection limits exceeded its respective PRG, grouping each chemical into one of two above-mentioned cases, and performing a limited sensitivity analysis on each chemical. These two sets of sensitivity analyses are discussed in the following subsections.

Chemicals Below Detection Limits in All Samples Analyzed

As described in Section 6.1.2, only chemicals detected in one or more samples were retained as COPCs. A consequence of this selection process is that a chemical for which detection limits were greater than its PRG could be inappropriately excluded as a COPC. The potential impact of excluding these chemicals as COPCs was assessed by considering the percent of samples analyzed for which the detection limits exceeded the PRG and the degree of exceedance.

Table 6-17 lists chemicals reported as not detected in all samples and for which the SQL exceeded the PRG in at least one sample. For each chemical, the table shows the detection frequency; the PRG; the number of samples with detection limits greater than the PRG, 2 times the PRG, and 10 times the PRG; and the range of detection limits. A detection limit greater than 2 times the PRG corresponds to an HQ

greater than 2 (for noncarcinogens) and a cancer risk of greater than 2×10^{-6} (for carcinogens); a detection limit greater than 10 times the PRG corresponds to an HQ greater than 10 and a cancer risk greater than 1×10^{-5}.

As shown in the table, the detection limits for most chemicals were less than PRGs in greater than 80 percent of the samples analyzed. The sample size was large (82 samples analyzed for VOCs and 224 samples analyzed for SVOCs), so the relatively small number of samples for which the detection limits were elevated does not substantially compromise the COPC selection process. Those chemicals for which detection limits were exceeded in over 20 percent of the samples analyzed are discussed below.

- **Bis(2-chloroethyl)ether.** This chemical carcinogen is used in the manufacture of pesticides. Although the detection limits for bis(2-chloroethyl)ether were greater than its PRGs in 151 of 224 samples, they exceeded 10 times the PRG in only 10 samples. The cancer risks for this chemical would range from 2×10^{-7} to 1×10^{-4} at the reported detection limits. The impact of the elevated detection limits on the HHRA results is considered low.
- ***N*-Nitroso-di-n-propylamine.** The detection limits for *N*-nitroso-di-n-propylamine were greater than the PRG in 192 of 224 samples. The cancer risks would range from 5×10^{-7} to 3×10^{-4} at the reported detection limits. However, *N*-nitroso-di-n-propylamine is produced primarily as a research chemical and is not used for commercial purposes. It is unlikely that this chemical is present at the Tidal Area. The impact of the elevated detection limits on the HHRA is low.
- **2-Nitroaniline.** This chemical carcinogen is used as an intermediate in the manufacture of pesticides, dyes and pharmaceuticals. The detection limits for 2-nitroaniline were greater than its PRGs in 62 of 224 samples, but exceeded 10 times the PRG in only 3 samples. If present at the reported detection limits, the noncancer hazard quotients for this chemical would range from 0.05 to 31. The impact of the elevated detection limits on the HHRA results is considered low.
- **Toxaphene**. This chemical carcinogen is a pesticide. Although the detection limits for toxaphene were greater than its PRG in 25 of 94 samples, they did not exceed 10 times the PRG in any sample. The cancer risks for this chemical would range from 2×10^{-7} to 8×10^{-6} at the reported detection limits. Toxaphene is used primarily to control insect pests on crops and livestock and to kill unwanted fish in lakes. Given these applications, it is unlikely that toxaphene was applied at the Tidal Area. The impact of the elevated detection limits on the HHRA results is considered low.

Chemicals Below Detection Limits in Some of the Samples Analyzed

Chemicals below detection limits in some samples, and for which one or more of the detection limits for nondetected samples exceeded PRGs, are listed in Table 6-18. For this group of chemicals, the primary impact of the elevated detection limits is on the estimated EPCs. Arsenic was detected in 94 percent of the samples analyzed, so the impact of the nondetected samples and elevated detection limits on the EPCs is minimal. However, for the remaining chemicals listed in Table 6-18, the detection frequency was

20 percent or less. For these chemicals, a value equal to one-half the detection limit is substituted for all nondetected concentrations. The EPC used in the analysis may or may not be sensitive to this substitution. If detection limits are similar or less than the detected concentrations, the estimated EPC adequately accounts for these elevated detection limits. However, if the actual concentrations in the nondetected samples (unknown) are similar to the detected concentrations and if one half of the detection limits are high relative to the detected concentrations, then the EPC would be inappropriately overestimated. Alternatively, if the actual concentrations in the nondetected samples (unknown) are significantly higher that the detected concentrations and if one half of the detection limits are high relative to the detected concentrations, then the estimated UCL_{95} may exceed the maximum detected concentration. In this case, the maximum detected concentration is used as the EPC and not the UCL_{95}, which would result in an underestimation of the EPC. This approach to addressing not detected samples is consistent with EPA guidance (1989a).

A review of Table 6-18 shows that PAHs and hexachlorobenzene were the chemicals for which detection limits would have the most significant impact on the estimated EPCs, with approximately 30 to 80 percent of the samples having detection limits greater than the PRG. To help evaluate the impact of the detection limits, the cancer risks associated with the detection limits are also presented in the table.

This review indicates that health-based detection limits were not met in all samples, but the impact on the EPCs is difficult to quantify. For some chemicals, high detection limits will likely result in EPCs that are biased high. However, for other chemicals, the EPCs may not adequately account for the possible presence of the chemical.

6.3.1.2 Data Coverage

Tidal Area sites were extensively sampled during the RFA, Tidal Area Sites Confirmation Study, and RI, as described in Section 5.0. Both purposeful and random samples were collected. The data provide thorough, spatial coverage of the sites and reduce uncertainty in HHRA results. However, the majority of soil and sediment samples were collected at or near the surface. Historical uses of the site suggest that chemical contamination would be limited to the surface, except at R Area Site, where samples were collected at depths up to 6 feet, and Wood Hogger Site, where samples were collected to depths of up to 20 feet.

6.3.1.3 Chemical of Potential Concern Selection Process

The primary uncertainty associated with the COPC selection process is the possibility that a chemical may be inappropriately identified as a COPC for evaluation in the risk assessment (that is, a detected chemical may be inappropriately excluded or included as a COPC). For Tidal Area sites, the only analytes excluded as COPCs were metals found to be present at ambient levels and essential nutrients. For this reason, it is unlikely that any chemicals were inappropriately excluded.

6.3.2 Exposure Assessment

Uncertainties were identified in association with two areas of the exposure assessment process: (1) identification of receptors and (2) exclusion of potentially complete exposure pathways.

Receptors and exposure scenarios were identified based on observed and assumed land use and activity patterns of the current and future receptors. The actual land use and activity patterns at the sites are not identical to those used to develop the PRGs, thereby introducing uncertainties. For example, future land use is assumed to be residential for all sites, but future land use is not expected to change from its current use as an open naval base. The risk estimates for the commercial/industrial worker are expected to provide upperbound estimates of potential risks to actual receptors at the sites under current and expected future site conditions because base personnel are infrequently present at the Tidal Area sites.

Two potentially complete pathways under the hypothetical future residential scenario were not evaluated in the revised HHRA: inhalation of VOCs in indoor air and ingestion of homegrown produce. The uncertainties associated with exclusion of these pathways are discussed below.

VOCs were detected infrequently and only at very low concentrations in soil and sediment (see Tables 6-1 through 6-7). Although inhalation of VOCs released from soil to indoor air is a potential exposure pathway, this pathway was not evaluated quantitatively in the HHRA because a semiquantitative evaluation indicated that potential risks for this pathway are very low. For the semiquantitative evaluation, the maximum concentrations of all detected VOCs in soils were compared to risk-based screening levels (RBSL) developed by RWQCB (2001) for residential soil at sites where groundwater is not a source of drinking water, as shown below.

Comparison of Maximum Detected Concentrations of Volatile Organic Compounds in Soil With Risk-Based Screening Levels		
Volatile Organic Compound	**Maximum Detected Concentration (mg/kg)**	**Soil RBSL[a] (mg/kg)**
2-Butanone	0.720	13
4-Methyl-2-pentanone	0.027	3.8
Acetone	0.300	0.51
Carbon disulfide	0.290	NC
Chloromethane	0.014	0.49
Ethylbenzene	0.160	24
Xylene (Total)	0.220	1.0

Notes:

a RBSLs for residential surface soil (less than or equal to 3 meters below ground surface) are based on the assumption that groundwater is not a current or potential source of drinking water.

mg/kg Milligram per kilogram
NC No criterion available
RBSL Risk-based screening levels

All detected concentrations were well below RBSLs for residential soils. RBSLs correspond to a cancer risk of 1×10^{-6} or an HQ of 0.2 and are based on an assessment that includes inhalation of VOCs in the indoor air. This comparison shows that concentrations of VOCs in soil are well below levels of concern.

Ingestion of homegrown produce is a potentially complete exposure pathway only if land use were to change in the future and residential development permitted. Throughout most of the Tidal Area sites and Otter Sluice, this scenario would require placement of imported fill material over marshland or low-lying areas. Plant roots would be in contact primarily with the imported fill and to a lesser degree, with native soils. Because residential development at the Tidal Area sites is a highly unlikely scenario, this pathway was not evaluated. However, exclusion of this pathway results in an underestimate of the potential risks to residents who might grow and consume produce from their yards.

6.3.3 Toxicity Assessment

Primary uncertainties associated with the toxicity assessment are related to development of toxicity values for COPCs. Standard toxicity values (RfDs and SFs) were used by EPA Region 9 to develop the PRGs used in this HHRA. Uncertainties associated with unavailable toxicity values for COPCs and chemical-specific factors for chromium are described in the following text.

6.3.3.1 Lack of Toxicity Values and Preliminary Remediation Goals

Cancer risks and noncancer health hazards can be assessed only for those COPCs for which relevant toxicity values (and therefore PRGs) are available. For COPCs for which an SF or RfD was available for only one route of exposure, route-to-route extrapolations were made in the derivation of Region 9 PRGs. These extrapolations will introduce some uncertainty into the risk and hazard estimates.

6.3.3.2 Chromium Speciation

Selection of the appropriate toxicity value for chromium depends on the chemical species of chromium that is encountered; hexavalent chromium is a potent carcinogen by the inhalation route, whereas trivalent chromium is not a carcinogen. Chromium occurs primarily in the trivalent form in soils. The trivalent chromium oxidation state is more stable than the hexavalent state. Hexavalent chromium is easily transformed to trivalent chromium in reducing environments and environments containing reducing species, such as those found in acidic soils or soils that contain organic materials, iron, or dissolved sulfides (Fetter 1993).

A review of the former history and operations indicated that hexavalent chromium was not an expected contaminant at Tidal Area sites. To confirm the absence of hexavalent chromium, select soil and sediment samples were analyzed for both total chromium and hexavalent chromium. Following data validation, 15 analytical results were available as follows: R Area Site, 10 samples; Froid and Taylor Road Site, 2 samples; and Wood Hogger Site, 3 samples. No sample from Otter Sluice was analyzed for hexavalent chromium. Hexavalent chromium was detected in one soil sample collected at Wood Hogger Site at a concentration of 0.06 mg/kg; it was not detected in the remaining 14 samples at detection limits ranging from 0.002 to 0.25 mg/kg. These results suggest that analytical results for total chromium (ranging from 6.4 to 319 mg/kg at the four sites) generally represent trivalent and not hexavalent chromium concentrations. However, as a conservative screening measure, Region 9 PRGs of 210 mg/kg (residential) and 450 mg/kg (industrial) for total chromium were used in the PRG assessment for total chromium analyses. PRGs for total chromium are based on an assumed ratio of 1 to 6 parts hexavalent to trivalent chromium. Even using this conservative approach, total chromium was not a risk driver at any of the sites. The PRG for hexavalent chromium was used to evaluate the detected concentration at Wood Hogger Site.

6.3.4 Qualitative Evaluation of Iron

Although iron is an essential nutrient, EPA Region 9 has developed soil PRGs of 100,000 mg/kg for commercial/industrial land use and 23,000 mg/kg for residential land use (EPA 2002b). Concentrations of iron in soil at Tidal Area sites, summarized in the following table, are generally between residential and commercial/industrial PRG concentrations.

Soil Iron Concentrations at the Tidal Area Sites (milligrams per kilogram)

Site	0 to 0.5 Foot bgs			0 up to 11 Feet bgs		
	Mean	UCL_{95}	Maximum	Mean	UCL_{95}	Maximum
R Area Site	32,000	34,000	135,000	31,000	33,000	135,000
Froid and Taylor Road Site	22,000	21,000	47,000	20,000	24,000	47,000
Wood Hogger Site	30,000	34,000	73,000	28,000	32,000	90,000
Otter Sluice	40,000	46,000	59,000	--	--	--

Notes:

bgs Below ground surface
UCL_{95} 95th percentile upper confidence limit on the arithmetic mean
-- Not sampled

The iron PRG is based on a provisional RfD developed by EPA NCEA (1999). However, the provisional RfD was not used in the revised HHRA to develop HQs for iron exposure for two reasons. First, the provisional RfD was developed using different methods and toxicological endpoints than verified RfDs. Second, NCEA does not present the provisional RfD as being consistent with the definition of an RfD or with other RfDs presented in IRIS (EPA 2003). Evaluation of iron concentrations at the four sites therefore considered the following:

- Concentrations of iron at the four sites are within the range of concentrations found throughout the conterminous United States (7,000 to 550,000 mg/kg) (Lindsay 1979) and the western United States (100 mg/kg to greater than 100,000 mg/kg) (Shacklette and Boerngen 1984), except at R Area Site, where the maximum detected concentration is 135,000 mg/kg.
- Bradford and others (1996) report iron concentrations of 10,000 to 87,000 mg/kg in bench mark California soils selected to be "most representative" of California soils.
- Adverse health effects associated with California background soil concentrations of iron have not been reported.

- The provisional RfD of 0.3 mg/kg-day is the average intake for all Americans, measured in the second National Health and Nutritional Examination Survey. NCEA notes that the provisional RfD is within the range of the recommended dietary allowances (RDA) (National Research Council [NRC] 1989) and is higher and lower in some cases. For example, the RDA of 0.13 mg/kg-day is higher than the RfD for young adult men, and the RDA of 1.11 mg/kg-day for children ages 6 months to 1 year is lower than the RfD. NCEA also notes that the provisional RfD may not be protective for people with inherited disorders or iron metabolism. Additionally, NCEA's use of an average intake rate indicates that a large fraction of the U.S. population has a higher intake rate than the provisional RfD of 0.3 mg/kg-day; NCEA does not discuss the risks borne by that fraction (EPA 1999a).

- The RDA does not represent a maximum safe dose, rather, a minimum requirement for proper nutrition that is routinely supplied in vitamin supplements (NRC 1989).

- The exposure assessment uses a conservative assumption of 100 milligrams of soil per day (mg/soil-day) as the RME soil ingestion rate for the adult resident receptor. Based on the RDAs of 15 milligrams of iron per day (mg-iron/day) and 10 mg-iron/day and the ingestion rate of 100 mg/soil-day, concentrations of 150,000 milligrams of iron per kilogram of soil (mg-iron/kg-soil) and 100,000 mg-iron/kg-soil would provide the RDAs of iron for adult female and male receptors, respectively.

- The exposure assessment uses a conservative assumption of 200 mg/soil-day as the RME soil ingestion rate for the child resident receptor. Based on the RDA of 10 mg/iron-day and the ingestion rate of 200 mg/soil-day, a concentration of 50,000 mg-iron/kg-soil would provide the RDA of iron for children.

Based on these considerations, iron was not considered to be a threat to health at the Tidal Area sites.

TABLE 6-1

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Metal							
Aluminum	111/111	4,420.00000	33,700.00000	18,292.88290	19,314.93330	19,314.93330	Normal
Antimony	74/110	0.53000	7.10000	1.23044	1.40361	1.40361	Lognormal
Arsenic	110/111	3.80000	47.20000	12.41441	13.61008	13.61008	Lognormal
Barium	111/111	42.50000	7,705.00000	150.41633	168.51393	168.51393	Lognormal
Beryllium	15/111	0.11000	0.57000	0.07397	0.09722	0.09722	Lognormal
Cadmium	4/111	0.43000	0.83000	0.04806	0.05648	0.05648	Lognormal
Calcium	111/111	1,870.00000	45,900.00000	7,300.31415	8,280.18275	8,280.18275	Lognormal
Chromium	105/111	18.10000	319.00000	56.59647	61.91448	61.91448	Lognormal
Cobalt	111/111	7.20000	31.50000	16.10658	16.85190	16.85190	Lognormal
Copper	111/111	17.30000	272.00000	45.62352	49.16419	49.16419	Lognormal
Iron	111/111	12,800.00000	135,000.00000	31,804.90670	33,738.75930	33,738.75930	Lognormal
Lead	111/111	7.50000	300.00000	64.94158	77.65654	77.65654	Lognormal
Magnesium	111/111	4,670.00000	27,400.00000	11,038.64780	11,546.78010	11,546.78010	Lognormal
Manganese	111/111	59.00000	2,090.00000	515.37265	563.81345	563.81345	Lognormal
Mercury	85/111	0.05000	0.92000	0.20486	0.24500	0.24500	Lognormal
Molybdenum	23/111	0.32000	53.70000	0.70029	0.94347	0.94347	Lognormal
Nickel	111/111	29.00000	146.00000	72.11289	75.73829	75.73829	Lognormal
Potassium	111/111	1,720.00000	10,600.00000	4,409.54955	4,683.52592	4,683.52592	Normal
Selenium	2/111	1.00000	1.30000	0.54302	0.58215	0.58215	Not tested
Silver	9/111	0.21000	0.72000	0.11813	0.13086	0.13086	Lognormal
Sodium	99/111	48.20000	117,000.00000	18,865.69520	32,603.11490	32,603.11490	Lognormal
Thallium	8/111	0.66000	2.40000	0.36777	0.40091	0.40091	Lognormal
Vanadium	111/111	32.30000	130.00000	67.60631	70.41551	70.41551	Normal
Zinc	111/111	46.90000	959.00000	149.35075	164.21842	164.21842	Lognormal

TABLE 6-1

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Semivolatile Organic Compound							
1-Methylphenanthrene	1/65	0.03700	0.03700	0.09175	0.11217	0.03700	Not tested
2,4-Dimethylphenol	1/65	0.02400	0.02400	0.09222	0.11261	0.02400	Not tested
2,6-Dimethylnaphthalene	4/65	0.05300	0.13000	0.08164	0.10338	0.10338	Lognormal
2-Methylnaphthalene	1/65	0.04200	0.04200	0.09021	0.11051	0.04200	Not tested
4-Methylphenol	5/65	0.03400	0.74000	0.08874	0.11538	0.11538	Lognormal
Acenaphthene	3/65	0.01500	0.03000	0.08922	0.10981	0.03000	Not tested
Anthracene	4/65	0.03000	0.10000	0.08686	0.11219	0.10000	Lognormal
Benzo(a)anthracene	13/65	0.01200	0.44000	0.07909	0.10166	0.10166	Lognormal
Benzo(a)pyrene	14/65	0.01300	0.32000	0.07909	0.10164	0.10164	Lognormal
Benzo(b)fluoranthene	15/65	0.00600	0.39000	0.08639	0.11368	0.11368	Lognormal
Benzo(e)pyrene	12/65	0.01100	0.23000	0.08039	0.10331	0.10331	Lognormal
Benzo(g,h,i)perylene	11/65	0.01500	0.22000	0.08491	0.10965	0.10965	Lognormal
Benzo(k)fluoranthene	12/65	0.01100	0.32000	0.07984	0.10261	0.10261	Lognormal
Benzoic Acid	20/65	0.01800	0.92000	0.19720	0.25107	0.25107	Lognormal
Bis(2-ethylhexyl)phthalate	2/65	0.08700	0.18000	0.10076	0.12205	0.12205	Not tested
Carbazole	2/65	0.02400	0.04000	0.09108	0.11157	0.04000	Not tested
Chrysene	17/65	0.00600	0.44000	0.08802	0.11736	0.11736	Lognormal
Dibenz(a,h)anthracene	5/65	0.01000	0.09400	0.08692	0.11302	0.09400	Lognormal
Dibenzothiophene	1/65	0.02300	0.02300	0.09153	0.11198	0.02300	Not tested
Diethylphthalate	1/65	0.16000	0.16000	0.09435	0.11473	0.11473	Not tested
Fluoranthene	19/65	0.01000	1.10000	0.09743	0.13270	0.13270	Lognormal
Fluorene	1/65	0.02500	0.02500	0.09079	0.11123	0.02500	Not tested
Indeno(1,2,3-cd)pyrene	11/65	0.01200	0.19000	0.08195	0.10573	0.10573	Lognormal
Isophorone	1/65	0.03800	0.03800	0.09244	0.11279	0.03800	Not tested
Naphthalene	3/65	0.01800	0.21000	0.09261	0.11325	0.11325	Not tested
Perylene	7/65	0.00900	0.11000	0.08333	0.10708	0.10708	Lognormal

TABLE 6-1

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Phenanthrene	11/65	0.00700	0.66000	0.08991	0.12022	0.12022	Lognormal
Pyrene	19/65	0.00600	0.68000	0.08787	0.11663	0.11663	Lognormal
Pesticide							
2,4'-DDD	31/65	0.00028	0.00650	0.00078	0.00131	0.00131	Lognormal
2,4'-DDE	14/65	0.00026	0.00120	0.00017	0.00021	0.00021	Lognormal
2,4'-DDT	32/65	0.00017	0.00500	0.00046	0.00066	0.00066	Lognormal
4,4'-DDD	40/65	0.00025	0.02600	0.00211	0.00408	0.00408	Lognormal
4,4'-DDE	55/65	0.00020	0.00870	0.00156	0.00239	0.00239	Lognormal
4,4'-DDT	42/65	0.00018	0.02800	0.00207	0.00370	0.00370	Lognormal
Aldrin	11/65	0.00023	0.00075	0.00015	0.00018	0.00018	Lognormal
alpha-Chlordane	31/65	0.00017	0.00250	0.00047	0.00069	0.00069	Lognormal
Dieldrin	19/65	0.00018	0.00200	0.00024	0.00032	0.00032	Lognormal
gamma-BHC (Lindane)	7/65	0.00029	0.00089	0.00014	0.00017	0.00017	Lognormal
Heptachlor	2/65	0.00032	0.00043	0.00013	0.00014	0.00014	Not tested
Heptachlor Epoxide	8/65	0.00018	0.00095	0.00014	0.00016	0.00016	Lognormal
Hexachlorobenzene	19/65	0.00017	0.00160	0.00020	0.00025	0.00025	Lognormal
Mirex	16/65	0.00005	0.00130	0.00015	0.00018	0.00018	Lognormal
Trans-nonachlor	29/65	0.00015	0.00240	0.00047	0.00070	0.00070	Lognormal
Polychlorinated Biphenyl							
PCB-101 (2,2',3,5,5')	26/65	0.00007	0.00100	0.00023	0.00030	0.00030	Lognormal
PCB-105 (2,3,3',4,4')	19/65	0.00014	0.00120	0.00019	0.00024	0.00024	Lognormal
PCB-118 (2,3',4,4',5)	25/65	0.00009	0.00130	0.00026	0.00036	0.00036	Lognormal
PCB-126 (3,3',4,4',5)	13/65	0.00016	0.00370	0.00023	0.00032	0.00032	Lognormal
PCB-128 (2,2',3,3',4,4')	7/65	0.00016	0.00058	0.00012	0.00015	0.00015	Lognormal
PCB-138 (2,2',3,4,4',5')	31/65	0.00016	0.00170	0.00037	0.00053	0.00053	Lognormal
PCB-153 (2,2',4,4',5,5')	28/65	0.00007	0.00180	0.00028	0.00038	0.00038	Lognormal
PCB-170 (2,2',3,3',4,4',5)	6/65	0.00028	0.00090	0.00012	0.00015	0.00015	Lognormal

TABLE 6-1

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
PCB-18 (2,2',5)	12/65	0.00013	0.00039	0.00012	0.00014	0.00014	Lognormal
PCB-180 (2,2',3,4,4',5,5')	19/65	0.00013	0.00190	0.00022	0.00028	0.00028	Lognormal
PCB-187 (2,2',3,4',5,5',6)	15/65	0.00007	0.00077	0.00016	0.00020	0.00020	Lognormal
PCB-195 (2,2',3,3',4,4',5,6)	3/65	0.00014	0.00039	0.00011	0.00012	0.00012	Not tested
PCB-206 (2,2',3,3',4,4',5,5',6)	19/65	0.00005	0.00110	0.00015	0.00018	0.00018	Lognormal
PCB-209 (2,2',3,3',4,4',5,5',6)	2/65	0.00016	0.00038	0.00010	0.00012	0.00012	Not tested
PCB-28 (2,4,4')	2/65	0.00037	0.00048	0.00011	0.00013	0.00013	Not tested
PCB-44 (2,2',3,5')	3/65	0.00023	0.00028	0.00011	0.00012	0.00012	Not tested
PCB-52 (2,2',5,5')	20/65	0.00006	0.00140	0.00017	0.00022	0.00022	Lognormal
PCB-66 (2,3',4,4')	14/65	0.00009	0.00100	0.00016	0.00020	0.00020	Lognormal
PCB-77 (3,3',4,4')	15/65	0.00009	0.00130	0.00020	0.00025	0.00025	Lognormal
PCB-8 (2,4')	20/65	0.00027	0.00370	0.00035	0.00050	0.00050	Lognormal

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

BHC Benzenehexachloride
COPC Chemical of Potential Concern
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl
RME Reasonable maximum exposure
SBD Seal Beach Detachment
UCL_{95} 95 percent upper confidence limit on the arithmetic mean

TABLE 6-2

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 6 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Metal							
Aluminum	131/131	4,420.00000	33,700.00000	18,225.57250	19,129.48020	19,129.48020	Normal
Antimony	76/129	0.53000	7.10000	1.13122	1.27548	1.27548	Lognormal
Arsenic	126/131	2.30000	47.20000	12.53507	13.91510	13.91510	Lognormal
Barium	131/131	25.70000	7705.00000	143.21331	160.23104	160.23104	Lognormal
Beryllium	16/131	0.11000	0.57000	0.06772	0.08526	0.08526	Lognormal
Cadmium	5/131	0.40000	0.83000	0.04937	0.05696	0.05696	Lognormal
Calcium	131/131	1,870.00000	45,900.00000	7,596.88513	8,564.05501	8,564.05501	Lognormal
Chromium	124/131	18.10000	319.00000	56.58476	61.35886	61.35886	Lognormal
Cobalt	131/131	3.70000	108.00000	16.13078	17.13423	17.13423	Lognormal
Copper	131/131	13.00000	272.00000	44.18731	47.36881	47.36881	Lognormal
Iron	131/131	12,300.00000	135,000.00000	30,914.96900	32,701.08300	32,701.08300	Lognormal
Lead	130/131	4.70000	1160.00000	63.60677	77.67732	77.67732	Lognormal
Magnesium	131/131	4,670.00000	27,400.00000	11,067.49820	11,541.09730	11,541.09730	Lognormal
Manganese	131/131	59.00000	6300.00000	520.46226	572.99286	572.99286	Lognormal
Mercury	91/131	0.05000	0.92000	0.18408	0.21593	0.21593	Lognormal
Molybdenum	35/131	0.32000	53.70000	1.00101	1.37690	1.37690	Lognormal
Nickel	131/131	25.00000	242.00000	70.79156	74.49442	74.49442	Lognormal
Potassium	131/131	1,720.00000	10,600.00000	4,410.91603	4,654.90692	4,654.90692	Normal
Selenium	3/131	1.00000	2.80000	0.59683	0.64717	0.64717	Not tested
Silver	9/131	0.21000	0.72000	0.12063	0.13205	0.13205	Lognormal
Sodium	119/131	48.20000	117,000.00000	20,779.69720	33,359.55550	33,359.55550	Lognormal
Thallium	10/131	0.66000	5.40000	0.40000	0.43707	0.43707	Lognormal
Vanadium	131/131	32.30000	130.00000	67.39618	69.90180	69.90180	Normal
Zinc	131/131	40.40000	959.00000	141.55350	155.23463	155.23463	Lognormal

TABLE 6-2

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 6 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Volatile Organic Compound							
2-Butanone	2/20	0.04300	0.07300	0.01893	0.02644	0.02644	Not tested
Carbon Disulfide	4/20	0.00700	0.16000	0.01990	0.01269	0.01269	Nonparametric
Chloromethane	1/20	0.01400	0.01400	0.01098	0.01279	0.01279	Not tested
Semivolatile Organic Compound							
1-Methylphenanthrene	1/65	0.03700	0.03700	0.09175	0.11217	0.03700	Not tested
2,4-Dimethylphenol	1/85	0.02400	0.02400	0.15364	0.18258	0.02400	Not tested
2,6-Dimethylnaphthalene	4/65	0.05300	0.13000	0.08164	0.10338	0.10338	Lognormal
2-Methylnaphthalene	1/85	0.04200	0.04200	0.15210	0.18112	0.04200	Not tested
4-Methylphenol	5/85	0.03400	0.74000	0.16136	0.21572	0.21572	Lognormal
Acenaphthene	4/85	0.01500	0.66000	0.16627	0.22553	0.22553	Lognormal
Anthracene	5/85	0.03000	1.20000	0.16835	0.22704	0.22704	Lognormal
Benzo(a)anthracene	15/85	0.01200	2.00000	0.16697	0.22848	0.22848	Lognormal
Benzo(a)pyrene	15/85	0.01300	1.50000	0.16270	0.22119	0.22119	Lognormal
Benzo(b)fluoranthene	17/85	0.00600	2.30000	0.17739	0.24562	0.24562	Lognormal
Benzo(e)pyrene	12/65	0.01100	0.23000	0.08039	0.10331	0.10331	Lognormal
Benzo(g,h,i)perylene	12/85	0.01500	0.52000	0.16142	0.21666	0.21666	Lognormal
Benzo(k)fluoranthene	13/85	0.01100	0.82000	0.15918	0.21507	0.21507	Lognormal
Benzoic Acid	20/65	0.01800	0.92000	0.19720	0.25107	0.25107	Lognormal
Bis(2-ethylhexyl)phthalate	2/85	0.08700	0.18000	0.16017	0.18904	0.18000	Not tested
Carbazole	3/85	0.02400	1.10000	0.16318	0.19764	0.19764	Not tested
Chrysene	19/85	0.00600	1.80000	0.17883	0.24946	0.24946	Lognormal
Dibenz(a,h)anthracene	5/85	0.01000	0.09400	0.15989	0.21437	0.09400	Lognormal
Dibenzofuran	1/85	0.50000	0.50000	0.15702	0.18672	0.18672	Not tested
Dibenzothiophene	1/65	0.02300	0.02300	0.09153	0.11198	0.02300	Not tested
Diethylphthalate	1/85	0.16000	0.16000	0.15527	0.18409	0.16000	Not tested

TABLE 6-2

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 6 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Fluoranthene	21/85	0.01000	5.00000	0.20549	0.29427	0.29427	Lognormal
Fluorene	2/85	0.02500	0.60000	0.15708	0.18739	0.18739	Not tested
Indeno(1,2,3-cd)pyrene	12/85	0.01200	0.53000	0.15890	0.21396	0.21396	Lognormal
Isophorone	1/85	0.03800	0.03800	0.15381	0.18272	0.03800	Not tested
Naphthalene	4/85	0.01800	0.30000	0.16544	0.22148	0.22148	Lognormal
Perylene	7/65	0.00900	0.11000	0.08333	0.10708	0.10708	Lognormal
Phenanthrene	13/85	0.00700	5.90000	0.19516	0.27723	0.27723	Lognormal
Phenol	2/85	0.47000	0.60000	0.15999	0.19085	0.19085	Not tested
Pyrene	21/85	0.00600	4.30000	0.19084	0.26962	0.26962	Lognormal
Pesticide							
2,4'-DDD	31/65	0.00028	0.00650	0.00078	0.00131	0.00131	Lognormal
2,4'-DDE	14/65	0.00026	0.00120	0.00017	0.00021	0.00021	Lognormal
2,4'-DDT	32/65	0.00017	0.00500	0.00046	0.00066	0.00066	Lognormal
4,4'-DDD	40/85	0.00025	0.02600	0.00338	0.00596	0.00596	Lognormal
4,4'-DDE	55/85	0.00020	0.00870	0.00243	0.00355	0.00355	Lognormal
4,4'-DDT	42/85	0.00018	0.02800	0.00313	0.00514	0.00514	Lognormal
Aldrin	11/85	0.00023	0.00075	0.00052	0.00075	0.00075	Lognormal
alpha-Chlordane	31/85	0.00017	0.00250	0.00094	0.00141	0.00141	Lognormal
Dieldrin	19/85	0.00018	0.00200	0.00112	0.00187	0.00187	Lognormal
gamma-BHC (Lindane)	7/85	0.00029	0.00089	0.00051	0.00075	0.00075	Lognormal
Heptachlor	2/85	0.00032	0.00043	0.00053	0.00068	0.00043	Not tested
Heptachlor Epoxide	8/85	0.00018	0.00095	0.00050	0.00073	0.00073	Lognormal
Hexachlorobenzene	19/65	0.00017	0.00160	0.00020	0.00025	0.00025	Lognormal
Mirex	16/65	0.00005	0.00130	0.00015	0.00018	0.00018	Lognormal
Trans-Nonachlor	29/65	0.00015	0.00240	0.00047	0.00070	0.00070	Lognormal

TABLE 6-2

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE R AREA SITE
0 TO 6 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Polychlorinated Biphenyl							
PCB-101 (2,2',3,5,5')	26/65	0.00007	0.00100	0.00023	0.00030	0.00030	Lognormal
PCB-105 (2,3,3',4,4')	19/65	0.00014	0.00120	0.00019	0.00024	0.00024	Lognormal
PCB-118 (2,3',4,4',5)	25/65	0.00009	0.00130	0.00026	0.00036	0.00036	Lognormal
PCB-126 (3,3',4,4',5)	13/65	0.00016	0.00370	0.00023	0.00032	0.00032	Lognormal
PCB-128 (2,2',3,3',4,4')	7/65	0.00016	0.00058	0.00012	0.00015	0.00015	Lognormal
PCB-138 (2,2',3,4,4',5')	31/65	0.00016	0.00170	0.00037	0.00053	0.00053	Lognormal
PCB-153 (2,2',4,4',5,5')	28/65	0.00007	0.00180	0.00028	0.00038	0.00038	Lognormal
PCB-170 (2,2',3,3',4,4',5)	6/65	0.00028	0.00090	0.00012	0.00015	0.00015	Lognormal
PCB-18 (2,2',5)	12/65	0.00013	0.00039	0.00012	0.00014	0.00014	Lognormal
PCB-180 (2,2',3,4,4',5,5')	19/65	0.00013	0.00190	0.00022	0.00028	0.00028	Lognormal
PCB-187 (2,2',3,4',5,5',6)	15/65	0.00007	0.00077	0.00016	0.00020	0.00020	Lognormal
PCB-195 (2,2',3,3',4,4',5,6)	3/65	0.00014	0.00039	0.00011	0.00012	0.00012	Not tested
PCB-206 (2,2',3,3',4,4',5,5',6	19/65	0.00005	0.00110	0.00015	0.00018	0.00018	Lognormal
PCB-209 (2,2',3,3',4,4',5,5',6	2/65	0.00016	0.00038	0.00010	0.00012	0.00012	Not tested
PCB-28 (2,4,4')	2/65	0.00037	0.00048	0.00011	0.00013	0.00013	Not tested
PCB-44 (2,2',3,5')	3/65	0.00023	0.00028	0.00011	0.00012	0.00012	Not tested
PCB-52 (2,2',5,5')	20/65	0.00006	0.00140	0.00017	0.00022	0.00022	Lognormal

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

BHC Benzenehexachloride
COPC Chemical of Potential Concern
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl
RME Reasonable maximum exposure
UCL_{95} 95 percent upper confidence limit of the arithmetic mean

TABLE 6-3

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Metal							
Aluminum	12/12	7,020.00000	37,500.00000	14,629.25420	19,086.18950	19,086.18950	Lognormal
Antimony	3/6	1.10000	2.20000	1.25000	1.70207	1.70207	Not tested
Arsenic	11/12	4.50000	23.20000	10.70833	14.08969	14.08969	Normal
Barium	12/12	48.70000	234.00000	151.57500	182.97681	182.97681	Normal
Beryllium	1/12	0.35000	0.35000	0.05958	0.10969	0.10969	Not tested
Cadmium	7/12	0.32000	1.90000	0.65219	3.33979	1.90000	Lognormal
Calcium	12/12	2,160.00000	37,500.00000	8,701.60990	15,254.65600	15,254.65600	Lognormal
Chromium	12/12	25.10000	106.00000	42.18997	54.36662	54.36662	Lognormal
Cobalt	12/12	4.70000	20.60000	11.05833	13.44125	13.44125	Normal
Copper	12/12	25.30000	92.00000	51.10833	62.89073	62.89073	Normal
Iron	12/12	15,400.00000	47,100.00000	22,466.66670	21,038.50000	21,038.50000	Nonparametric
Lead	12/12	14.30000	515.00000	133.36400	324.93483	324.93483	Lognormal
Magnesium	12/12	5,510.00000	15,400.00000	8,171.73325	9,779.78934	9,779.78934	Lognormal
Manganese	12/12	135.00000	3,530.00000	559.83333	389.91000	389.91000	Nonparametric
Mercury	9/12	0.07000	0.49000	0.21208	0.28794	0.28794	Normal
Molybdenum	2/12	0.22000	4.30000	0.59792	1.21393	1.21393	Not tested
Nickel	12/12	22.70000	90.90000	50.87500	60.45863	60.45863	Normal
Potassium	12/12	1,590.00000	6,510.00000	2,889.74827	3,695.31175	3695.31175	Lognormal
Selenium	2/12	1.20000	1.50000	0.70375	0.90040	0.90040	Not tested
Silver	7/12	0.15000	0.63000	0.24954	0.44718	0.44718	Lognormal
Sodium	12/12	1,270.00000	17,700.00000	5,990.93719	10,976.14030	10,976.14030	Lognormal
Thallium	2/12	1.10000	3.80000	0.73667	1.25356	1.25356	Not tested
Vanadium	12/12	38.40000	113.00000	56.07351	66.66736	66.66736	Lognormal
Zinc	12/12	58.50000	436.00000	157.32662	224.32889	224.32889	Lognormal

TABLE 6-3

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Semivolatile Organic Compound							
1,1'-Biphenyl	1/9	0.00900	0.00900	0.10417	0.16805	0.00900	Not tested
1-Methylnaphthalene	2/9	0.00500	0.03000	0.10478	0.16839	0.03000	Not tested
2,4-Dimethylphenol	2/12	0.00500	0.01200	0.19083	0.29645	0.01200	Not tested
2,6-Dimethylnaphthalene	3/9	0.00500	0.04100	0.09311	0.15768	0.04100	Not tested
2-Methylnaphthalene	2/12	0.00900	0.04600	0.19400	0.29815	0.04600	Not tested
4-Methylphenol	2/12	0.00500	0.30000	0.15821	0.22696	0.22696	Not tested
Acenaphthylene	1/12	0.02900	0.02900	0.18725	0.29378	0.02900	Not tested
Anthracene	1/12	0.03700	0.03700	0.18792	0.29417	0.03700	Not tested
Benzo(a)anthracene	3/12	0.05300	0.09100	0.17550	0.28383	0.09100	Not tested
Benzo(a)pyrene	2/12	0.12000	0.13000	0.19400	0.29821	0.13000	Not tested
Benzo(b)fluoranthene	2/12	0.11000	0.24000	0.20233	0.30640	0.24000	Not tested
Benzo(e)pyrene	1/9	0.28000	0.28000	0.12589	0.19822	0.19822	Not tested
Benzo(g,h,i)perylene	2/12	0.17000	0.21000	0.20483	0.30785	0.21000	Not tested
Benzo(k)fluoranthene	2/12	0.08300	0.12000	0.19008	0.29523	0.12000	Not tested
Benzoic Acid	4/9	0.02400	0.53000	0.20389	0.31505	0.31505	Normal
Bis(2-ethylhexyl)phthalate	1/12	2.50000	2.50000	0.31817	0.67796	0.67796	Not tested
Carbazole	1/12	0.02400	0.02400	0.18683	0.29355	0.02400	Not tested
Chrysene	5/12	0.03600	0.24000	0.12684	0.32410	0.24000	Lognormal
Dibenzofuran	1/12	0.00700	0.00700	0.19171	0.29689	0.00700	Not tested
Fluoranthene	6/12	0.04300	0.19000	0.13955	0.36763	0.19000	Lognormal
Fluorene	1/12	0.00600	0.00600	0.19163	0.29685	0.00600	Not tested
Indeno(1,2,3-cd)pyrene	1/12	0.14000	0.14000	0.19650	0.30026	0.14000	Not tested
Naphthalene	1/12	0.01400	0.01400	0.19229	0.29718	0.01400	Not tested
Phenanthrene	3/12	0.03100	0.04900	0.16958	0.27971	0.04900	Not tested
Pyrene	4/12	0.11000	0.20000	0.16801	0.46303	0.20000	Lognormal

TABLE 6-3

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Pesticide							
2,4'-DDD	6/12	0.00030	0.00700	0.00207	0.00404	0.00404	Nonparametric
2,4'-DDE	4/12	0.00040	0.00060	0.00026	0.00050	0.00050	Lognormal
2,4'-DDT	4/12	0.00100	0.00300	0.00075	0.00104	0.00104	Nonparametric
4,4'-DDD	9/12	0.00030	0.01400	0.00506	0.00762	0.00762	Normal
4,4'-DDE	9/12	0.00030	0.01500	0.00517	0.05923	0.01500	Lognormal
4,4'-DDT	5/12	0.00060	0.01900	0.00396	0.00414	0.00414	Nonparametric
Aldrin	1/12	0.00040	0.00040	0.00015	0.00020	0.00020	Not tested
alpha-BHC	1/3	0.00070	0.00070	0.00030	0.00088	0.00070	Not tested
alpha-Chlordane	9/12	0.00030	0.01100	0.00192	0.01096	0.01096	Lognormal
Dieldrin	2/12	0.00040	0.00080	0.00024	0.00035	0.00035	Not tested
gamma-BHC (Lindane)	1/12	0.00040	0.00040	0.00015	0.00020	0.00020	Not tested
gamma-Chlordane	3/3	0.00040	0.01200	0.00480	0.01540	0.01200	Not tested
Hexachlorobenzene	3/12	0.00040	0.00050	0.00023	0.00030	0.00030	Not tested
Technical Chlordane	2/2	0.02100	0.19000	0.10550	0.63903	0.19000	Not tested
Trans-nonachlor	7/12	0.00020	0.00400	0.00111	0.00439	0.00400	Lognormal
Polychlorinated Biphenyl							
PCB-101 (2,2',3,5,5')	2/12	0.00010	0.00040	0.00015	0.00020	0.00020	Not tested
PCB-105 (2,3,3',4,4')	2/12	0.00020	0.00030	0.00015	0.00019	0.00019	Not tested
PCB-118 (2,3',4,4',5)	3/12	0.00010	0.00070	0.00019	0.00028	0.00028	Not tested
PCB-126 (3,3',4,4',5)	2/12	0.00010	0.00010	0.00013	0.00016	0.00010	Not tested
PCB-128 (2,2',3,3',4,4')	3/12	0.00010	0.00200	0.00030	0.00058	0.00058	Not tested
PCB-138 (2,2',3,4,4',5')	5/12	0.00030	0.00200	0.00043	0.00113	0.00113	Lognormal
PCB-153 (2,2',4,4',5,5')	4/12	0.00010	0.00090	0.00025	0.00047	0.00047	Lognormal
PCB-180 (2,2',3,4,4',5,5')	3/12	0.00010	0.00040	0.00018	0.00023	0.00023	Not tested
PCB-187 (2,2',3,4',5,5',6)	3/12	0.00007	0.00040	0.00016	0.00021	0.00021	Not tested

TABLE 6-3

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
PCB-206 (2,2',3,3',4,4',5,5',6	5/12	0.00020	0.00200	0.00038	0.00090	0.00090	Lognormal
PCB-209 (2,2',3,3',4,4',5,5',6	3/12	0.00008	0.00080	0.00020	0.00031	0.00031	Not tested
PCB-77 (3,3',4,4')	1/12	0.00030	0.00030	0.00015	0.00018	0.00018	Not tested
Total Petroleum Hydrocarbon							
Motor Oil Range Organics	8/9	18.00000	23,000.00000	6,731.89833	8,654,447.81000	23,000.00000	Lognormal

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

BHC Benzenehexachloride
COPC Chemical of Potential Concern
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl
RME Reasonable maximum exposure
UCL_{95} 95 percent upper confidence limit on the arithmetic mean

TABLE 6-4

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 3 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Metal							
Aluminum	21/21	4,810.00000	37,500.00000	13,776.57300	17,144.10970	17,144.10970	Lognormal
Antimony	3/6	1.10000	2.20000	1.25000	1.70207	1.70207	Not tested
Arsenic	18/21	4.50000	26.60000	9.76905	12.37665	12.37665	Normal
Barium	21/21	27.70000	234.00000	116.80000	165.25600	165.25600	Nonparametric
Beryllium	1/21	0.35000	0.35000	0.05000	0.07766	0.07766	Not tested
Cadmium	8/21	0.32000	1.90000	0.37257	1.07465	1.07465	Lognormal
Calcium	21/21	2,160.00000	37,500.00000	7,721.67830	10,362.64890	10,362.64890	Lognormal
Chromium	21/21	15.30000	106.00000	40.92517	51.57694	51.57694	Lognormal
Cobalt	21/21	3.60000	20.60000	9.82857	11.38627	11.38627	Normal
Copper	21/21	13.10000	92.00000	40.78887	52.05104	52.05104	Lognormal
Iron	21/21	5,860.00000	47,100.00000	19,916.67680	24,387.12540	24,387.12540	Lognormal
Lead	21/21	3.50000	515.00000	88.38326	231.70080	231.70080	Lognormal
Magnesium	21/21	3,890.00000	15,400.00000	8,672.85714	9,798.70035	9,798.70035	Normal
Manganese	21/21	60.70000	3,530.00000	412.50952	263.40800	263.40800	Nonparametric
Mercury	14/21	0.07000	0.49000	0.17812	0.25100	0.25100	Lognormal
Molybdenum	6/21	0.22000	4.30000	1.08810	0.67560	0.67560	Nonparametric
Nickel	21/21	15.60000	90.90000	48.90952	56.20150	56.20150	Normal
Potassium	21/21	823.00000	6,510.00000	2,901.57143	3,386.99427	3,386.99427	Normal
Selenium	2/21	1.20000	1.50000	0.81167	0.99803	0.99803	Not tested
Silver	7/21	0.15000	0.63000	0.21237	0.30284	0.30284	Lognormal
Sodium	21/21	1,160.00000	60,400.00000	11,877.90910	24,048.10270	24,048.10270	Lognormal
Thallium	4/21	0.64000	3.80000	0.73119	0.61024	0.61024	Nonparametric
Vanadium	21/21	32.60000	136.00000	58.22585	68.09853	68.09853	Lognormal
Zinc	21/21	27.50000	436.00000	119.18541	163.59108	163.59108	Lognormal

TABLE 6-4

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 3 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Volatile Organic Compound							
4-Methyl-2-Pentanone	1/9	0.02700	0.02700	0.01900	0.03181	0.02700	Not tested
Semivolatile Organic Compound							
1,1'-Biphenyl	1/9	0.00900	0.00900	0.10417	0.16805	0.00900	Not tested
1-Methylnaphthalene	2/9	0.00500	0.03000	0.10478	0.16839	0.03000	Not tested
2,4-Dimethylphenol	2/21	0.00500	0.01200	0.31786	0.42278	0.01200	Not tested
2,6-Dimethylnaphthalene	3/9	0.00500	0.04100	0.09311	0.15768	0.04100	Not tested
2-Methylnaphthalene	2/20	0.00900	0.04600	0.28815	0.38179	0.04600	Not tested
4-Methylphenol	2/21	0.00500	0.30000	0.29921	0.39866	0.30000	Not tested
Acenaphthylene	1/20	0.02900	0.02900	0.28410	0.37924	0.02900	Not tested
Anthracene	1/20	0.03700	0.03700	0.28450	0.37947	0.03700	Not tested
Benzo(a)anthracene	3/20	0.05300	0.09100	0.27705	0.37398	0.09100	Not tested
Benzo(a)pyrene	2/20	0.12000	0.13000	0.28815	0.38181	0.13000	Not tested
Benzo(b)fluoranthene	2/20	0.11000	0.24000	0.29315	0.38598	0.24000	Not tested
Benzo(e)pyrene	1/9	0.28000	0.28000	0.12589	0.19822	0.19822	Not tested
Benzo(g,h,i)perylene	2/20	0.17000	0.21000	0.29465	0.38687	0.21000	Not tested
Benzo(k)fluoranthene	2/20	0.08300	0.12000	0.28580	0.38017	0.12000	Not tested
Benzoic Acid	4/9	0.02400	0.53000	0.20389	0.31505	0.31505	Normal
Bis(2-ethylhexyl)phthalate	1/20	2.50000	2.50000	0.36265	0.57555	0.57555	Not tested
Carbazole	1/20	0.02400	0.02400	0.28385	0.37910	0.02400	Not tested
Chrysene	5/20	0.03600	0.24000	0.28639	0.62164	0.24000	Lognormal
Dibenzofuran	1/20	0.00700	0.00700	0.28678	0.38100	0.00700	Not tested
Fluoranthene	6/20	0.04300	0.19000	0.29422	0.62998	0.19000	Lognormal
Fluorene	1/20	0.00600	0.00600	0.28673	0.38098	0.00600	Not tested
Indeno(1,2,3-cd)pyrene	1/20	0.14000	0.14000	0.28965	0.38291	0.14000	Not tested
Naphthalene	1/20	0.01400	0.01400	0.28713	0.38119	0.01400	Not tested

TABLE 6-4

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 3 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Phenanthrene	3/20	0.03100	0.04900	0.27350	0.37167	0.04900	Not tested
Phenol	3/21	0.16000	0.50000	0.32395	0.42971	0.42971	Not tested
Pyrene	4/20	0.11000	0.20000	0.25940	0.32846	0.20000	Nonparametric
Pesticide							
2,4'-DDD	6/12	0.00030	0.00700	0.00207	0.00404	0.00404	Nonparametric
2,4'-DDE	4/12	0.00040	0.00060	0.00026	0.00050	0.00050	Lognormal
2,4'-DDT	4/12	0.00100	0.00300	0.00075	0.00104	0.00104	Nonparametric
4,4'-DDD	10/21	0.00030	0.01400	0.00656	0.00805	0.00805	Nonparametric
4,4'-DDE	10/21	0.00030	0.01500	0.00418	0.00466	0.00466	Nonparametric
4,4'-DDT	6/21	0.00060	0.01900	0.00461	0.00517	0.00517	Nonparametric
Aldrin	1/21	0.00040	0.00040	0.00190	0.00339	0.00040	Not tested
alpha-BHC	1/12	0.00070	0.00070	0.00325	0.00579	0.00070	Not tested
alpha-Chlordane	10/21	0.00030	0.03500	0.00385	0.01196	0.01196	Lognormal
Dieldrin	2/21	0.00040	0.00080	0.00379	0.00682	0.00080	Not tested
gamma-BHC (Lindane)	1/21	0.00040	0.00040	0.00190	0.00339	0.00040	Not tested
gamma-Chlordane	4/12	0.00040	0.02500	0.00495	0.01452	0.01452	Lognormal
Hexachlorobenzene	3/12	0.00040	0.00050	0.00023	0.00030	0.00030	Not tested
Technical Chlordane	2/2	0.02100	0.19000	0.10550	0.63903	0.19000	Not tested
Trans-Nonachlor	7/12	0.00020	0.00400	0.00111	0.00439	0.00400	Lognormal
Polychlorinated Biphenyl							
PCB-101 (2,2',3,5,5')	2/12	0.00010	0.00040	0.00015	0.00020	0.00020	Not tested
PCB-105 (2,3,3',4,4')	2/12	0.00020	0.00030	0.00015	0.00019	0.00019	Not tested
PCB-118 (2,3',4,4',5)	3/12	0.00010	0.00070	0.00019	0.00028	0.00028	Not tested
PCB-126 (3,3',4,4',5)	2/12	0.00010	0.00010	0.00013	0.00016	0.00010	Not tested
PCB-128 (2,2',3,3',4,4')	3/12	0.00010	0.00200	0.00030	0.00058	0.00058	Not tested
PCB-138 (2,2',3,4,4',5')	5/12	0.00030	0.00200	0.00043	0.00113	0.00113	Lognormal

TABLE 6-4

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE FROID AND TAYLOR ROADS SITE
0 TO 3 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
PCB-153 (2,2',4,4',5,5')	4/12	0.00010	0.00090	0.00025	0.00047	0.00047	Lognormal
PCB-180 (2,2',3,4,4',5,5')	3/12	0.00010	0.00040	0.00018	0.00023	0.00023	Not tested
PCB-187 (2,2',3,4',5,5',6)	3/12	0.00007	0.00040	0.00016	0.00021	0.00021	Not tested
PCB-206 (2,2',3,3',4,4',5,5',6	5/12	0.00020	0.00200	0.00038	0.00090	0.00090	Lognormal
PCB-209 (2,2',3,3',4,4',5,5',6	3/12	0.00008	0.00080	0.00020	0.00031	0.00031	Not tested
PCB-77 (3,3',4,4')	1/12	0.00030	0.00030	0.00015	0.00018	0.00018	Not tested
Total Petroleum Hydrocarbon							
Motor Oil Range Organics	15/18	9.00000	23,000.00000	2,977.32528	72,711.98370	23,000.00000	Lognormal

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

BHC Benzenehexachloride
COPC Chemical of Potential Concern
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
mg/kg Milligram per kilogram
PCB Polychlorinated biphenyl
RME Reasonable maximum exposure
SBD Seal Beach Detachment
UCL_{95} 95 percent upper confidence limit of the arithmetic mean

TABLE 6-5

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Metal							
Aluminum	68/68	5,130.00000	42,700.00000	15,823.00620	17,610.13830	17,610.13830	Lognormal
Antimony	48/68	0.44000	7.10000	1.72874	2.16242	2.16242	Lognormal
Arsenic	64/68	1.30000	27.10000	9.88658	12.57733	12.57733	Lognormal
Barium	68/68	7.90000	353.00000	128.29118	143.37913	143.37913	Normal
Beryllium	30/68	0.01000	0.84000	0.15485	0.25557	0.25557	Lognormal
Cadmium	31/68	0.05000	20.80000	1.52623	3.79780	3.79780	Lognormal
Calcium	68/68	2,010.00000	84,000.00000	8,343.32497	9,775.89577	9,775.89577	Lognormal
Chromium	68/68	14.90000	122.00000	40.51547	44.98468	44.98468	Lognormal
Chromium Vi	1/3	0.06000	0.06000	0.02867	0.07869	0.06000	Not tested
Cobalt	68/68	2.40000	39.30000	15.09190	16.81866	16.81866	Lognormal
Copper	65/68	7.60000	607.00000	56.67968	69.13079	69.13079	Lognormal
Iron	68/68	3,570.00000	73,300.00000	29,881.70070	33,802.10850	33,802.10850	Lognormal
Lead	68/68	1.80000	598.00000	74.03842	108.71131	108.71131	Lognormal
Magnesium	68/68	3,630.00000	22,400.00000	9,254.12633	10,154.44500	10,154.44500	Lognormal
Manganese	68/68	55.30000	1270.00000	511.16618	560.75168	560.75168	Normal
Mercury	55/68	0.03000	18.50000	0.50135	0.80566	0.80566	Lognormal
Molybdenum	27/68	0.25000	5.60000	0.81989	1.23427	1.23427	Lognormal
Nickel	68/68	10.80000	123.00000	46.43090	52.40846	52.40846	Lognormal
Potassium	68/68	353.00000	6520.00000	2,540.27941	2,825.80414	2,825.80414	Normal
Selenium	4/68	0.67000	3.50000	0.62617	0.71047	0.71047	Lognormal
Silver	9/68	0.16000	4.40000	0.22762	0.29429	0.29429	Lognormal
Sodium	68/68	36.90000	23,400.00000	4,389.23358	6,180.78419	6,180.78419	Lognormal
Thallium	9/68	0.69000	2.40000	0.41554	0.52356	0.52356	Lognormal
Vanadium	68/68	25.50000	139.00000	63.29412	69.16194	69.16194	Normal
Zinc	68/68	28.60000	3,010.00000	244.32662	318.20065	318.20065	Lognormal

TABLE 6-5

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Semivolatile Organic Compound							
1-Methylphenanthrene	2/47	0.03000	0.35000	0.72524	1.16572	0.35000	Not tested
2,6-Dimethylnaphthalene	1/47	0.03700	0.03700	0.72267	1.16333	0.03700	Not tested
Acenaphthene	4/49	0.02700	0.28000	0.65526	1.27042	0.28000	Lognormal
Acenaphthylene	1/49	0.27000	0.27000	0.70289	1.12564	0.27000	Not tested
Anthracene	10/49	0.01400	2.10000	0.68751	1.36181	1.36181	Lognormal
Benzo(a)anthracene	12/49	0.01200	3.80000	0.66140	1.31780	1.31780	Lognormal
Benzo(a)pyrene	14/49	0.01900	2.70000	0.66464	1.32837	1.32837	Lognormal
Benzo(b)fluoranthene	15/49	0.02500	3.10000	0.75434	1.47520	1.47520	Lognormal
Benzo(e)pyrene	24/47	0.01900	2.40000	0.62986	1.24467	1.24467	Lognormal
Benzo(g,h,i)perylene	11/49	0.02100	1.10000	0.61372	1.17940	1.10000	Lognormal
Benzo(k)fluoranthene	13/49	0.02000	3.40000	0.69766	1.38940	1.38940	Lognormal
Benzoic Acid	8/47	0.04000	2.30000	1.97840	4.40156	2.30000	Lognormal
Butylbenzylphthalate	1/49	0.07800	0.07800	0.69672	1.11993	0.07800	Not tested
Carbazole	12/49	0.01800	0.88000	0.59658	1.13332	0.88000	Lognormal
Chrysene	18/49	0.02300	6.40000	0.77943	1.53184	1.53184	Lognormal
Dibenz(a,h)anthracene	4/49	0.03200	0.60000	0.62128	1.17136	0.60000	Lognormal
Dibenzofuran	2/49	0.08400	0.17000	0.69909	1.12212	0.17000	Not tested
Dibenzothiophene	3/47	0.02500	0.17000	0.71818	1.15918	0.17000	Not tested
Fluoranthene	31/49	0.01400	14.00000	0.79164	1.55527	1.55527	Lognormal
Fluorene	4/49	0.02000	0.35000	0.66312	1.30252	0.35000	Lognormal
Indeno(1,2,3-cd)pyrene	9/49	0.01700	1.20000	0.66785	1.31516	1.20000	Lognormal
Naphthalene	1/49	0.11000	0.11000	0.69809	1.12120	0.11000	Not tested
Pentachlorophenol	4/44	0.12000	0.78000	1.83306	3.84909	0.78000	Lognormal
Perylene	4/47	0.02600	0.84000	0.67091	1.32546	0.84000	Lognormal

TABLE 6-5

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Phenanthrene	19/49	0.02200	4.00000	0.67051	1.30645	1.30645	Lognormal
Phenol	2/49	0.45000	0.90000	0.71932	1.14169	0.90000	Not tested
Pyrene	30/49	0.01900	13.00000	0.70678	1.35956	1.35956	Lognormal
Pesticide							
2,4'-DDD	22/47	0.00030	0.00800	0.00109	0.00050	0.00050	Nonparametric
2,4'-DDE	6/47	0.00036	0.00300	0.00047	0.00016	0.00016	Nonparametric
2,4'-DDT	17/47	0.00010	0.03400	0.00164	0.00028	0.00028	Nonparametric
4,4'-DDD	32/47	0.00020	0.28000	0.00986	0.00117	0.00117	Nonparametric
4,4'-DDE	37/47	0.00024	0.03200	0.00322	0.00713	0.00713	Lognormal
4,4'-DDT	30/47	0.00030	0.23000	0.01171	0.00060	0.00060	Nonparametric
Aldrin	5/47	0.00020	0.00048	0.00041	0.00020	0.00020	Nonparametric
alpha-Chlordane	34/47	0.00018	0.07800	0.00512	0.00094	0.00094	Nonparametric
Dieldrin	14/47	0.00024	0.00600	0.00074	0.00035	0.00035	Nonparametric
gamma-BHC (Lindane)	5/47	0.00042	0.00200	0.00047	0.00018	0.00018	Nonparametric
Heptachlor	3/47	0.00029	0.00074	0.00041	0.00059	0.00059	Not tested
Heptachlor Epoxide	4/47	0.00021	0.00600	0.00051	0.00016	0.00016	Nonparametric
Hexachlorobenzene	4/47	0.00020	0.00037	0.00040	0.00018	0.00018	Nonparametric
Mirex	10/47	0.00014	0.00500	0.00052	0.00020	0.00020	Nonparametric
Trans-nonachlor	33/47	0.00021	0.06500	0.00441	0.00077	0.00077	Nonparametric
Polychlorinated Biphenyl							
PCB-101 (2,2',3,5,5')	24/47	0.00007	0.00700	0.00084	0.00040	0.00040	Nonparametric
PCB-105 (2,3,3',4,4')	18/47	0.00010	0.00300	0.00059	0.00035	0.00035	Nonparametric
PCB-118 (2,3',4,4',5)	19/47	0.00010	0.00500	0.00078	0.00033	0.00033	Nonparametric
PCB-126 (3,3',4,4',5)	5/47	0.00010	0.00056	0.00040	0.00016	0.00016	Nonparametric
PCB-128 (2,2',3,3',4,4')	5/47	0.00022	0.00300	0.00044	0.00018	0.00018	Nonparametric

TABLE 6-5

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
PCB-138 (2,2',3,4,4',5')	26/47	0.00016	0.01200	0.00147	0.00056	0.00056	Nonparametric
PCB-153 (2,2',4,4',5,5')	18/47	0.00013	0.00960	0.00116	0.00036	0.00036	Nonparametric
PCB-170 (2,2',3,3',4,4',5)	10/47	0.00014	0.00660	0.00058	0.00023	0.00023	Nonparametric
PCB-18 (2,2',5)	7/47	0.00013	0.00081	0.00041	0.00018	0.00018	Nonparametric
PCB-180 (2,2',3,4,4',5,5')	20/47	0.00013	0.01500	0.00122	0.00031	0.00031	Nonparametric
PCB-187 (2,2',3,4',5,5',6)	17/47	0.00009	0.00670	0.00069	0.00023	0.00023	Nonparametric
PCB-195 (2,2',3,3',4,4',5,6)	4/47	0.00016	0.00130	0.00043	0.00016	0.00016	Nonparametric
PCB-206 (2,2',3,3',4,4',5,5',6	11/47	0.00018	0.00086	0.00045	0.00025	0.00025	Nonparametric
PCB-209 (2,2',3,3',4,4',5,5',6	3/47	0.00018	0.00025	0.00039	0.00058	0.00025	Not tested
PCB-28 (2,4,4')	4/47	0.00019	0.00210	0.00043	0.00016	0.00016	Nonparametric
PCB-44 (2,2',3,5')	8/47	0.00024	0.00170	0.00047	0.00025	0.00025	Nonparametric
PCB-52 (2,2',5,5')	16/47	0.00008	0.00200	0.00051	0.00024	0.00024	Nonparametric
PCB-66 (2,3',4,4')	5/47	0.00016	0.00100	0.00042	0.00018	0.00018	Nonparametric
PCB-77 (3,3',4,4')	2/47	0.00033	0.00087	0.00040	0.00059	0.00059	Not tested
PCB-8 (2,4')	6/47	0.00016	0.00590	0.00055	0.00016	0.00016	Nonparametric
Dioxins/Furans							
1,2,3,4,6,7,8,9-OCDD	9/11	0.00036	0.14000	0.03144	0.64199	0.14000	Lognormal
1,2,3,4,6,7,8,9-OCDF	3/11	0.00050	0.01300	0.00194	0.00408	0.00408	Not tested
1,2,3,4,6,7,8-HPCDD	4/11	0.00047	0.01600	0.00342	0.03505	0.01600	Lognormal
1,2,3,4,6,7,8-HPCDF	4/11	0.00013	0.00300	0.00060	0.00028	0.00028	Nonparametric
Total HPCDD	7/11	0.00080	0.04100	0.01947	0.55415	0.04100	Lognormal
Total HPCDF	5/11	0.00029	0.01300	0.00193	0.02076	0.01300	Lognormal
Total HXCDF	2/11	0.00100	0.00400	0.00054	0.00119	0.00119	Not tested
Total TCDD	9/11	0.00200	0.01300	0.00446	0.00645	0.00645	Normal

TABLE 6-5

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

BHC	Benzenehexachloride
COPC	Chemical of Potential Concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
HPCDD	Heptachlorodibenzo-p-dioxin
HPCDF	Heptachlorodibenzo-p-furan
HXCDD	Hexachlorodibenzo-p-dioxin
mg/kg	Milligrams per kilogram
OCDD	Octachlorodibenzo-p-dioxin
OCDF	Octachlorodibenzo-p-furan
PCB	Polychlorinated biphenyl
RME	Reasonable maximum exposure
TCDD	Tetrachlorodibenzo-p-dioxin
UCL_{95}	95 percent upper confidence limit on the arithmetic mean

TABLE 6-6

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Metal							
Aluminum	123/123	82.20000	42,700.00000	15,582.31300	17,577.23560	17,577.23560	Lognormal
Antimony	68/122	0.44000	7.10000	1.30835	1.56313	1.56313	Lognormal
Arsenic	113/123	1.30000	37.00000	9.00760	10.73381	10.73381	Lognormal
Barium	123/123	1.10000	546.00000	151.55709	181.10466	181.10466	Lognormal
Beryllium	36/123	0.01000	0.84000	0.09368	0.12539	0.12539	Lognormal
Cadmium	37/123	0.05000	20.80000	0.61422	1.08789	1.08789	Lognormal
Calcium	123/123	132.00000	112,000.00000	8,626.73386	9,989.46898	9,989.46898	Lognormal
Chromium	121/123	6.40000	122.00000	41.52385	47.46538	47.46538	Lognormal
Chromium VI	1/3	0.06000	0.06000	0.02867	0.07869	0.06000	Not tested
Cobalt	122/123	1.70000	39.30000	15.28410	17.42197	17.42197	Lognormal
Copper	119/123	0.72000	607.00000	45.90072	53.56199	53.56199	Lognormal
Iron	123/123	367.00000	90,300.00000	28,086.75450	31,661.41170	31,661.41170	Lognormal
Lead	122/123	0.35000	728.00000	46.82072	63.94175	63.94175	Lognormal
Magnesium	123/123	81.60000	22,400.00000	9,061.23252	9,669.28350	9,669.28350	Normal
Manganese	123/123	4.30000	1470.00000	496.24876	572.58925	572.58925	Lognormal
Mercury	69/122	0.03000	18.50000	0.26568	0.35120	0.35120	Lognormal
Molybdenum	42/123	0.25000	12.90000	0.92983	1.30884	1.30884	Lognormal
Nickel	121/123	6.30000	123.00000	50.90672	58.64908	58.64908	Lognormal
Potassium	123/123	59.30000	6,520.00000	2,515.57576	2,860.11813	2,860.11813	Lognormal
Selenium	5/123	0.67000	4.80000	0.66193	0.72991	0.72991	Lognormal
Silver	10/123	0.16000	4.40000	0.17800	0.20952	0.20952	Lognormal
Sodium	120/123	36.90000	275,000.00000	8,752.36424	13,437.45420	13,437.45420	Lognormal
Thallium	11/123	0.69000	2.40000	0.43942	0.51067	0.51067	Lognormal
Vanadium	123/123	0.28000	163.00000	65.50551	73.41458	73.41458	Lognormal
Zinc	112/123	27.70000	3010.00000	172.96386	217.13848	217.13848	Lognormal

TABLE 6-6

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Volatile Organic Compound							
2-Butanone	3/53	0.02000	0.72000	0.03050	0.05453	0.05453	Not tested
Acetone	1/53	0.30000	0.30000	0.07308	0.10571	0.10571	Not tested
Carbon Disulfide	7/53	0.02300	0.29000	0.01544	0.02039	0.02039	Lognormal
Ethylbenzene	1/54	0.16000	0.16000	0.01308	0.01801	0.01801	Not tested
Xylene (Total)	3/54	0.02600	0.22000	0.01469	0.02151	0.02151	Not tested
Semivolatile Organic Compound							
1-Methylphenanthrene	2/47	0.03000	0.35000	0.72524	1.16572	0.35000	Not tested
2,6-Dimethylnaphthalene	1/47	0.03700	0.03700	0.72267	1.16333	0.03700	Not tested
Acenaphthene	4/105	0.02700	0.28000	0.50546	0.66952	0.28000	Lognormal
Acenaphthylene	1/105	0.27000	0.27000	0.60006	0.84891	0.27000	Not tested
Anthracene	10/105	0.01400	2.10000	0.51670	0.68881	0.68881	Lognormal
Benzo(a)anthracene	12/105	0.01200	3.80000	0.51023	0.68156	0.68156	Lognormal
Benzo(a)pyrene	14/105	0.01900	2.70000	0.51176	0.68519	0.68519	Lognormal
Benzo(b)fluoranthene	16/105	0.02500	3.10000	0.53619	0.71021	0.71021	Lognormal
Benzo(e)pyrene	24/47	0.01900	2.40000	0.62986	1.24467	1.24467	Lognormal
Benzo(g,h,i)perylene	11/105	0.02100	1.10000	0.49271	0.65123	0.65123	Lognormal
Benzo(k)fluoranthene	13/105	0.02000	3.40000	0.51992	0.69357	0.69357	Lognormal
Benzoic Acid	8/47	0.04000	2.30000	1.97840	4.40156	2.30000	Lognormal
Butylbenzylphthalate	1/105	0.07800	0.07800	0.59719	0.84617	0.07800	Not tested
Carbazole	13/105	0.01800	0.88000	0.48735	0.64307	0.64307	Lognormal
Chrysene	19/105	0.02300	6.40000	0.54137	0.71714	0.71714	Lognormal
Dibenz(a,h)anthracene	4/105	0.03200	0.60000	0.49287	0.64703	0.60000	Lognormal
Dibenzofuran	2/105	0.08400	0.17000	0.59829	0.84722	0.17000	Not tested
Dibenzothiophene	3/47	0.02500	0.17000	0.71818	1.15918	0.17000	Not tested

TABLE 6-6

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Fluoranthene	32/105	0.01400	14.00000	0.55209	0.73185	0.73185	Lognormal
Fluorene	4/105	0.02000	0.35000	0.50900	0.67678	0.35000	Lognormal
Indeno(1,2,3-cd)pyrene	9/105	0.01700	1.20000	0.51079	0.67976	0.67976	Lognormal
Naphthalene	1/105	0.11000	0.11000	0.59782	0.84678	0.11000	Not tested
Pentachlorophenol	4/100	0.12000	0.78000	1.29757	1.73252	0.78000	Lognormal
Perylene	4/47	0.02600	0.84000	0.67091	1.32546	0.84000	Lognormal
Phenanthrene	20/105	0.02200	4.00000	0.51322	0.68030	0.68030	Lognormal
Phenol	16/105	0.20000	4.60000	0.65657	0.89789	0.89789	Lognormal
Pyrene	31/105	0.01900	13.00000	0.52456	0.69220	0.69220	Lognormal
Pesticide							
2,4'-DDD	22/47	0.00030	0.00800	0.00109	0.00050	0.00050	Nonparametric
2,4'-DDE	6/47	0.00036	0.00300	0.00047	0.00016	0.00016	Nonparametric
2,4'-DDT	17/47	0.00010	0.03400	0.00164	0.00028	0.00028	Nonparametric
4,4'-DDD	36/100	0.00020	0.28000	0.00703	0.01156	0.01156	Lognormal
4,4'-DDE	38/100	0.00024	0.03200	0.00454	0.00667	0.00667	Lognormal
4,4'-DDT	33/100	0.00030	0.23000	0.00675	0.01101	0.01101	Lognormal
Aldrin	5/100	0.00020	0.00048	0.00160	0.00235	0.00048	Lognormal
alpha-Chlordane	35/100	0.00018	0.07800	0.00293	0.00423	0.00423	Lognormal
Dieldrin	14/100	0.00024	0.00600	0.00382	0.00616	0.00600	Lognormal
Endrin Ketone	1/53	0.00370	0.00370	0.00414	0.00503	0.00370	Not tested
gamma-BHC (Lindane)	5/100	0.00042	0.00200	0.00167	0.00248	0.00200	Lognormal
Heptachlor	3/100	0.00029	0.00074	0.00128	0.00157	0.00074	Not tested
Heptachlor Epoxide	4/100	0.00021	0.00600	0.00168	0.00252	0.00252	Lognormal
Hexachlorobenzene	4/47	0.00020	0.00037	0.00040	0.00018	0.00018	Nonparametric
Mirex	10/47	0.00014	0.00500	0.00052	0.00020	0.00020	Nonparametric
Trans-Nonachlor	33/47	0.00021	0.06500	0.00441	0.00077	0.00077	Nonparametric

TABLE 6-6

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Polychlorinated Biphenyl							
PCB-101 (2,2',3,5,5')	24/47	0.00007	0.00700	0.00084	0.00040	0.00040	Nonparametric
PCB-105 (2,3,3',4,4')	18/47	0.00010	0.00300	0.00059	0.00035	0.00035	Nonparametric
PCB-118 (2,3',4,4',5)	19/47	0.00010	0.00500	0.00078	0.00033	0.00033	Nonparametric
PCB-126 (3,3',4,4',5)	5/47	0.00010	0.00056	0.00040	0.00016	0.00016	Nonparametric
PCB-128 (2,2',3,3',4,4')	5/47	0.00022	0.00300	0.00044	0.00018	0.00018	Nonparametric
PCB-138 (2,2',3,4,4',5')	26/47	0.00016	0.01200	0.00147	0.00056	0.00056	Nonparametric
PCB-153 (2,2',4,4',5,5')	18/47	0.00013	0.00960	0.00116	0.00036	0.00036	Nonparametric
PCB-170 (2,2',3,3',4,4',5)	10/47	0.00014	0.00660	0.00058	0.00023	0.00023	Nonparametric
PCB-18 (2,2',5)	7/47	0.00013	0.00081	0.00041	0.00018	0.00018	Nonparametric
PCB-180 (2,2',3,4,4',5,5')	20/47	0.00013	0.01500	0.00122	0.00031	0.00031	Nonparametric
PCB-187 (2,2',3,4',5,5',6)	17/47	0.00009	0.00670	0.00069	0.00023	0.00023	Nonparametric
PCB-195 (2,2',3,3',4,4',5,6)	4/47	0.00016	0.00130	0.00043	0.00016	0.00016	Nonparametric
PCB-206 (2,2',3,3',4,4',5,5',6	11/47	0.00018	0.00086	0.00045	0.00025	0.00025	Nonparametric
PCB-209 (2,2',3,3',4,4',5,5',6	3/47	0.00018	0.00025	0.00039	0.00058	0.00025	Not tested
PCB-28 (2,4,4')	4/47	0.00019	0.00210	0.00043	0.00016	0.00016	Nonparametric
PCB-44 (2,2',3,5')	8/47	0.00024	0.00170	0.00047	0.00025	0.00025	Nonparametric
PCB-52 (2,2',5,5')	16/47	0.00008	0.00200	0.00051	0.00024	0.00024	Nonparametric
PCB-66 (2,3',4,4')	5/47	0.00016	0.00100	0.00042	0.00018	0.00018	Nonparametric
PCB-77 (3,3',4,4')	2/47	0.00033	0.00087	0.00040	0.00059	0.00059	Not tested
PCB-8 (2,4')	6/47	0.00016	0.00590	0.00055	0.00016	0.00016	Nonparametric
Dioxin/Furan							
1,2,3,4,6,7,8,9-OCDD	9/11	0.00036	0.14000	0.03144	0.64199	0.14000	Lognormal
1,2,3,4,6,7,8,9-OCDF	3/11	0.00050	0.01300	0.00194	0.00408	0.00408	Not tested
1,2,3,4,6,7,8-HPCDD	4/11	0.00047	0.01600	0.00342	0.03505	0.01600	Lognormal
1,2,3,4,6,7,8-HPCDF	4/11	0.00013	0.00300	0.00060	0.00028	0.00028	Nonparametric

TABLE 6-6

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Total HPCDD	7/11	0.00080	0.04100	0.01947	0.55415	0.04100	Lognormal
Total HPCDF	5/11	0.00029	0.01300	0.00193	0.02076	0.01300	Lognormal
Total HXCDF	2/11	0.00100	0.00400	0.00054	0.00119	0.00119	Not tested
Total TCDD	9/11	0.00200	0.01300	0.00446	0.00645	0.00645	Normal
Total Petroleum Hydrocarbon							
Gasoline Range Organics	2/7	0.47000	26.00000	4.00000	11.12448	11.12448	Not tested
Diesel Range Organics	1/7	2,300.00000	2,300.00000	337.64286	973.16030	973.16030	Not tested
Motor Oil Range Organics	2/7	640.00000	8,900.00000	1,367.28571	3,812.78952	3,812.78952	Not tested

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

BHC Benzenehexachloride
COPC Chemical of Potential Concern
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
HPCDD Heptachlorodibenzo-p-dioxin
HPCDF Heptachlorodibenzo-p-furan
HXCDD Hexachlorodibenzo-p-dioxin
mg/kg Milligrams per kilogram
OCDD Octachlorodibenzo-p-dioxin
OCDF Octachlorodibenzo-p-furan
PCB Polychlorinated biphenyl
RME Reasonable maximum exposure
TCDD Tetrachlorodibenzo-p-dioxin
UCL_{95} 95 percent upper confidence limit of the arithmetic mean

TABLE 6-7

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Metal							
Aluminum	11/11	13,400.00000	35200.0000	22,163.63640	26,179.67240	26,179.67240	Normal
Antimony	8/11	1.10000	9.30000	2.20980	3.61505	3.61505	Lognormal
Arsenic	11/11	12.10000	25.90000	16.10000	19.62560	19.62560	Nonparametric
Barium	11/11	53.90000	157.00000	82.89012	100.37549	100.37549	Lognormal
Beryllium	9/11	0.11000	0.94000	0.38364	0.55125	0.55125	Normal
Cadmium	4/11	0.80000	1.90000	0.67303	4.53537	1.90000	Lognormal
Calcium	11/11	2,710.00000	5,740.00000	3,701.81818	4,201.38687	4,201.38687	Normal
Chromium	11/11	48.30000	95.50000	70.71818	90.66560	90.66560	Nonparametric
Cobalt	11/11	13.10000	25.10000	18.26364	20.75200	20.75200	Normal
Copper	11/11	42.70000	101.00000	65.31818	74.52546	74.52546	Normal
Iron	11/11	25,500.00000	58,700.00000	39,809.09090	45,637.29450	45,637.29450	Normal
Lead	11/11	20.10000	89.50000	42.00000	52.44816	52.44816	Normal
Magnesium	11/11	7,970.00000	17,400.00000	11,053.63640	12,775.99370	12,775.99370	Normal
Manganese	11/11	205.00000	607.00000	398.18182	461.11272	461.11272	Normal
Mercury	5/11	0.35000	1.60000	0.36930	0.91459	0.91459	Lognormal
Molybdenum	8/11	0.45000	3.50000	1.28497	2.99503	2.99503	Lognormal
Nickel	11/11	55.50000	112.00000	76.68182	87.13480	87.13480	Normal
Potassium	11/11	1,880.00000	5,000.00000	3,325.45455	3,977.41920	3,977.41920	Normal
Selenium	4/11	1.20000	1.50000	1.25818	1.62240	1.50000	Normal
Silver	4/11	0.26000	0.60000	0.38768	0.69504	0.60000	Lognormal
Sodium	11/11	614.00000	8,660.00000	3,529.18182	4,961.59105	4,961.59105	Normal
Thallium	4/11	1.50000	2.80000	1.10636	1.56077	1.56077	Normal
Vanadium	11/11	54.90000	119.00000	81.41518	97.36145	97.36145	Lognormal
Zinc	11/11	97.00000	285.00000	173.00000	202.54676	202.54676	Normal

TABLE 6-7

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Semivolatile Organic Compound							
2,6-Dimethylnaphthalene	1/5	0.01300	0.01300	0.16160	0.24475	0.01300	Not tested
4-Methylphenol	2/11	0.09200	0.20000	0.45836	0.71614	0.20000	Not tested
Anthracene	1/11	0.02400	0.02400	0.54264	0.78879	0.02400	Not tested
Benzo(a)anthracene	1/11	0.11000	0.11000	0.55045	0.79155	0.11000	Not tested
Benzo(a)pyrene	2/11	0.03900	0.14000	0.53945	0.78695	0.14000	Not tested
Benzo(b)fluoranthene	1/11	0.13000	0.13000	0.55227	0.79230	0.13000	Not tested
Benzo(e)pyrene	1/5	0.09900	0.09900	0.17880	0.22829	0.09900	Not tested
Benzo(g,h,i)perylene	1/11	0.11000	0.11000	0.55045	0.79155	0.11000	Not tested
Benzo(k)fluoranthene	1/11	0.13000	0.13000	0.55227	0.79230	0.13000	Not tested
Chrysene	1/11	0.14000	0.14000	0.55318	0.79269	0.14000	Not tested
Fluoranthene	3/11	0.05300	0.22000	0.48636	0.73816	0.22000	Not tested
Indeno(1,2,3-cd)pyrene	1/11	0.07600	0.07600	0.54736	0.79037	0.07600	Not tested
Perylene	2/5	0.05900	0.16000	0.16480	0.22878	0.16000	Not tested
Phenanthrene	1/11	0.05900	0.05900	0.54582	0.78983	0.05900	Not tested
Pyrene	3/11	0.06800	0.41000	0.44482	0.61794	0.41000	Not tested
Pesticide							
2,4'-DDD	2/11	0.00056	0.00067	0.00030	0.00040	0.00040	Not tested
2,4'-DDT	1/11	0.00032	0.00032	0.00024	0.00029	0.00029	Not tested
4,4'-DDD	10/11	0.00060	0.00200	0.00099	0.00125	0.00125	Normal
4,4'-DDE	10/11	0.00100	0.00200	0.00129	0.00158	0.00158	Normal
4,4'-DDT	1/11	0.00036	0.00036	0.00031	0.00037	0.00036	Not tested
alpha-BHC	1/6	0.00050	0.00050	0.00033	0.00044	0.00044	Not tested
alpha-Chlordane	6/11	0.00050	0.00110	0.00051	0.00070	0.00070	Normal
gamma-BHC (Lindane)	1/11	0.00060	0.00060	0.00025	0.00034	0.00034	Not tested
gamma-Chlordane	1/6	0.00070	0.00070	0.00034	0.00051	0.00051	Not tested

TABLE 6-7

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean (mg/kg)	UCL_{95} (mg/kg)	RME Concentration[a] (mg/kg)	Distribution
Heptachlor	1/11	0.00180	0.00180	0.00036	0.00063	0.00063	Not tested
Hexachlorobenzene	1/11	0.00040	0.00040	0.00035	0.00048	0.00040	Not tested
Methoxychlor	1/6	0.00500	0.00500	0.00142	0.00287	0.00287	Not tested
Trans-nonachlor	4/11	0.00040	0.00093	0.00037	0.00051	0.00051	Normal
Polychlorinated Biphenyl							
PCB-101 (2,2',3,5,5')	1/11	0.00009	0.00009	0.00022	0.00027	0.00009	Not tested
PCB-105 (2,3,3',4,4')	1/11	0.00019	0.00019	0.00023	0.00028	0.00019	Not tested
PCB-138 (2,2',3,4,4',5')	3/11	0.00020	0.00100	0.00036	0.00050	0.00050	Not tested
PCB-153 (2,2',4,4',5,5')	4/11	0.00017	0.00080	0.00032	0.00045	0.00045	Lognormal
PCB-170 (2,2',3,3',4,4',5)	1/11	0.00100	0.00100	0.00027	0.00041	0.00041	Not tested
PCB-180 (2,2',3,4,4',5,5')	1/11	0.00070	0.00070	0.00027	0.00036	0.00036	Not tested
PCB-44 (2,2',3,5')	2/11	0.00047	0.00057	0.00028	0.00036	0.00036	Not tested
PCB-52 (2,2',5,5')	2/11	0.00075	0.00089	0.00033	0.00047	0.00047	Not tested
PCB-66 (2,3',4,4')	1/11	0.00022	0.00022	0.00023	0.00028	0.00022	Not tested
PCB-8 (2,4')	2/11	0.00057	0.00074	0.00127	0.00184	0.00074	Not tested
Dioxins/Furans							
1,2,3,4,6,7,8,9-OCDD	1/4	0.00080	0.00080	0.00108	0.00184	0.00080	Not tested
Total HPCDD	2/4	0.03800	0.04100	0.02038	0.04640	0.04100	Not tested
Total HXCDD	1/4	0.00100	0.00100	0.00070	0.00111	0.00100	Not tested
Total TCDD	4/4	0.00800	0.02400	0.01300	0.03743	0.02400	Lognormal

TABLE 6-7

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SOIL AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

BHC	Benzenehexachloride
COPC	Chemical of Potential Concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
HPCDD	Heptachlorodibenzo-p-dioxin
HXCDD	Hexachlorodibenzo-p-dioxin
mg/kg	Milligrams per kilogram
OCDD	Octachlorodibenzo-p-dioxin
TCDD	Tetrachlorodibenzo-p-dioxin
PCB	Polychlorinated biphenyl
RME	Reasonable maximum exposure
UCL_{95}	95 percent upper confidence limit of the arithmetic mean

TABLE 6-8

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SURFACE WATER AT THE R AREA SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/L)	Maximum Detected Concentration (mg/L)	Arithmetic Mean (mg/L)	UCL_{95} (mg/L)	RME Concentration[a] (mg/L)	Distribution
Metal							
Aluminum	28/36	0.04760	37.70000	1.19394	2.82157	2.82157	Lognormal
Antimony	1/36	0.00350	0.00350	0.00115	0.00129	0.00129	Not Tested
Arsenic	25/36	0.0015	0.02390	0.00609	0.00521	0.00521	Non Parametric
Barium	36/36	0.01860	0.31600	0.09751	0.08097	0.08097	Non Parametric
Cadmium	8/36	0.00042	0.00830	0.00066	0.00020	0.00020	Non Parametric
Calcium	36/36	18.50000	555.00000	186.96111	234.11000	234.11000	Non Parametric
Chromium	13/36	0.00140	0.10200	0.00472	0.00157	0.00157	Non Parametric
Cobalt	27/36	0.00051	0.12900	0.02375	0.07179	0.07179	Lognormal
Copper	22/36	0.00340	0.08200	0.00936	0.01345	0.01345	Lognormal
Iron	36/36	0.29200	239.00000	19.75442	52.78670	52.78670	Lognormal
Lead	8/36	0.00150	0.05730	0.00438	0.00095	0.00095	Non Parametric
Magnesium	36/36	24.00000	1,540.00000	357.61008	557.86982	557.86982	Lognormal
Manganese	36/36	0.06280	11.30000	2.41444	2.47240	2.47240	Non Parametric
Mercury	4/35	0.00026	0.00066	0.00010	0.00005	0.00005	Non Parametric
Molybdenum	16/36	0.00140	0.01980	0.00349	0.00264	0.00264	Non Parametric
Nickel	23/36	0.00490	0.21100	0.03567	0.06987	0.06987	Lognormal
Potassium	36/36	6.71000	309.00000	71.41103	99.30856	99.30856	Lognormal
Selenium	4/36	0.00240	0.00410	0.00176	0.00175	0.00175	Non Parametric
Sodium	36/36	147.00000	9,360.00000	2,214.50444	3,317.57687	3,317.57687	Lognormal
Thallium	2/36	0.00440	0.00810	0.00170	0.00209	0.00209	Not Tested
Vanadium	19/36	0.00230	0.13900	0.00866	0.01771	0.01771	Lognormal
Zinc	22/36	0.00900	0.34600	0.05483	0.09023	0.09023	Lognormal

TABLE 6-8

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SURFACE WATER AT THE R AREA SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/L)	Maximum Detected Concentration (mg/L)	Arithmetic Mean (mg/L)	UCL_{95} (mg/L)	RME Concentration[a] (mg/L)	Distribution
Pesticide							
4,4'-DDT	1/35	0.00003	0.00003	0.00006	0.00006	0.00003	Not Tested
Aldrin	2/35	0.00001	0.00003	0.00003	0.00003	0.00003	Not Tested
alpha-BHC	3/35	0.00003	0.00007	0.00003	0.00003	0.00003	Not Tested
beta-BHC	1/35	0.00003	0.00003	0.00003	0.00003	0.00003	Not Tested
Dieldrin	1/35	0.00003	0.00003	0.00006	0.00006	0.00003	Not Tested
Endrin	1/35	0.00003	0.00003	0.00006	0.00006	0.00003	Not Tested
gamma-BHC (Lindane)	1/35	0.00001	0.00001	0.00003	0.00003	0.00001	Not Tested
Heptachlor	1/35	0.00001	0.00001	0.00003	0.00003	0.00001	Not Tested
Heptachlor Epoxide	2/35	0.00001	0.00004	0.00001	0.00001	0.00001	Not Tested

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

COPC Chemical of Potential Concern
BHC Benzenehexachloride
DDT Dichlorodiphenyltrichloroethane
mg/L Milligram per liter
RME Reasonable maximum exposure
SBD Seal Beach Detachment
UCL_{95} 95 percent upper confidence limit of the arithmetic mean

TABLE 6-9

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SURFACE WATER AT THE FROID AND TAYLOR SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/L)	Maximum Detected Concentration (mg/L)	Arithmetic Mean (mg/L)	UCL_{95} (mg/L)	RME Concentration[a] (mg/L)	Distribution
Metal							
Aluminum	6/9	0.11600	1.61000	0.47980	3.49607	1.61000	Lognormal
Antimony	2/9	0.00100	0.00990	0.00198	0.00384	0.00384	Not Tested
Arsenic	9/9	0.00220	0.27500	0.03713	0.28903	0.27500	Lognormal
Barium	9/9	0.10600	0.80900	0.25710	0.42601	0.42601	Lognormal
Cadmium	1/9	0.00110	0.00110	0.00020	0.00041	0.00041	Not Tested
Calcium	9/9	68.80000	1,950.00000	376.44444	255.07000	255.07000	Non Parametric
Chromium	2/9	0.00170	0.00690	0.00170	0.00294	0.00294	Not Tested
Cobalt	7/9	0.00120	0.00510	0.00234	0.00335	0.00335	Normal
Copper	8/9	0.00290	0.01340	0.00736	0.01014	0.01014	Normal
Iron	9/9	0.18600	8.48000	3.18214	14.07326	8.48000	Lognormal
Lead	1/9	0.00400	0.00400	0.00113	0.00201	0.00201	Not Tested
Magnesium	9/9	55.70000	5,280.00000	709.14378	4,206.11770	4,206.11770	Lognormal
Manganese	9/9	0.20700	4.48000	1.09982	3.02882	3.02882	Lognormal
Mercury	2/9	0.00013	0.00017	0.00008	0.00011	0.00011	Not Tested
Molybdenum	6/9	0.00092	0.00460	0.00180	0.00269	0.00269	Lognormal
Nickel	6/9	0.00380	0.04470	0.01259	0.02368	0.02368	Lognormal
Potassium	9/9	14.80000	552.00000	102.97397	311.59265	311.59265	Lognormal
Selenium	4/9	0.00100	0.00240	0.00169	0.00200	0.00200	Normal
Silver	2/9	0.00027	0.00030	0.00033	0.00041	0.00030	Not Tested
Sodium	9/9	485.00000	28300.0000	4,246.76330	18,553.61680	18,553.61680	Lognormal
Thallium	1/9	0.00840	0.00840	0.00193	0.00347	0.00347	Not Tested
Vanadium	7/9	0.00410	0.02980	0.01077	0.04938	0.02980	Lognormal
Zinc	2/9	0.02190	0.09520	0.02188	0.03987	0.03987	Not Tested

TABLE 6-9

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SURFACE WATER AT THE FROID AND TAYLOR SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/L)	Maximum Detected Concentration (mg/L)	Arithmetic Mean (mg/L)	UCL_{95} (mg/L)	RME Concentration[a] (mg/L)	Distribution
Volatile Organic Compound							
Carbon Disulfide	1/6	0.02000	0.02000	0.00750	0.01254	0.01254	Not Tested
Semivolatile Organic Compound							
4-Methylphenol	1/9	0.00300	0.00300	0.00706	0.01125	0.00300	Not Tested
Chrysene	1/9	0.00060	0.00060	0.00673	0.01108	0.00060	Not Tested
Phenol	1/9	0.00090	0.00090	0.00682	0.01114	0.00090	Not Tested
Total Petroleum Hydrocarbon							
Diesel Range Organics	5/6	0.08400	2.00000	0.47468	9.53041	2.00000	Lognormal
Motor Oil Range Organics	6/6	0.11000	2.30000	0.86020	7.97881	2.30000	Lognormal

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

BGS Below ground surface
mg/L Milligram per liter
RME Reasonable maximum exposure
SBD Seal Beach Detachment
UCL_{95} 95 percent upper confidence limit of the arithmetic mean

TABLE 6-10

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SURFACE WATER AT THE WOOD HOGGER SITE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/L)	Maximum Detected Concentration (mg/L)	Arithmetic Mean (mg/L)	UCL_{95} (mg/L)	RME Concentration[a] (mg/L)	Distribution
Metal							
Aluminum	9/12	0.16600	2.10000	0.66368	2.34275	2.10000	Lognormal
Antimony	2/12	0.00260	0.00360	0.00143	0.00187	0.00187	Not Tested
Arsenic	4/12	0.00240	0.01180	0.00290	0.00260	0.00260	Non Parametric
Barium	12/12	0.03650	0.17300	0.09090	0.11128	0.11128	Normal
Cadmium	3/12	0.00051	0.00250	0.00044	0.00080	0.00080	Not Tested
Calcium	12/12	36.30000	108.00000	58.75830	71.01680	71.01680	Lognormal
Chromium	6/12	0.00110	0.00610	0.00205	0.00503	0.00503	Lognormal
Cobalt	8/12	0.00052	0.00140	0.00075	0.00091	0.00091	Normal
Copper	10/12	0.00300	0.01370	0.00735	0.00931	0.00931	Normal
Iron	12/12	0.53700	3.30000	1.58617	2.61393	2.61393	Lognormal
Lead	2/12	0.00280	0.00370	0.00122	0.00174	0.00174	Not Tested
Magnesium	12/12	50.10000	268.00000	121.89167	153.27575	153.27575	Normal
Manganese	12/12	0.10700	1.95000	0.35833	0.31167	0.31167	Non Parametric
Mercury	1/12	0.00020	0.00020	0.00007	0.00009	0.00009	Not Tested
Molybdenum	4/12	0.00130	0.00730	0.00172	0.00303	0.00303	Lognormal
Nickel	9/12	0.00260	0.00760	0.00435	0.00550	0.00550	Normal
Potassium	12/12	15.10000	73.30000	37.65000	46.40654	46.40654	Normal
Sodium	12/12	415.00000	2,200.00000	984.66667	1243.31763	1,243.31763	Normal
Thallium	1/12	0.00240	0.00240	0.00130	0.00156	0.00156	Not Tested
Vanadium	5/12	0.00510	0.01130	0.00445	0.00758	0.00758	Non Parametric
Zinc	9/12	0.02430	0.32900	0.12364	0.45795	0.32900	Lognormal
Volatile Organic Compound							
Xylene (Total)	1/12	0.00800	0.00800	0.00525	0.00570	0.00570	Not Tested

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

BGS Below ground surface
mg/L Milligram per liter
RME Reasonable maximum exposure
SBD Seal Beach Detachment
UCL_{95} 95 percent upper confidence limit of the arithmetic mean

TABLE 6-11

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SURFACE WATER AT OTTER SLUICE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/L)	Maximum Detected Concentration (mg/L)	Arithmetic Mean (mg/L)	UCL_{95} (mg/L)	RME Concentration[a] (mg/L)	Distribution
Metal							
Aluminum	33/33	0.16700	1.45000	0.76161	0.86395	0.86395	Normal
Arsenic	15/33	0.00190	0.00500	0.00226	0.00240	0.00240	Non Parametric
Barium	33/33	0.01770	1.16000	0.07223	0.04793	0.04793	Non Parametric
Cadmium	3/33	0.00044	0.00052	0.00015	0.00019	0.00019	Not Tested
Calcium	33/33	11.20000	58.20000	31.56970	40.61320	40.61320	Non Parametric
Chromium	19/33	0.00063	0.00450	0.00200	0.00210	0.00210	Non Parametric
Cobalt	15/33	0.00030	0.00130	0.00058	0.00066	0.00066	Normal
Copper	25/33	0.00290	0.00950	0.00476	0.00565	0.00565	Lognormal
Iron	33/33	0.39600	2.56000	1.38879	1.54289	1.54289	Normal
Lead	4/33	0.00130	0.00310	0.00088	0.00111	0.00111	Lognormal
Magnesium	33/33	8.94000	150.00000	66.94121	93.21480	93.21480	Non Parametric
Manganese	33/33	0.02880	0.25600	0.10846	0.13644	0.13644	Lognormal
Mercury	1/33	0.00024	0.00024	0.00006	0.00007	0.00007	Not Tested
Molybdenum	12/33	0.00042	0.00220	0.00087	0.00085	0.00085	Non Parametric
Nickel	23/33	0.00250	0.00690	0.00367	0.00449	0.00449	Non Parametric
Potassium	33/33	3.15000	43.70000	21.37970	30.16280	30.16280	Non Parametric
Selenium	3/33	0.00077	0.00100	0.00159	0.00187	0.00100	Not Tested
Sodium	33/33	44.00000	1,170.00000	512.02727	698.38800	698.38800	Non Parametric
Thallium	2/33	0.00240	0.00240	0.00134	0.00159	0.00159	Not Tested
Vanadium	27/33	0.00440	0.00980	0.00525	0.00599	0.00599	Non Parametric
Zinc	9/33	0.00710	0.43000	0.02694	0.01644	0.01644	Non Parametric
Volatile Organic Compound							
Chloromethane	1/24	0.01100	0.01100	0.00525	0.00568	0.00568	Not Tested

TABLE 6-11

STATISTICAL SUMMARY OF ALL CHEMICALS DETECTED IN SURFACE WATER AT OTTER SLUICE
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

COPC	Frequency of Detection	Minimum Detected Concentration (mg/L)	Maximum Detected Concentration (mg/L)	Arithmetic Mean (mg/L)	UCL_{95} (mg/L)	RME Concentration[a] (mg/L)	Distribution
Semivolatile Organic Compound							
Bis(2-ethylhexyl)phthalate	1/33	0.02900	0.02900	0.00330	0.00478	0.00478	Not Tested
Pesticide							
alpha-Chlordane	1/33	0.00004	0.00004	0.00003	0.00003	0.00003	Not Tested
Heptachlor	1/33	0.00011	0.00011	0.00002	0.00003	0.00003	Not Tested

Notes:

a Section 6.1.3.4 describes the method used to calculate the RME calculation.

COPC Chemical of Potential Concern
mg/L Milligram per liter
RME Reasonable maximum exposure
SBD Seal Beach Detachment
UCL_{95} 95 percent upper confidence limit of the arithmetic mean

TABLE 6-12

EXPOSURE PARAMETER VALUES USED TO DEVELOP PRELIMINARY REMEDIATION GOALS[a] REVISED DRAFT FINAL REMEDIAL INVESTIGATION TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Parameter	Units	Resident		Commercial/Industrial Worker
		Child	Adult	
General Parameters				
Body Weight	kg	15	70	70
Averaging Time (carcinogens)	days	25,550	25,550	25,550
Averaging Time (noncarcinogens)	days	2,190	8,760	9,125
Exposure Duration	years	6	24	25
Conversion Factor	kg/mg	1×10^{-6}	1×10^{-6}	1×10^{-6}
Soil Ingestion Pathway				
Soil Ingestion Rate	mg/day	200	100	100
Exposure Frequency	day/year	350	350	250
Dermal Contact Pathway				
Exposure Frequency	day/year	350	350	250
Skin Surface Area	cm^2/day	2,800	5,700	3,300
Soil to Skin Adherence Factor	mg/cm^2	0.2	0.07	0.2
Inhalation of Soil Particulates				
Inhalation Rate	m^3/day	10	20	20

Notes:

a Values from U.S. Environmental Protection Agency (EPA) Region 9 memorandum on preliminary remediation goals (EPA 2002)

cm^2/day Square centimeter per day
kg/mg Kilogram per milligram
kg Kilogram
m^3/day Cubic meter per day
mg/day Milligram per day
mg/cm^2 Milligram per square centimeter

Reference: EPA. 2002. "EPA Region 9 Preliminary Remediation Goals (PRG) 2002." http://www.epa.gov/region09/waste/sfund/prg/. October.

TABLE 6-13

Kps AND TOXICITY VALUES USED TO EVALUATE DERMAL EXPOSURE TO SURFACE WATER
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Kp (cm/hr)	Kp Reference	SFo $(mg/kg\text{-}day)^{-1}$	SFo Reference	RfDo (mg/kg-day)	RfDo Reference	Comments
Metal							
Aluminum	1.00E-03	a	--	b	1.00E+00	d	
Antimony	1.00E-03	a	--	b	4.00E-04	b	
Arsenic	1.00E-03	a	1.50E+00	c	3.00E-04	b	
Barium	1.00E-03	a	--	b	7.00E-02	b	
Cadmium	1.00E-03	a	3.80E-01	c	5.00E-04	b	
Calcium	1.00E-03	a	--	--	--	--	
Chromium	1.00E-03	a	--	b	1.50E+00	b	
Cobalt	4.00E-04	a	--	b	2.00E-02	d	
Copper	1.00E-03	a	--	b	4.00E-02	e	
Iron	1.00E-03	a	--	b	3.00E-01	d	
Lead	1.00E-04	a	--	--	8.50E-03	c	
Magnesium	1.00E-03	a	--	--	--	--	
Manganese	1.00E-03	a	--	b	2.40E-02	b	
Mercury	1.00E-03	a	--	b	3.00E-04	b	
Molybdenum	1.00E-03	a	--	b	5.00E-03	b	
Nickel	2.00E-04	a	--	b	2.00E-02	b	
Potassium	2.00E-03	a	--	--	--	--	
Selenium	1.00E-03	a	--	b	5.00E-03	b	
Silver	6.00E-04	a	--	b	5.00E-03	b	
Sodium	1.00E-03	a	--	--	--	--	
Thallium	1.00E-03	a	--	b	6.60E-05	b	
Vanadium	1.00E-03	a	--	b	7.00E-03	e	
Zinc	6.00E-04	a	--	b	3.00E-01	b	
Volatile Organic Compound							
Carbon Disulfide	1.70E-02	a	--	b	1.00E-01	b	
Xylene (Total)	5.30E-02	m-xylene	--	b	7.00E-01	b	

TABLE 6-13 (Continued)

Kps AND TOXICITY VALUES USED TO EVALUATE DERMAL EXPOSURE TO SURFACE WATER
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Chemical	Kp (cm/hr)	Kp Reference	SFo $(mg/kg\text{-}day)^{-1}$	SFo Reference	RfDo (mg/kg-day)	RfDo Reference	Comments
Semivolatile Organic Compound							
4-Methylphenol	7.70E-03	a	--	b	5.00E-03	e	
Chrysene	4.70E-01	a	1.20E-01	c	3.00E-01	b	Anthracene is the surrogate for noncancer effects
Chloromethane	3.30E-03	a	1.30E-02	e	8.60E-02	f,d	
Bis(2-ethylhexyl)phthalate	2.50E-02	a	3.00E-03	c	2.00E-02	b	
Phenol	4.30E-03	a	--	b	6.00E-01	b	
Pesticide							
4,4'-DDT	2.70E-01	a	3.40E-01	c	5.00E-04	b	
Aldrin	1.40E-03	a	1.7E+01	c	3.00E-05	b	
Alpha-BHC	1.10E-02	Lindane	2.70E+00	c	5.00E-04	d	
Beta-BHC	1.10E-02	Lindane	1.50E+00	c	2.00E-04	d	
Alpha-Chlordane	3.40E-02	a	1.30E+00	c	5.00E-04	b	
Dieldrin	1.20E-02	a	1.60E+01	c	5.00E-05	b	
Endrin	1.20E-02	a	--	b	3.00E-04	b	
Gamma-BHC (Lindane)	1.10E-02	a	1.10E+00	c	3.00E-04	b	
Heptachlor	8.60E-03	a	4.10E+00	c	5.00E-04	b	
Heptachlor Epoxide	8.60E-03	Heptachlor	5.50E+00	c	1.30E-05	b	

References:

a EPA. 2001.EPA. 2001. Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Assessment), Interim. Review draft for public comment. Office of Emergency and Remedial Response, Washington, D.C. EPA/540/R/99/005. September.

b EPA. 2003. Integrated Risk Information System. Online Database. Office of Research and Development, National Center for Environmental Assessment. http://www.epa.gov/iris/

c Cal/EPA. 20023a. "Toxicity Criteria Database." Office of Environmental Health Hazard Assessment. http://www.oehha.ca.gov/risk/chemicalDB/index.asp

d EPA. 2002. "EPA Region 9 Preliminary Remediation Goals (PRG) 2002." http://www.epa.gov/region09/waste/sfund/prg/. October.

e U.S. EPA (1997). Health Effects Assessment Summary Tables (HEAST) FY 1997 Update. Office of Research and Development; Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, DC. EPA 540/R-97-036-PB97-921199.

f Route-to-route extrapolation

TABLE 6-14

EXPOSURE PARAMETER VALUES USED TO EVALUATE DERMAL EXPOSURE TO SURFACE WATER
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Parameter	Units	Symbol	Child[a]	Adult[a]
Surface Area	cm^2/day	SA	2900	5,700
Exposure Time	Hours/Day	ET	2	2
Exposure Frequency	Days/Year	EF	52	52
Exposure Duration	Years	ED	6	24
Body Weight	Kg	BW	15	70
Conversion Factor	L/cm^3	CF	1E-03	1E-03
Cancer Averaging Time	Days	ATc	25,550	25,550
Non Cancer Averaging Time	Days	ATnc	2,190	8,760

Notes:

a These intake assumptions were used to estimate daily intakes for surface water exposures only (i.e., not soil or sediment).
Refer to Section 6.7 of the RI for additional information.

cm^2 Square centimeter
cm^3 Cubic centimeter
kg Kilogram
L Liter

TABLE 6-15

PRELIMINARY REMEDIATION GOALS USED TO CONDUCT THE REVISED HUMAN HEALTH RISK ASSESSMENT[a]
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

ANALYTE	Residential Cancer PRG[a]	Residential Noncancer PRG[a]	Industrial Cancer PRG[a]	Industrial Noncancer PRG[a]	TCDD-TEF[b]	SURROGATE	NOTES
Metal							
Aluminum	--	7.61E+04	--	9.21E+05			C
Antimony	--	3.13E+01	--	4.09E+02			
Arsenic	3.90E-01	2.16E+01	1.59E+00	2.56E+02			
Barium	--	5.37E+03	--	6.66E+04			c
Beryllium	1.05E+03	1.54E+02	2.24E+03	1.94E+03			
Cadmium	1.40E+03	3.70E+01	2.99E+03	4.51E+02			
Calcium	--	--	--	--			d
Chromium	2.11E+02	--	4.48E+02	--		Total Chrom	e,f
Cobalt	9.03E+02	1.38E+03	1.92E+03	1.33E+04			c
Copper	--	3.13E+03	--	4.09E+04			
Chromium VI	3.01E+01	2.23E+02	6.40E+01	2.54E+03			
Lead	--	--	--	--			g
Magnesium	--	--	--	--			d
Manganese	--	1.76E+03	--	1.95E+04			
Mercury	--	2.35E+01	--	3.07E+02			
Molybdenum	--	3.91E+02	--	5.11E+03			
Nickel	--	1.56E+03	--	2.04E+04			
Selenium	--	3.91E+02	--	5.11E+03			
Silver	--	3.91E+02	--	5.11E+03			
Sodium	--	--	--	--			d
Thallium	--	5.16E+00	--	6.75E+01			

TABLE 6-15 (Continued)

PRELIMINARY REMEDIATION GOALS USED TO CONDUCT THE REVISED HUMAN HEALTH RISK ASSESSMENT[a]
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

ANALYTE	Residential Cancer PRG[a]	Residential Noncancer PRG[a]	Industrial Cancer PRG[a]	Industrial Noncancer PRG[a]	TCDD-TEF[b]	SURROGATE	NOTES
Vanadium	--	5.47E+02	--	7.15E+03			
Zinc	--	2.35E+04	--	3.06E+05			c
Volatile Organic Compound							
2-Butanone	--	7.33E+03	--	2.71E+04			
Acetone	--	1.57E+03	--	6.04E+03			
Carbon Disulfide	--	3.55E+02	--	1.20E+03			h
Chloromethane	1.23E+00	--	2.65E+00	--			
Ethylbenzene	8.92E+00	1.86E+03	1.95E+01	7.42E+03			
Xylene (Total)	--	2.75E+02	--	9.02E+02			h
Semivolatile Organic Compound							
1,1'-Biphenyl	--	3.01E+03	--	2.33E+04			i
1-Methylnaphthalene	--	5.59E+01	--	1.88E+02		Naphthalene	
1-Methylphenanthrene	--	2.19E+04	--	2.38E+05		Anthracene	c
2,4-Dimethylphenol	--	1.22E+03	--	1.23E+04			
2,6-Dimethylnaphthalene	--	5.59E+01	--	1.88E+02		Naphthalene	
2-Methylnaphthalene	--	5.59E+01	--	1.88E+02		Naphthalene	
4-Methyl-2-pentanone	--	7.87E+02	--	2.84E+03			
4-Methylphenol	--	3.06E+02	--	3.08E+03			
Acenaphthene	--	3.68E+03	--	2.92E+04			
Acenaphthylene	--	3.68E+03	--	2.92E+04		Acenaphthene	
Anthracene	--	2.19E+04	--	2.38E+05			c
Benzo(a)anthracene	6.21E-01	2.19E+04	2.11E+00	2.38E+05		NC Anthracene	
Benzo(a)pyrene	6.21E-02	2.32E+03	2.11E-01	2.91E+04		NC pyrene	
Benzo(b)fluoranthene	6.21E-01	2.29E+03	2.11E+00	2.20E+04		NC fluoranthene	

TABLE 6-15 (Continued)

PRELIMINARY REMEDIATION GOALS USED TO CONDUCT THE REVISED HUMAN HEALTH RISK ASSESSMENT[a]
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

ANALYTE	Residential Cancer PRG[a]	Residential Noncancer PRG[a]	Industrial Cancer PRG[a]	Industrial Noncancer PRG[a]	TCDD-TEF[b]	SURROGATE	NOTES
Benzo(e)pyrene	--	2.32E+03	--	2.91E+04		Pyrene	
Benzo(g,h,i)perylene	--	2.32E+03	--	2.91E+04		Pyrene	
Benzo(k)fluoranthene	3.78E-01	2.29E+03	1.28E+00	2.20E+04		NC fluoranthene	j
Benzoic Acid	--	2.44E+05	--	2.46E+06			f
Bis(2-ethylhexyl)phthalate	3.47E+01	1.22E+03	1.23E+02	1.23E+04			
Butylbenzylphthalate	--	1.22E+04	--	1.23E+05			c
Carbazole	2.43E+01	--	8.62E+01	--			
Chrysene	3.78E+00	--	1.28E+01	--			j
Dibenz(a,h)anthracene	6.21E-02	2.19E+04	2.11E-01	2.38E+05		NC Anthracene	
Dibenzofuran	--	2.91E+02	--	3.13E+03			
Dibenzothiophene	--	2.91E+02	--	3.13E+03		Dibenzofuran	
Diethylphthalate	--	4.89E+04	--	4.92E+05			c
Fluoranthene	--	2.29E+03	--	2.20E+04			
Fluorene	--	2.75E+03	--	2.63E+04			
Indeno(1,2,3-cd)pyrene	6.21E-01	2.32E+03	2.11E+00	2.91E+04		NC pyrene	
Isophorone	5.12E+02	1.22E+04	1.81E+03	1.23E+05			c
Naphthalene	--	5.59E+01	--	1.88E+02			
Pentachlorophenol	2.98E+00	1.38E+03	9.00E+00	1.16E+04			
Perylene	--	2.32E+03	--	2.91E+04		Pyrene	
Phenanthrene	--	2.19E+04	--	2.38E+05		Anthracene	c
Phenol	--	3.67E+04	--	3.69E+05			c
Pyrene	--	2.32E+03	--	2.91E+04			

TABLE 6-15 (Continued)

PRELIMINARY REMEDIATION GOALS USED TO CONDUCT THE REVISED HUMAN HEALTH RISK ASSESSMENT[a]
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

ANALYTE	Residential Cancer PRG[a]	Residential Noncancer PRG[a]	Industrial Cancer PRG[a]	Industrial Noncancer PRG[a]	TCDD-TEF[b]	SURROGATE	NOTES
1,3-Dinitrobenzene	--	6.11E+00	--	6.16E+01			
HMX	--	3.06E+03	--	3.08E+04			
Pesticide							
2,4'-DDD	2.44E+00	--	9.95E+00	--		DDD	
2,4'-DDE	1.72E+00	--	7.02E+00	--		DDE	
2,4'-DDT	1.72E+00	3.61E+01	7.02E+00	4.26E+02		DDT	
4,4'-DDD	2.44E+00	--	9.95E+00	--			
4,4'-DDE	1.72E+00	--	7.02E+00	--			
4,4'-DDT	1.72E+00	3.61E+01	7.02E+00	4.26E+02			
Aldrin	2.86E-02	1.83E+00	1.01E-01	1.85E+01			
Alpha-BHC	9.02E-02	3.52E+01	3.59E-01	4.04E+02			
Alpha-chlordane	1.62E+00	3.52E+01	6.47E+00	4.04E+02		Chlordane	
Dieldrin	3.04E-02	3.06E+00	1.08E-01	3.08E+01			
Endrin Ketone	--	1.83E+01	--	1.85E+02		Endrin	
Gamma-BHC (Lindane)	4.37E-01	2.11E+01	1.74E+00	2.43E+02			
Gamma-chlordane	1.62E+00	3.52E+01	6.47E+00	4.04E+02		Chlordane	
Heptachlor	1.08E-01	3.06E+01	3.83E-01	3.08E+02			
Heptachlor Epoxide	5.34E-02	7.94E-01	1.89E-01	8.00E+00			
Hexachlorobenzene	3.04E-01	4.89E+01	1.08E+00	4.92E+02			
Methoxychlor	--	3.06E+02	--	3.08E+03			
Mirex	2.70E-01	1.22E+01	9.58E-01	1.23E+02			
Technical Chlordane	1.62E+00	3.52E+01	6.47E+00	4.04E+02		Chlordane	
Trans-Nonachlor	1.62E+00	3.52E+01	6.47E+00	4.04E+02		Chlordane	

TABLE 6-15 (Continued)

PRELIMINARY REMEDIATION GOALS USED TO CONDUCT THE REVISED HUMAN HEALTH RISK ASSESSMENT[a]
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

ANALYTE	Residential Cancer PRG[a]	Residential Noncancer PRG[a]	Industrial Cancer PRG[a]	Industrial Noncancer PRG[a]	TCDD-TEF[b]	SURROGATE	NOTES
Polychlorinated Biphenyl							
PCB-101 (2,2',3,5,5')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-105 (2,3,3',4,4')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	1.00E-04	2,3,7,8-TCDD	
PCB-118 (2,3',4,4',5)	2.22E-01	1.12E+00	7.44E-01	1.06E+01	1.00E-04	2,3,7,8-TCDD	
PCB-126 (3,3',4,4',5)	2.22E-01	1.12E+00	7.44E-01	1.06E+01	1.00E-01	2,3,7,8-TCDD	
PCB-128 (2,2',3,3',4,4')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-138 (2,2',3,4,4',5')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1254 (noncancer)	
PCB-153 (2,2',4,4',5,5')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-170 (2,2',3,3',4,4',5)	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	2,3,7,8-TCDD	
PCB-18 (2,2',5)	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-180 (2,2',3,4,4',5,5')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	2,3,7,8-TCDD	
PCB-187 (2,2',3,4',5,5',6)	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-195 (2,2',3,3',4,4',5,6)	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-206 (2,2',3,3',4,4',5,5')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-206 (2,2',3,3',4,4',5,5',6)	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-209 (2,2',3,3',4,4',5,5')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-209 (2,2',3,3',4,4',5,5',6)	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	

TABLE 6-15 (Continued)

PRELIMINARY REMEDIATION GOALS USED TO CONDUCT THE REVISED HUMAN HEALTH RISK ASSESSMENT[a]
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

ANALYTE	Residential Cancer PRG[a]	Residential Noncancer PRG[a]	Industrial Cancer PRG[a]	Industrial Noncancer PRG[a]	TCDD-TEF[b]	SURROGATE	NOTES
PCB-28 (2,4,4')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-44 (2,2',3,5')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-52 (2,2',5,5')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-66 (2,3',4,4')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1260 (cancer), Aroclor 1254 (noncancer)	
PCB-77 (3,3',4,4')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	1.00E-04	2,3,7,8-TCDD	
PCB-8 (2,4')	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--	Aroclor 1254 (noncancer)	
PCB-Aroclor 1254	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--		k
PCB-Aroclor 1260	2.22E-01	1.12E+00	7.44E-01	1.06E+01	--		k
2,3,7,8-TCDD	3.90E-06	--	1.59E-05	--	--		
Dioxin/Furan							
1,2,3,4,6,7,8,9-OCDD	3.90E-06	--	1.59E-05	--	1.00E-03	2,3,7,8-TCDD	
1,2,3,4,6,7,8,9-OCDF	3.90E-06	--	1.59E-05	--	1.00E-03	2,3,7,8-TCDD	
1,2,3,4,6,7,8-HPCDD	3.90E-06	--	1.59E-05	--	1.00E-02	2,3,7,8-TCDD	
1,2,3,4,6,7,8-HPCDF	3.90E-06	--	1.59E-05	--	1.00E-02	2,3,7,8-TCDD	

TABLE 6-15 (Continued)

PRELIMINARY REMEDIATION GOALS USED TO CONDUCT THE REVISED HUMAN HEALTH RISK ASSESSMENT[a]
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Notes:

a EPA's Preliminary Remediation Goals (PRGs) for 2002 were obtained from EPA's Website: http://www.epa.gov/region09/waste/sfund/prg/.
b TEF = Toxicity Equivalence Factors. These were used to evaluate dioxins, furans, and PCBs as noted in Section 6.
c The noncancer industrial PRG was based on a nontoxicity based "ceiling limit". The toxicity-based PRG is much higher.
d Essential nutrient
e Cancer values for Total Chromium and noncancer PRGs for Chromium III are used.
f The noncancer residential and industrial PRGs were based on a nontoxicity based "ceiling limit". The toxicity-based PRG is much higher.
g Residential PRG is based on the Cal/EPA modified PRG.
h Industrial noncancer PRGs are based on saturation limits of the soil. The toxicity-based PRG is much higher
i The industrial and residential PRGs are based on the saturation limits of Soil. The toxicity based PRG is much higher.
j Cal/EPA Modified PRG
k For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

DDD	Dichlorodiphenyldichloroethane	OCDD	Octachlorodibenzo-p-dioxin
DDE	Dichlorodiphenyldichloroethene	OCDF	Octachlorodibenzo-p-furan
DDT	Dichlorodiphenyltrichloroethane	PCB	Polychlorinated biphenyl
HPCDD	Heptachlorodibenzo-p-dioxin	PRG	Preliminary remediation goal
HPCDF	Heptachlorodibenzo-p-furan	SBD	Seal Beach Detachment
HXCDD	Hexachlorodibenzo-p-dioxin	TCDD	Tetrachlorodibenzo-p-dioxin

TABLE 6-16

2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN TOXICITY EQUIVALENCE FACTORS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Analyte	SURROGATE	TCDD-TEF[a]
Dioxins & Furans		
1,2,3,4,6,7,8,9-OCDD	2,3,7,8-TCDD	0.0001
1,2,3,4,6,7,8,9-OCDF	2,3,7,8-TCDD	0.0001
1,2,3,4,6,7,8-HPCDD	2,3,7,8-TCDD	0.01
1,2,3,4,6,7,8-HPCDF	2,3,7,8-TCDD	0.01
PCBs		
PCB-101 (2,2',3,5,5')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-105 (2,3,3',4,4')	2,3,7,8-TCDD	0.0001
PCB-118 (2,3',4,4',5)	2,3,7,8-TCDD	0.0001
PCB-126 (3,3',4,4',5)	2,3,7,8-TCDD	0.1
PCB-128 (2,2',3,3',4,4')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-138 (2,2',3,4,4',5')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-153 (2,2',4,4',5,5')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-170 (2,2',3,3',4,4',5)	2,3,7,8-TCDD	--
PCB-18 (2,2',5)	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-180 (2,2',3,4,4',5,5')	2,3,7,8-TCDD	--
PCB-187 (2,2',3,4',5,5',6)	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-195 (2,2',3,3',4,4',5,6)	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-206 (2,2',3,3',4,4',5,5')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-206 (2,2',3,3',4,4',5,5',6)	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-209 (2,2',3,3',4,4',5,5')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-209 (2,2',3,3',4,4',5,5',6)	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-28 (2,4,4')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-44 (2,2',3,5')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-52 (2,2',5,5')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-66 (2,3',4,4')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--
PCB-77 (3,3',4,4')	2,3,7,8-TCDD	0.0001
PCB-8 (2,4')	Aroclor 1260 (cancer); Aroclor 1254 (noncancer)	--

Notes:

DDT Dichlorodiphenyltrichloroethane
NC Noncancer
PCB Polychlorinated biphenyl
TCDD Tetrachlorodibenzo-p-dioxin
TCDD-TEFs Toxicity Equivalence Factors (relative to 2,3,7,8-TCDD). Values taken from CalEPA (2003).
-- No TCDD-TEF value was available. Potential health effects were therefore not quantified because the dioxin, furan, or PCB congener is not expected to demonstrate carcinogenic effects equivalent to 2,3,6,7-TCDD.

Reference: California Environmental Protection Agency (Cal/EPA). 2003a. Proposal for the adoption of the Revised Toxicity of the Equivalency Factor (TEFWHO-97) Scheme. Public Review Draft. January.

TABLE 6-17

CHEMICALS REPORTED AS NOT DETECTED FOR ALL SAMPLES WITH AT LEAST SOME DETECTION LIMITS EXCEEDING THE RESIDENTIAL PRELIMINARY REMEDIATION GOAL FOR SOIL

Chemical[a]	Detection Frequency	Residential PRG	Number of Samples with Detection Limits			Percent > PRG	Toxicity	Range of Detection Limits
			> PRG	> 2x PRG	> 10x PRG			
Volatile Organic Compound								
1,1-Dichloroethene	0/82	120	0	0	0	0.0	C	0.011 - 0.14
Semivolatile Organic Compound								
1,3-Dichlorobenzene	0/224	16	2	0	0	0.9	NC	0.034 - 22
1,4-Dichlorobenzene	0/224	3.4	4	3	0	1.8	C	0.034 - 22
2,2'-oxybis(1-Chloropropane)	0/224	2.9	6	3	0	2.7	NC	0.034 - 22
2-Nitroaniline	0/224	1.7	62	23	3	27.7	NC	0.086 - 53
3,3'-Dichlorobenzidine	0/224	1.1	38	10	3	17.0	C	0.034 - 22
Bis(2-Chloroethyl)ether	0/224	0.21	151	90	10	67.4	C	0.034 - 22
Hexachlorobutadiene	0/224	6.2	3	2	0	1.3	C	0.034 - 22
N-Nitroso-di-n-propylamine	0/224	0.069	192	172	62	85.7	C	0.034 - 22
Nitrobenzene	0/224	19.6	2	0	0	0.9	NC	0.034 - 22
Pesticide								
Toxaphene	0/94	0.44	25	8	0	26.6	C	0.1 - 3.6

Notes:

a Listed are all analytes reported as not detected in all samples analyzed for which the sample quantitation limit was greater than the U.S. Environmental Protection Agency (EPA) Region 9 residential soil PRG (EPA 2002) in one or more samples reported as not detected.

C Carcinogen
NC Noncarcinogen
PRG Preliminary remediation goal

TABLE 6-18

DETECTED CHEMICALS WITH SAMPLE DETECTION LIMITS EXCEEDING THE RESIDENTIAL PRELIMINARY REMEDIATION GOAL FOR SOIL IN SOME NONDETECTED SAMPLES

Chemical[a]	Number of Samples Analyzed	Number of Detected Samples	Percent Detected Samples	Residential PRG	Number of Samples with Detection Limits			Percent > PRG[b]	Toxicity	Range of Detection Limits	Cancer Risks Associated with Range of Detection Limits
					> PRG	> 2x PRG	> 10x PRG				
Metal											
Arsenic	289	271	94	0.39	14	5	0	77.8	C	0.3 - 3.1	8×10^{-7} - 8×10^{-6}
Semivolatile Organic Compound											
Benzo(a)anthracene	224	31	14	0.62	68	26	3	35.2	C	0.034 - 22	5×10^{-8} - 4×10^{-5}
Benzo(a)pyrene	224	34	15	0.062	162	146	66	85.3	C	0.034 - 22	5×10^{-7} - 4×10^{-4}
Benzo(b)fluoranthene	224	36	16	0.62	66	25	3	35.1	C	0.034 - 22	5×10^{-8} - 4×10^{-5}
Benzo(k)fluoranthene	224	29	13	0.38	117	52	4	60.0	C	0.034 - 22	9×10^{-8} - 6×10^{-5}
Dibenz(a,h)anthracene	224	9	4	0.062	185	166	71	86.0	C	0.034 - 22	5×10^{-7} - 4×10^{-4}
Indeno(1,2,3-cd)pryene	224	23	10	0.62	69	26	3	34.3	C	0.034 - 22	5×10^{-8} - 4×10^{-5}
Pentachlorophenol	211	4	2	3	32	8	3	15.5	C	0.086 - 53	3×10^{-8} - 2×10^{-5}
Pesticide											
Aldrin	220	17	8	0.029	1	0	0	0.5	C	0.0001 - 0.036	3×10^{-9} - 1×10^{-6}
Dieldrin	220	35	16	0.03	3	1	0	1.6	C	0.0001 - 0.073	3×10^{-9} - 2×10^{-6}
Hexachlorobenzene	362	28	8	0.3	141	73	4	42.2	C	0.0001 - 22	3×10^{-10} - 7×10^{-5}

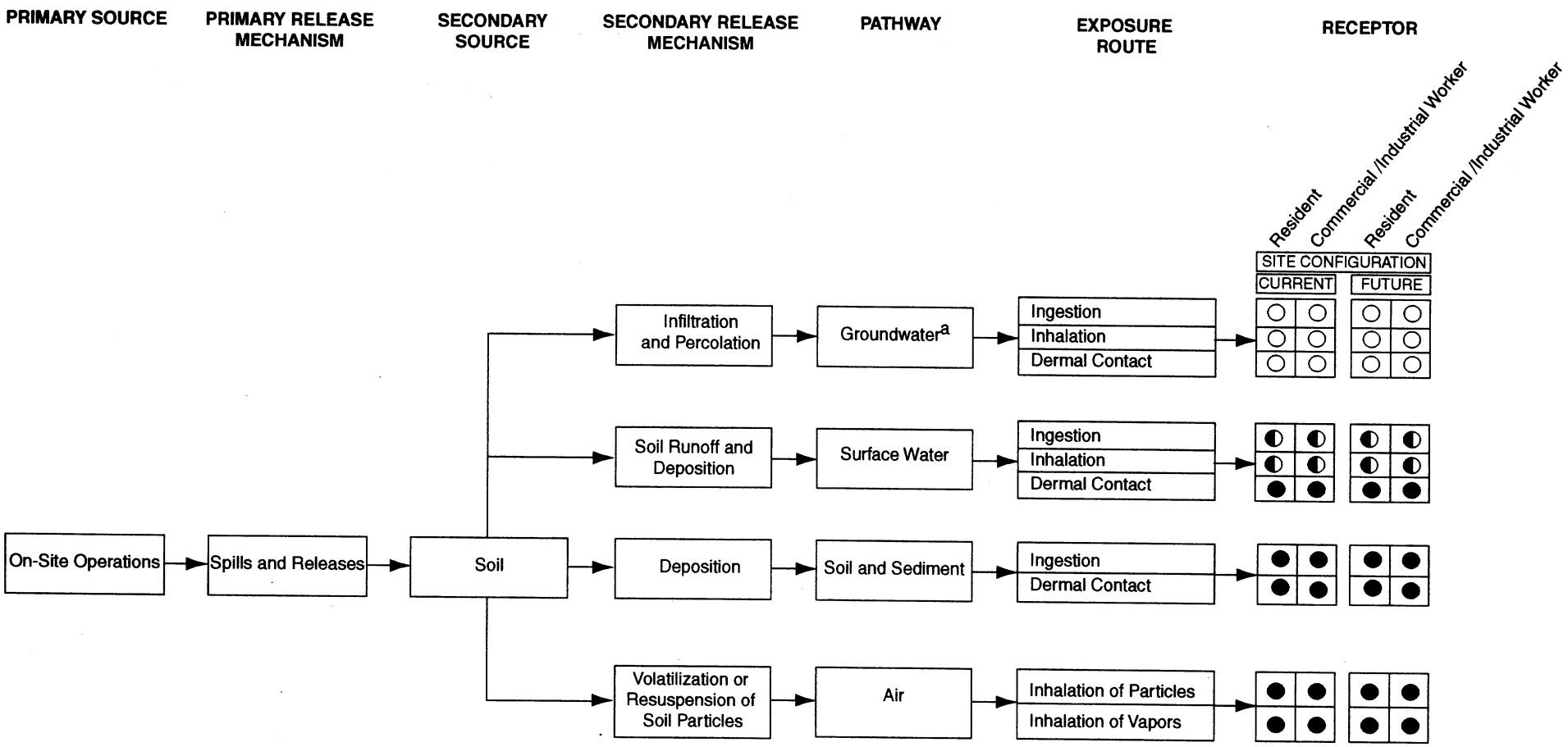
Notes:

a Listed are all analytes detected in one or more samples and for which the sample quantitation limit was greater than the U.S. Environmental Protectio Agency (EPA) Region 9 residential soil PRG (EPA 2002) in one or more samples.

b Percent shown is based on the total number of nondetected results.

C Carcinogen

PRG Preliminary remediation goal



LEGEND

- ● Receptor likely to be exposed by this route so pathway is considered complete.
- ◐ Pathway is complete but considered minor/insignificant and was not quantified.
- ○ Pathway is incomplete, no further evaluation required.

a. Groundwater considered nonpotable (See Section 6.1.3.3)

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

EFA WEST

SAN BRUNO, CALIFORNIA

NAVAL WEAPONS SEAL BEACH DETACHMENT CONCORD — CONCORD, CALIFORNIA

FIGURE 6-1

CONCEPTUAL SITE MODEL FOR CURRENT AND FUTURE SITE CONFIGURATIONS

7.0 ECOLOGICAL RISK ASSESSMENT SUMMARY

As part of the RI, TtEMI prepared an ERA, consisting of a screening level ecological risk assessment (SLERA) and a baseline ecological risk assessment (BERA) at the R Area Site, Froid and Taylor Road Site, and Wood Hogger Site, including surface soil of SWMU 37; Otter Sluice was also evaluated in the BERA because of its location adjacent to the R Area Site and Wood Hogger Site. The revised draft final ERA was distributed for public review, including copies to the EPA, FWS, NOAA, DTSC, CDFG, and the RWQCB in January 2002 (TtEMI 2002). The Navy also responded to comments on the revised draft final ERA (Navy 2003a); a copy of the responses is provided in Appendix A. As stated in Section 1.1, the Landfill is the subject of a separate response action and was, therefore, not included in the revised draft final ERA. The revised draft final ERA evaluated risk in the R Area Site from chemicals that may have migrated from the Landfill, which is adjacent to the R Area Site.

7.1 INVESTIGATIVE BACKGROUND

During regulatory agency review of the 1999 draft final QEA, Volume 2 of the 1999 draft final RI (TtEMI 1999), it was decided that data were sufficient to support a BERA (TtEMI 2000a). As a result, the 1999 draft final QEA was revised to reflect comments provided by regulatory agencies and natural resource trustees. In addition, Otter Sluice, which was added as an AOI in June 1998, is discussed in the ERA. The revised draft final BERA follows the approach outlined in EPA guidance (EPA 1997) to identify ecological receptors potentially at risk from chemicals at the Tidal Area sites and presents data and analyses suitable for evaluating whether a response action is warranted to reduce risk to ecological receptors.

The revised draft final ERA includes three sites within the Tidal Area (about 100 acres), as well as an additional AOI:

- R Area Site
- Froid and Taylor Road Site
- Wood Hogger Site
- Otter Sluice, AOI, adjacent to R Area Site and Wood Hogger Site

The Navy characterized groundwater in the original RI (PRC 1997a) and in the Confirmation Groundwater Sampling TM (TtEMI 1998b). Groundwater quality is not discussed in detail in the ERA report because no complete groundwater exposure pathways exist.

7.2 DATA SUMMARY

In the BERA, quantitative data are used to assess exposure to, and potential toxic effects of, contaminants to assessment endpoints. Specific types of data collected in this investigation include the following:

- Surveys of plants and animals to identify key receptors
- Chemical analyses of soil, sediment, and surface water samples
- Measurements of other parameters such as grain size, TOC, and simultaneously extractable metals and acid volatile sulfides that aid in estimation of bioavailability of chemical stressors
- Toxicity tests to evaluate direct toxicity to benthic invertebrates and fish
- Chemical analysis of tissue residue of pickleweed, benthic invertebrates, fishes, and rodents to evaluate the potential for bioaccumulation and trophic transfer of contaminants
- Food-chain modeling to estimate chemical doses ingested by selected vertebrate receptors

Some screening-level data included as lines of evidence in earlier drafts of the 1999 draft final QEA (TtEMI 1999) were moved to appendices to reflect their diminished role in decision-making at this stage in the process. Microtox, Cytochrome P450, and Waste Extraction Test (WET) data are mentioned briefly in Section 2.0, Screening-level Problem Formulation, and are summarized in Appendix D of the revised draft final ERA (TtEMI 2002).

For all chemicals evaluated in the SLERA and BERA, the exposure point concentration for each chemical assessed was based on calculating the UCL_{95} or in some cases the maximum value. In the SLERA, the UCL_{95} was calculated for normally or lognormally distributed data using distribution dependent formulae. For data sets with unknown distributions, the UCL_{95} was calculated using the bootstrap method (EPA 2002b; Singh and others 1997). The maximum detected concentration was substituted for the UCL_{95} when there were three or fewer detected concentrations or when the calculated UCL_{95} exceeded the maximum detected value in the data set.

7.3 SITE-SPECIFIC ECOLOGICAL RISK CHARACTERIZATION

Risk characterization is "a conscious and deliberate process to bring all important considerations about risk, both the likelihood of the risk but also the strengths and limitations of the assessment and a description of how others have assessed the risk into an integrated picture," as described in EPA's *Risk Characterization Handbook* (EPA 2000b). Risk characterization must summarize strengths and limitations and results of the risk assessment in a social, legal, and economic context to support negotiated agreements with other stakeholders, including the public (EPA 2000b). The risk

characterization "conveys the risk assessor's judgment as to the nature and existence of (or lack of) ecological risks" (EPA 2000b). In addition, risk characterization must adhere to principles of transparency, clarity, consistency, and reasonableness.

Risk characterization integrates information from exposure and effects assessments to evaluate relationships between chemical exposure and the expression of ecological effects (EPA 1997). This integration relies primarily on weight-of-evidence (WOE) arguments that evaluate all lines of evidence introduced into the risk assessment. Discussion of uncertainties at each level of the risk assessment is another key aspect of risk characterization. The WOE approach for the BERA used numeric decision criteria and best professional judgment to interpret results for each of the lines of evidence.

The BERA characterized risk to all assessment endpoints at each site. The key findings, assumptions, strengths, and limitations of the risk assessment attributable to exposure to chemical stressors at a site are discussed in the context of the ecological significance of predicted effects. Ecological significance is a measure of the degree to which eliminating an estimated risk will make a difference, given the other dynamic factors operating in the environment (EPA 2000b).

Risk characterization considers the science of risk assessment, as well as the policy and other decisions that were made by the risk assessment team, as described in EPA guidance (EPA 2000b). Decisions about what to sample and where to collect samples in the Tidal Area, as described in the WP, FSP, and FSP addendum (PRC 1995a, 1995c; TtEMI 1998a), were based in part on policy considerations, including limitations of time and budget. Likewise, some decisions deferred to standard practice in EPA Region 9 during the problem formulation phase, including choice of toxicological tests, WET extractants, and toxicity reference values (TRV) used in this risk assessment. However, most decisions were made specifically to achieve consistency with other Navy ERAs in the San Francisco Bay area and the Concord Litigation Area (in particular).

7.3.1 Ecological Risk Characterization for R Area Site

Wetland plants, benthic invertebrates, and birds and mammals were the principal receptors of concern at the R Area Site. Toxicity benchmarks used to assess whether chemical concentrations in sediment pose a risk to pickleweed are not available. Consequently, a qualitative evaluation was performed to determine whether unacceptable risk exists for pickleweed exposed to the range of chemicals in the R Area Site. Based on comparison of sediment concentrations in the R Area Site with those in the Litigation Area and on the apparently healthy growth of pickleweed in formerly bare spots, it is reasonable to assume that chemicals in the R Area Site pose no significant risk to pickleweed or other wetland plants. In 2000,

visual inspection of previously reported bare spots in pickleweed cover in the R Area Site revealed that pickleweed cover has increased since 1993 (TtEMI 2000a).

Risk to benthic invertebrates exposed to sediment and surface water in the R Area Site was evaluated quantitatively using generally accepted toxicological benchmarks and criteria. Risk to benthic invertebrates exposed to chemicals in sediment was evaluated in the SLERA by comparing chemical concentrations in site sediments to the effects range-low (ER-L) toxicological benchmarks. Subsequently, chemicals were evaluated quantitatively by considering the single chemical toxicological benchmarks, the effects range-medium (ER-M) and then calculating the mean ER-M quotient (ER-M_q), which considers the additive effect of exposure to chemical mixtures (Long and MacDonald 1998). In the R Area Site, no sediment sampling locations were ranked as high priority; only four locations (RADSB020, RADSBJ04, RADSBE07, and RADSB017) were medium to high priority. The maximum ER-M_q (0.55) was attributed to nickel and zinc. The ER-M for nickel is not considered a meaningful indicator of risk to benthic invertebrates, because ambient nickel concentrations in San Francisco Bay sediment are almost three times higher than the ER-M. The HQ for zinc at one location was 2.34, which does not represent significant risk to invertebrate populations. Ninety-six percent of the samples in the R Area Site were either low or medium to low priority, with a maximum of three chemicals exceeding the ER-M, including nickel. The distribution of ER-M_qs across the R Area Site indicates little risk to populations of invertebrates.

The BERA compared chemical concentrations in sediment on the eastern and western sides of the R Area Site. This comparison was performed to address regulatory agency concerns that the Landfill may have leached chemicals into the R Area Site. The data did not support the assumption of leaching from the Landfill. In fact, concentrations of all inorganic and organic chemicals (except beryllium and manganese) were higher in the western side of the site than in the eastern side, which is the opposite pattern one would expect of higher concentrations near the Landfill. In addition, 12 organic chemicals were detected in sediment from the western side only. In contrast, only one organic chemical (isophorene) was detected in sediment only from the eastern side. The data suggest that the Landfill did not leach significant concentrations of chemicals to the R Area Site wetland.

Risk to invertebrates from exposure to surface water was evaluated by calculating HQs using AWQC. Inorganic HQs for surface water were exceeded for five metals, but were greatest for aluminum and mercury. Because aluminum is toxic only under pH conditions much lower than the typical pH of surface water in the area, aluminum is not considered to pose a significant risk at the site. The current land use in the R Area Site is to provide a buffer zone for Navy activities at the shore; this land use is not expected to change. Risk posed by mercury in surface water is not as easily characterized, because the detection limit

often exceeded the AWQC for this chemical. However, sediment concentrations of mercury were less than Tidal Area ambient concentrations, indicating that mercury in sediment poses no unacceptable risk to benthic invertebrates in the R Area Site, nor is there any evidence that mercury is the result of site contamination. Organic chemicals were detected infrequently in surface water in the R Area Site (1 or 2 out of 35 samples). None of these chemicals was considered to pose an unacceptable risk to aquatic organisms in the R Area Site.

Risk to birds and mammals was evaluated using food-chain modeling of ingested chemicals. Food-chain modeling focused on inorganic COPECs in sediment identified by comparison with Tidal Area ambient concentrations and all detected organic chemicals for which TRVs were available. Site-specific doses were calculated for great blue heron, northern harrier, and gray fox ingesting rodents and sediment in the R Area Site. Doses for the salt marsh harvest mouse were based on ingestion of pickleweed and sediment. No $HQ_{(high\ dose/high\ TRV)}$s for birds or the gray fox were greater than 1.0. However, unacceptable risk to the salt marsh harvest mouse from aluminum and barium was suggested in the R Area Site. The $HQ_{(high\ dose/high\ TRV)}$ for aluminum was 11.16 suggesting some risk. However, the WET-adjusted HQ using the low TRV was not different from the WET-adjusted HQ for Tidal Area ambient aluminum concentrations and this comparison suggests no significant risk from aluminum. The $HQ_{(high\ dose/high\ TRV)}$ for barium was 1.97, which indicates some potential for adverse effects. The WET-adjusted HQ was 0.22 and similar to the HQ (0.12) for Tidal Area ambient barium concentrations. The mean and UCL_{95} concentrations of barium in the R Area Site were well below the Tidal Area ambient concentration; however, the dose estimate for the salt marsh harvest mouse was based on the maximum sediment concentration of barium, which was 45 times higher than the UCL_{95}. The contribution of sediment to the total dose was an order of magnitude higher than that of pickleweed, which is consistent with data collected at the Concord Litigation Area that showed sediment: pickleweed bioaccumulation factors (BAF) for barium were less than 1.0. It is possible that an individual salt marsh harvest mouse ingesting sediment at the location with the maximum concentration of barium in sediment may be at some risk. However, salt marsh harvest mice move about the habitat in response to fluctuations in water level and in search of pickleweed to eat. As a result, it is unlikely that an individual salt marsh harvest mouse actually would experience the conditions assumed in the food-chain model of the high dose for aluminum and barium.

7.3.2 Ecological Risk Characterization for Froid and Taylor Road Site

Terrestrial plants, benthic invertebrates and fishes, and birds were the principal receptors of concern at Froid and Taylor Road Site. Chlordane was the most prominent chemical in the small, upland habitat at the Froid and Taylor Road Site. Chlordane was widely used in the mid-1900s as an insecticide in lawns

and gardens; although no phytotoxicity benchmarks are available for chlordane, it is not generally thought to be toxic to plants. Inorganic chemicals in the Froid and Taylor Road Site upland were generally representative of Tidal Area ambient concentrations. Available data indicate no unacceptable risk to terrestrial plants at Froid and Taylor Road Site.

Risk to benthic invertebrates exposed to chemicals in sediment was evaluated in the SLERA by comparing chemical concentrations in site sediments to the ER-L; subsequently, risk priorities for each sampling station were evaluated based on calculating an ER-M_q. None of the sediment samples in the Froid and Taylor Road Site wetland had an ER-M_q, indicating high priority for potential risk. One sampling location in the northernmost portion of the wetland habitat (FTSSL102) was designated as medium to high priority. The ER-Ms for eight organic chemicals were exceeded; five of these were PAHs with exceedances based on substitution of one-half of the detection limit for nondetected data. Three of the eight chemicals were detected at concentrations above the ER-M: alpha-chlordane, gamma-chlordane, and DDT. No inorganic chemical exceeded its ER-M at this location.

The potential risk at FTSSL102 is likely overestimated because of PAHs, which were included in the calculations of the ER-M_q even though they were not detected. Sampling location FTSSL102 is outside the channelized portion of the wetland and is dry most of the year. However, the combined effect of pesticides at this location may pose some risk to benthic invertebrates during periods of inundation.

In surface water, aluminum, arsenic, copper, mercury, nickel, silver, and zinc concentrations exceeded AWQCs. HQs were greater than 10 for aluminum and silver; however, neither of these chemicals is expected to pose a serious risk to receptors at the site. The toxicity of aluminum is inversely correlated with pH, and is expected to be minimal at the circumneutral pH typical of the Tidal Area sites. The HQ for silver (60) was based on only two detected concentrations (of nine samples). Based on the limited detection of silver in surface water and because the maximum detected concentration of silver in sediment was well below the ER-L, the lowest single chemical toxicological benchmark, silver is not considered to pose unacceptable risk to benthic invertebrates or fishes at Froid and Taylor Road Site.

Food-chain modeling indicated no unacceptable risk to birds (represented by Northern Harrier and Black-necked Stilt) in the Froid and Taylor Road Site wetland. All HQs calculated using the high TRVs were less than 1.0; HQs using the low TRV were greater than 1.0 for lead only. However, WET-adjusted lead HQs were less than 5 for both avian species, and no substantial difference exists between these HQs and HQs based on Tidal Area ambient concentrations of lead. Therefore, lead does not pose unacceptable risk to birds at Froid and Taylor Road Site. Although pesticides were a potential risk to invertebrates based on

exposure to sediment, they were not found to pose a risk to bird or mammal receptors at Froid and Taylor Road Site.

7.3.3 Ecological Risk Characterization For Wood Hogger Site

Plants, benthic invertebrates and fishes, and birds and mammals were the principal receptors of concern at Wood Hogger Site. No inorganic or organic chemicals were considered to pose risk to terrestrial plants at the Wood Hogger Site. All HQs based on phytotoxicological benchmarks were less than 1.0 (except cadmium, which was 1.5). Risk to wetland plants was not quantified. However, inspection of aerial photographs and recent site visits suggest that stands of pickleweed are larger in the Wood Hogger Site than they have been in previous years. Supporting evidence for the health of the pickleweed population in this site comes from the small mammal surveys, during which several salt marsh harvest mice were trapped.

Risk to benthic invertebrates exposed to chemicals in sediment was evaluated in the SLERA by comparing chemical concentrations in site sediments to the ER-L; subsequently, risk priorities for each sampling station were evaluated based on calculating an ER-M_q. One sediment sample (WHSSB022), in the extreme southwestern corner of the Wood Hogger Site wetland habitat, was designated as high priority based on ER-M_q. The ER-M_q of 2.75 was attributed solely to mercury, with an HQ of 26.06. One location within the boundary of SWMU-37 (WHSSBB05) was designated as medium to high priority; the ER-M for mercury was exceeded. The ER-M_q at this location also included five PAHs that exceeded their ER-Ms based on a substitution of one-half of the detection limit for nondetected data, which lends some uncertainty to the medium to high priority designation. Overall, risk to benthic invertebrates at the Wood Hogger Site is expected to be significant only at Location WHSSB022. To assess whether the area adjacent to WHSSB022 was adequately characterized, the mercury concentrations for the surrounding stations were evaluated. This evaluation of the mercury sediment concentration data suggests that the contamination is confined (nearest sediment/soil samples are within 50 feet to 200 feet apart) as discussed in the responses to comments on the revised draft final ERA included in Appendix A.

AWQCs were exceeded for aluminum, mercury, copper, and zinc. Aluminum is not considered to pose a risk to aquatic organisms in waters of circumneutral pH. Because the detection limit for mercury in surface water was generally higher than the AWQC, risk posed by mercury is unknown. The single detected concentration was in a sample collected (WHSSW005) from the upland area within SWMU-37, where no permanent wetland or aquatic habitat exists. HQs for copper and zinc were less than 3.0, and these chemicals are not considered to pose a significant risk to receptors in the Wood Hogger Site.

Site-specific high doses were calculated for the great blue heron, northern harrier, salt marsh harvest mouse, and gray fox. The only HQ greater than 1.0 using the high TRV was aluminum for the salt marsh harvest mouse, indicating potential risk to this species if aluminum is bioavailable. The WET-adjusted $HQ_{(high\ dose/low\ TRV)}$ was less than 10 but slightly higher than the Tidal Area ambient HQ, indicating the potential for some incremental site risk. Aluminum is generally only toxic in low pH conditions and is not expected to be bioavailable and toxic in the circumneutral pH conditions in the wetland.

The salt marsh harvest mouse dose for lead exceeded the low TRV, assuming 100 percent bioavailability of lead. However, using the WET ratio to adjust for the actual bioavailability of lead resulted in HQs that were greater than 1.0; but these HQs were not substantially different from Tidal Area ambient HQs for lead. The salt marsh harvest mouse is not considered to be at risk from lead exposure in the Wood Hogger Site. Although mercury in sediment was a potential risk to invertebrates, it was not found to pose a risk to bird or mammal receptors in the Wood Hogger Site.

7.3.4 Ecological Risk Characterization For Otter Sluice

Benthic invertebrates, fishes, birds, and mammals were the principal receptors of concern at Otter Sluice. Risk to benthic invertebrates exposed to chemicals in sediment was evaluated in the SLERA by comparing chemical concentrations in site sediments to the ER-L; subsequently, risk priorities for each sampling station were evaluated based on calculating an $ER\text{-}M_q$. None of the 14 sediment samples from Otter Sluice was designated as high priority based on the $ER\text{-}M_q$. The only detected chemical that exceeded the ER-M was nickel, which reflects ambient conditions in San Francisco Bay. Samples used for the chemical characterization of Otter Sluice were also used for toxicity testing. Otter Sluice was sampled to investigate whether it was being impacted by chemicals from the adjacent Tidal Area sites, but there was no basis for assuming any Otter Sluice location would be contaminated or that any of the locations sampled in Otter Sluice would differ from each other in terms of potential contamination. Because no source of contamination to Otter Sluice was identified during previous investigations, Otter Sluice was expected to be relatively uncontaminated. Contamination was generally less in Otter Sluice than in the Tidal Area sites. Amphipods (*Eohaustorius estuarius*) exposed to whole sediment collected from Otter Sluice showed no adverse effects on survival or reburial in laboratory toxicity tests. All sediment samples tested had greater than 92 percent survival and reburial of amphipods.

Surface water exposure concentrations for aluminum and mercury exceeded AWQCs. Aluminum toxicity is not expected to occur at the pH typical of Suisun Bay (and Otter Sluice), and the HQ was relatively low (less than 10). Because the detection limit for mercury in surface water was generally higher than the AWQC, risk posed by mercury is not known. The single concentration of mercury was detected in a

surface water sample at Otter Sluice (WHSSW002), collected from near the southwestern corner of the Wood Hogger Site, where mercury was elevated in sediment. It is possible that aquatic organisms exposed to this particular location may be at risk from exposure to mercury. Because of analytical method limitations in detecting mercury in surface water, body burdens of mercury in clams from Otter Sluice were evaluated; clams serve as a water quality indicator. Concentrations in clam tissues collected from Otter Sluice were below effects levels reported in the literature as described in Section 5.0 of the revised draft final ERA (TtEMI 2002). Consequently, while there is uncertainty in estimating concentrations of mercury in surface water, mercury concentrations detected in clam body tissues are below levels known to cause adverse effects. These low clam tissue concentrations suggest that other aquatic organisms such as fish may not be at risk because of exposure to mercury in water in Otter Sluice. The remaining sediment and surface water data also indicate no unacceptable risk to benthic invertebrates or fishes in Otter Sluice.

Site-specific doses were calculated for California black rail, great blue heron, and river otter. No $HQ_{(high\ dose/high\ TRV)}$ exceeded 1.0 for the California black rail. WET-adjusted $HQs_{(high\ dose/low\ TRV)}$ did exceed 1.0 for copper, lead, and zinc; however, these HQs were not substantially different from HQs for the Tidal Area ambient concentration, suggesting that copper, lead and zinc do not pose significant risk. Neither great blue heron nor river otter had any HQs exceeding 1.0 using the high TRV. For the great blue heron, the $HQ_{(typical\ dose/low\ TRV)}$ for total dioxins was 1.6; for the river otter, it was less than 1.0. The low TRV was also exceeded for lead; however, the WET-adjusted HQs for lead in Otter Sluice were less than 1.0 and comparable with HQs for the Tidal Area ambient concentration, indicating that no unacceptable risk is posed to birds and mammals feeding on fish and clams at Otter Sluice. Mercury was found to pose no risk to bird or mammal receptors in Otter Sluice.

7.4 UNCERTAINTY

Uncertainty plays an important role in risk-based decision-making; therefore, uncertainty is incorporated explicitly in the risk characterization in a BERA. Identifying known sources of uncertainty is more useful than using conservative default assumptions because potential error is clarified in the risk management process (Suter 1993). Uncertainty is generally defined as a component of risk or degree of hazard resulting from imperfect knowledge of the present or future state of the system under consideration (Suter 1993).

The following three sources of uncertainty in ERAs are described in Suter (1993):

- Mistakes in execution of assessment activities (errors such as incorrect measurements, data recording errors, and computational errors)

- Imperfect knowledge of factors that could be known (lack of knowledge about some aspect of the ecosystem that may be relevant, such as assumptions used in dose models; practical constraints on the ability to measure everything; and lack of knowledge on the toxicological effects of all chemicals on all species)
- Inherent randomness of the world (stochasticity in physical or biological processes that may affect assumptions or actual risk, such as variation in population parameters or rainfall patterns)

The complexity of ecological systems tends to increase the level of uncertainty involved in ERAs compared with human health risk assessments. Using realistic assumptions and multiple lines of evidence is the best approach to reducing uncertainty associated with conclusions in an ERA. The sections below briefly review some sources of uncertainty identified for the BERA at the Tidal Area.

7.4.1 Sampling and Data Analysis

Data collected using a statistically based sampling design were used to evaluate site conditions for the Tidal Area sites. As a result, measurements obtained from samples must be used to estimate the true population parameters of interest; each of these estimates has associated error (Gilbert 1987). Data from the original RI sampling and subsequent sampling events were combined for use in the risk assessment. The sample sizes from the combined data sets and spatial coverage of the site are considered more than adequate for characterizing the nature and extent of contamination using the chemicals analyzed.

Data used in the BERA were validated and determined to be of high usability (99 percent) (PRC 1995b). Data quality, as identified and defined in the QAPP (PRC 1995b) and discussed in the quality control summary report (Appendix H), is not considered an important source of uncertainty in the BERA. Most of the uncertainty associated with chemistry data reflects limitations in analytical methods and instruments and does not appreciably affect conclusions of the risk assessment. Analytical detection limits above toxicologically based screening values are another source of uncertainty. The desired detection limits for mercury and two SVOCs were not always achieved because of high percent moisture and matrix interference in some samples.

7.4.2 Screening Values

Screening values (such as the ER-Ls, ER-Ms and ER-M_qs; Oakridge National Laboratory benchmarks; and AWQCs) used to identify COPECs and to determine levels of risk to ecological receptors include multiple sources of uncertainty. Although these values were based on numerous studies, the relevance of any benchmark to the site is unknown. Effects on receptors at the site may be underestimated or overestimated based on this approach; however, the practice of using these values for screening chemicals

in environmental media is widespread and is currently the best method available for preliminary screening. Results of several biological tests were also used in the risk characterization, thereby reducing the level of uncertainty associated with screening values. In particular, there are limited tools to evaluate the additive risk of chemical mixtures. The ER-M_q is an exceptional predictive tool that does allow this analysis based on empirically derived data. However, it may result in a high false-positive prediction of toxicity for several constituents of interest, including mercury, DDE, and total DDT, and total PCB.

During the SLERA, screening values were not available for all chemicals detected at the Tidal Area; as a result, some chemicals were considered COPECs by default. Although these COPECs by default were sometimes detected above ambient concentrations in the case of inorganics or were detected in at least 5 percent of the total samples, their significance in terms of ecological risk could not be adequately evaluated based on current literature. Most of the screening values employed are based on single chemical exposures or on single chemicals analyzed based on effects observed in complex chemical mixture exposures. The effect of multiple chemical stressors operating synergistically or antagonistically is not incorporated into this level of screening, although the application of bioassays within the ERA provides a well-established approach for evaluating chemical mixtures (Parkhurst and others 1989). Screening values are based on total concentrations and do not address uncertainty associated with individual chemical species (some forms are more toxic than others) or bioavailability potential. The lack of suitable screening values for certain chemicals and groups of receptors is considered an important source of uncertainty in the selection of COPECs used in the BERA. Chemicals without toxicity benchmarks for each receptor group at each Tidal Area site were summarized in the responses to regulatory agency comments provided Appendix A.

7.4.3 Bioassays

Bioassays were conducted using one fish and one amphipod species; results were extrapolated to all fish and benthic invertebrates at the Tidal Area. In addition, the topsmelt test was considered to be flawed and results were not used in the assessment of risk. Bioassays and test endpoints were selected based on the known sensitivity of the test species. However, aquatic receptors at the Tidal Area probably exhibit a wide range of sensitivity to contaminants in sediment and water, and uncertainty is introduced by extrapolating results from bioassays to the assessment of natural populations. Although bioassays are a standard method of evaluating toxicity to *in situ* populations, exposure conditions in bioassays do not duplicate exposure conditions in the field adding uncertainty to the risk assessment.

Results of the amphipod bioassays indicate that benthic organisms are not at risk from exposure to Tidal Area sediment. However, uncertainty exists about the specific chemical, biological, and physical factors

controlling the form and bioavailability of chemicals in the environment. For the most part, chemical factors such as pH, oxidation-reduction potential, and concentrations of TOC and sulfide indicate that most chemicals, especially metals, present in Tidal Area sediment and soil are bound and relatively unavailable for uptake by ecological receptors. Notably, the evaluation of the toxicity of sediments in Otter Sluice using the ER-M_q method concluded that detected chemicals pose no risk in Otter Sluice, a conclusion that is consistent with the findings of the amphipod bioassay.

7.4.4 Uncertainties Associated with Food-chain Modeling

This section highlights uncertainties associated with the food-chain modeling used to evaluate risk to birds and mammals, with a more detailed discussion provided in Section 5.0 of the revised draft final ERA (TtEMI 2002). Further discussion on the uncertainty in response to agencies comments is provided in the Navy's responses to agency comments on the revised draft final ERA (Appendix A).

7.4.4.1 Tissue Residue Data

Collocated sediment and soil and tissue samples from the Tidal Area provide an empirical measure of the transfer of chemicals from environmental media to biological tissue. Sample sizes generally ranged from three to five for clam, fish, pickleweed and rodents tissues. While small sample sizes for tissue introduce uncertainty into estimates of bioaccumulation potential, the maximum tissue concentration from the samples was used as a conservative estimate of prey concentrations for food-chain modeling. Clam and fish tissue concentrations integrate water and sediment exposure in the tidal situation of Otter Sluice, representing exposure to both off-site and on-site sources. For mobile organisms such as fish, uncertainty exists about the location where exposure occurred. The immobility of plants simplifies collection of collocated samples, and tissue concentrations represent a more limited exposure scenario. Tissue sampling was performed in accordance with the FSP addendum (TtEMI 1998b), and sufficient tissue was obtained at all locations and for all analytes proposed. The risk assessment included food-chain modeling using site-specific tissue data for all chemicals proposed for analysis in tissues; however, not all chemicals were modeled for all species (for example, metals analysis was conducted on pickleweed tissue only and was the focus of food-chain modeling for the salt marsh harvest mouse).

7.4.4.2 Estimated Doses

Assumptions used in estimating ingested doses are identified in Section 5.0 of the revised draft final ERA (TtEMI 2002). These assumptions and model parameters are based mostly on scientific literature and may not accurately represent species or conditions at the site. In addition, doses were estimated using a

closed system, which may not be representative of conditions and relationships present in ecological food webs. Sources of uncertainty in dose estimates include inaccuracy in model parameters based on limited data in the literature, population and individual variation in life history, and variation in foraging patterns of animals at the site. For example, the diet of many receptors varies seasonally, yet tissue concentrations used in the dose estimate represented a single brief time period. The lack of empirical data for each receptor necessitated the use of simple scaling equations to estimate receptor-specific ingestion rates; these estimates may not accurately represent actual ingestion rates and are a source of uncertainty in the dose calculation. In addition, the use of ingestion-based dose models to estimate exposure assumes that exposure through other routes (such as dermal, inhalation, or drinking of surface water) is negligible. ERAs commonly focus on ingestion of contaminated prey and soil (Pascoe and others 1996; EPA 1997); however, ignoring other sources may underestimate risk. Furthermore, new and improved methods are continuously being developed. In fact, the regulatory agencies proposed a revised method to estimate the contribution to risk associated with ingestion of prey and soil after the completion of the revised draft final ERA (Appendix A). The proposed methods were reasonable, and the Navy adjusted the food-chain modeling based on the revised method. The recalculations are provided in the Navy's response to agency comments on the revise draft final ERA (Appendix A). However, the recalculation did not alter the results or conclusions of the food-chain modeling.

An additional source of uncertainty is introduced in the estimation of food ingestion rates. Food consumption rates were estimated from allometric regression models using metabolic rates derived by Nagy and others (1999) for various groups of birds and mammals. Food ingestion rates estimated using these allometric equations are expressed as kilograms of dry weight per day. Wildlife do not generally consume dry food (unless maintained in the laboratory); therefore, some investigators suggest converting food consumption rates to kilograms of fresh weight by adding the water content of the food (Suter and others 2000). However, because tissue residue results from the analytical laboratories used in the BERA were reported in wet weight, it was necessary to convert the tissue results to dry weight for mathematical consistency in the allometric equations used to estimate doses. Further reasoning behind the conversion from wet to dry weight is that the TRVs were derived from laboratory studies using dry weight. The conversion from wet to dry weight may overestimate chemical concentrations in tissue, potentially resulting in higher calculated risk. In addition, some uncertainty exists regarding potential evaporation of moisture in the laboratory from tissues awaiting analysis. Therefore, the "true" wet weight of the tissue reported may result in an overestimation of chemical concentration.

7.4.4.3 Toxicity Reference Values

Uncertainty associated with the derivation and use of TRVs is described in "Development of Toxicity Reference Values as Part of a Regional Approach for Conducting Ecological Risk Assessments at Naval Facilities in California" (EFA West 1998). Allometric conversion was incorporated into the derivation of TRVs for site-specific receptors; use of this type of body scaling to extrapolate between taxa is a source of uncertainty since the underlying assumption that a given effect on a small bird is the same as on a larger bird per unit body weight may not be true. This uncertainty was minimized by extrapolating between closely related species, whenever possible.

Uncertainty also exists when the specific form of the chemical used in the laboratory studies on which TRVs are based is known to be more available than the form or forms that animals are exposed to at the site. This uncertainty has been problematic for chemicals such as lead (administered as lead acetate in drinking water) and is also probably true for arsenic (sodium arsenite in drinking water), cadmium (soluble cadmium chloride in drinking water), copper (soluble cupric sulfate in drinking water), manganese (as manganese oxide in drinking water), nickel (as nickel chloride in drinking water), selenium (as selenite and selenate in drinking water), and zinc (as zinc carbonate in drinking water) (Schroeder and others 1968; Webster 1988; Pocino and others 1991; Gray and Laskey 1980; Smith and others 1993; Harr and others 1996; Aughey and others 1977).

7.4.4.4 Hazard Quotients

HQs resulting from comparison of site chemicals with screening values and ingested doses with TRVs are common in ERAs. An HQ greater than 1.0 is generally considered to indicate a potential for risk (EPA 1997). However, the HQ cannot be used to determine either the probability or the magnitude of effects, and caution should be exercised in the interpretation of HQs. HQs for different chemicals cannot be summed to assess cumulative risk because of the different modes of chemical action and different levels of confidence in the underlying TRVs. The use of the mean ER-M_q is the only generally accepted method available for predicting additive risk effects associated with chemical mixtures.

7.4.4.5 Interspecies Extrapolation

The use of allometric conversions in interspecies extrapolations is discussed in Section 6.5.4.2 of the revised draft final ERA (TtEMI 2002). The use of assessment endpoint species as surrogates for other related or ecologically similar taxa is supported by current guidance (EPA 1997, 1999d). However, it should be recognized that differences among taxa are not accounted for in this type of analysis and

uncertainty exists about risk assessments of whole communities based on detailed analysis of only a few species.

7.4.4.6 Individual and Population Variation

Individuals within a population vary in several life history and behavioral traits. The dose models incorporated some of this variability by estimating typical values for most model parameters. However, these models focus on adult individuals and may not accurately represent ingestion of chemicals by juvenile stages that feed in a different manner or on different prey. Even among adults of the same population, considerable individual variation in exposure may occur.

7.4.4.7 Potential Confounding Factors

Nonchemical stressors may confound the interpretation of the effects of chemical stressors focused on in the BERA. Nonchemical stressors in soils include salinity, pH, nutrient deficiencies, and soil compaction and other physical disturbances. Nonchemical stressors in sediment may include salinity, seasonal cycles of inundation and drying, pH, nutrient deficiencies, and physical disturbance. To the extent possible, these nonchemical stressors were considered qualitatively in the evaluation of risk at the individual sites investigated.

7.5 ECOLOGICAL RELEVANCE AND IMPLICATIONS FOR RISK MANAGEMENT

None of the Tidal Area sites pose significant risk to ecological receptors based on the data available in the BERA. Potential risk exists to selected receptor groups and for selected chemicals at Froid and Taylor Road Site, Wood Hogger Site, and Otter Sluice, but in each case the potential risk is isolated.

At Froid and Taylor Road Site, alpha-chlordane, gamma-chlordane, and DDT were detected in sediment from location FTSSL102 at concentrations greater than the ER-M. The BERA characterized this site as wetland habitat to distinguish it from the upland habitat north of Froid Road. However, Location FTSSL102 is outside the channelized portion of the wetland and is dry for much of the year. No inorganic chemical exceeded its ER-M at this location, but the combined effect of pesticides at this location may pose some risk to benthic invertebrates during periods of inundation. No other elevated concentrations of chlordane were detected at the Froid and Taylor Road Site wetland habitat, indicating that this chemical is not being transported from the area of origin. Additionally, chlordane was not present in fish and amphipod tissues at concentrations sufficient to cause adverse effects to their avian predators. No significant risk to receptors outside of the small area represented by Location FTSSL102 is indicated at Froid and Taylor Road Site. Furthermore, neither pesticides nor other chemicals pose a risk

to birds or mammals, indicating that upper tropic levels are not being adversely impacted by chemicals present at Froid and Taylor Road Site.

Risk to benthic invertebrate was indicated at a single location (WHSSB022) in the southwestern corner of the Wood Hogger Site. That the contamination appears to be isolated was further documented in a map provided in Navy's response to agency comments on the revised draft final ERA (see Appendix A, Figure A-1). The ER-M_q of 2.75 was attributed solely to mercury, with an HQ of 26.06. Additionally, location WHSSBB05 within the boundary of SWMU-37 was designated as medium to high priority because of mercury. The single detected concentration was in a sample collected (WHSSW005) from the upland area within SWMU-37, where no permanent wetland or aquatic habitat exists.

Risk to aquatic organisms was indicated at a single location (WHSSW002) in Otter Sluice, near the southwestern corner of the Wood Hogger Site, where mercury was also elevated. Mercury was detected in surface water at 0.24 µg/L, which is above the AWQC. It is possible that benthic organisms exposed to this particular location may be at risk from exposure to mercury. However, mercury concentrations in clam tissue from Otter Sluice were below the effects levels reported in the literature, suggesting that although mercury was detected in surface waters in Otter Sluice, it does not pose a risk to aquatic organisms in Otter Sluice. Other than that one location, sediment and surface water data do not indicate any significant risk to benthic invertebrates or fishes in Otter Sluice.

8.0 CONTAMINANT FATE AND TRANSPORT AND CONCEPTUAL SITE MODELS

The fate and transport of contaminants depend on the physical and chemical properties of the chemicals released, the nature of the release, and the physical, chemical, and biological characteristics of the environment into which the contaminants have been released. At the Tidal Area sites, contaminants may have been released to surface soil, subsurface soil, and surface water. Confirmation groundwater sampling and analysis did not detect contaminants released to groundwater (TtEMI 1998b). Section 8.1 discusses the physical, chemical, and biological processes that affect contaminant fate and transport. Section 8.2 discusses site-specific fate and transport of human health and ecological risk drivers, based on the analysis of data presented in the respective risk assessments. Section 8.3 discusses the CSM for each site.

8.1 CONTAMINANT FATE AND TRANSPORT

To help focus the discussion, this section summarizes physical and chemical processes that govern fate and transport of risk drivers identified in the HHRA and ERA. These processes were identified in Section 6.0 (HHRA) and Section 7.0 (ERA) and are listed in Table 8-1. Factors that affect persistence of risk drivers in soil and surface water processes that affect site-specific contaminant migration are also discussed in this section.

Sections 8.1.1 through 8.1.2 describe the following:

- Physical and chemical processes governing fate and transport of site-related risk drivers in soil and surface water
- Physical and chemical characteristics of site-related risk drivers that affect their mobility and persistence in the environment
- Estimated potential mobility and persistence of site-related risk drivers

8.1.1 Physical and Chemical Processes Affecting Fate and Transport

Physical processes that affect fate and transport of aqueous and nonaqueous constituents include photolysis, volatilization, advection, dispersion, molecular diffusion, and nonaqueous-phase liquid (NAPL) transport. Principal chemical processes include water solubility, sorption and desorption, hydrolysis, oxidation-reduction reactions, precipitation and dissolution reactions, and biological processes. Each process is discussed in the following subsections.

8.1.1.1 Photolysis

Photolysis occurs naturally by free radical degradation after exposure to light. Because light is the necessary component, this process is only important in the fate of chemicals in surface soils and surface water. In general, the PAH risk drivers undergo rapid photolytic degradation under ordinary conditions; it may be an important factor in determining the fate of these compounds in surface soils and surface water at Tidal Area sites. In particular, photolysis is assumed to be the primary degradation mechanism for the petroleum-based product applied to surface water bodies for mosquito control (discussed in Section 2.7).

8.1.1.2 Volatilization

Compounds with high vapor pressures and low solubilities undergo a phase change, known as volatilization; from a solution or pure phase to a gaseous phase. Volatilization can occur both in the surface and subsurface environment. Temperature, pressure, constituent concentration, area of the solution-air interface, and degree of sorption all affect the rates of volatilization. Contaminants volatilized from the surface go directly to the atmosphere; however, subsurface volatilized compounds follow a complex path that may result in resorption of contaminants. The volatility of a compound can be described using the Henry's Law constant (see Table 8-1). Constituents with a Henry's Law constant of less than 10^{-7} atmosphere-cubic meter per mole (atm-m^{-3}/mol) are considered to be nonvolatile; those between 10^{-7} and 10^{-5} atm-m^{-3}/mol will volatilize slowly. Volatilization increases and becomes an important transfer mechanism at Henry's Law constants of greater than 10^{-5} atm-m^{3}/mol. Based on Henry's Law constants, the fate and transport of chemicals from volatilization at the Tidal Area sites is probably minor and may occur for some of the PAHs such as benzo(a)pyrene, which is found in soils at all of the Tidal Area sites. However, the seasonal flooding of Sites 2, 9, and 11 is expected to further minimize volatilization from soil.

8.1.1.3 Advection

Advection is the process by which dissolved chemicals are transported by the bulk motion of flowing groundwater. As previously mentioned, contaminants do not appear to have been released to groundwater in the Tidal Area because no plume of contaminants downgradient of potential source areas has been discovered. In flow systems dominated by advection, the chemical front of a compound migrating from a contaminant source generally remains well defined, and the chemical tends to be transported as a slug. As a result of advection, dissolved nonreactive chemicals (chemicals that do not adsorb to or otherwise interact with the geologic matrix or in response to changes in chemical equilibrium) are transported at the same rate as groundwater flow. In addition, the contaminant concentration at a point downgradient of the

source tends to increase rapidly with time when the chemical front approaches. Advective processes at the Tidal Area do not appear to play a significant role, because no plume of groundwater contamination has been detected.

8.1.1.4 Dispersion and Molecular Diffusion

Dispersion refers to the spreading of a given volume of chemical as it flows through the subsurface as a result of spatial variations in hydraulic conductivity. The type of dispersion that occurs as part of contaminant transport in groundwater is generally referred to as hydrodynamic dispersion. Hydrodynamic dispersion includes mechanical mixing (mechanical dispersion) during fluid advection, as well as molecular diffusion. Mechanical dispersion could occur during groundwater transport of chemicals between fill material, which has a high hydraulic conductivity in comparison with the Bay Mud, which has a low hydraulic conductivity.

Molecular diffusion is the process whereby chemicals move from points of higher concentration to points of lower concentration under the influence of a compound's kinetic activities. The effect of diffusion on chemical transport is a function of the concentration gradient and the diffusion coefficient. Dispersion and diffusion do not appear to be occurring to a significant degree within the Tidal Area sites, because groundwater contamination has not been detected (TtEMI 1998b).

8.1.1.5 Nonaqueous-Phase Liquid Transport

Organic chemicals can migrate through porous media by: (1) being completely dissolved in water, (2) containing components that are only partly dissolved in water, or (3) being a separate organic-phase liquid that is immiscible in water. NAPL transport occurs when the chemical is immiscible in water.

The density and viscosity of NAPLs control the transport of immiscible chemicals. Organic liquids that are less dense than water and float on water (for example, petroleum hydrocarbon distillates such as gasoline) are called light NAPL (LNAPL). The spread of LNAPLs is largely related to the hydraulic conductivity of the porous medium and localized hydraulic gradient. Organic liquids that are denser than water (for example, halogenated hydrocarbons such as trichloroethene are called dense NAPLs (DNAPL). The spread of DNAPLs is largely uncoupled from the hydraulic gradient that drives the advective transport of the dissolved contaminants. Movement of DNAPLs may have a significant downward component, but the ability of DNAPLs to migrate is influenced substantially by their viscosity and surface-wetting capabilities in water (Schwille 1988). NAPLs may also spread by capillary action in an aquifer and leave free-phase liquid behind at 0.3 to 5 percent pore space volume (Schwille 1988).

The NAPL residuals do not continue to migrate, but remain in place in the form of droplets. Over time and with water contact, the residual droplets provide a long-term source of contamination (Powers and others 1991). Based on the low levels of organic compounds detected in the soil and surface water samples, NAPL transport is not suspected at the Tidal Area sites.

8.1.1.6 Water Solubility

The solubility of chemicals in water is a function of temperature and specific properties of the chemical species. Table 8-1 presents water solubilities for the organic risk drivers identified at the Tidal Area sites. The higher the solubility, the greater the amount of chemical that will dissolve in water.

Organic constituents have not been detected consistently in wells at the Tidal Area sites. No evidence suggests that organic constituents are significantly dissolving in groundwater in any of the Tidal Area sites.

8.1.1.7 Sorption and Desorption

Sorption is the process of binding or holding chemical constituents tightly within the porous matrix, so that they cannot be easily leached or transported. The sorption process depends on specific properties of both the chemicals and the soil or aquifer materials. The sorption process is reversible, and desorption can occur in response to changing chemical conditions such as pH. Clay materials have strong sorptive properties, and the substantial clay content in Tidal Area Bay Mud would likely impede chemical movement in the subsurface.

Table 8-1 presents the organic carbon partition coefficient (K_{oc}) for organic risk drivers at the tidal Area sites. The K_{oc} quantifies the affinity of the chemical to sorb to organic matter. The larger the K_{oc}, the greater the preference for the chemical to sorb to organic matter. Risk drivers detected at the Tidal Area sites exhibit high K_{oc} values (ranging from 9.9E+05 to 3.3.E+06) and therefore would have a strong affinity for organic matter contained in site surface and subsurface soils. The high K_{oc} values also indicate that the risk drivers will tend to partition to the solid phase and not into aqueous or gaseous phases. The abundance of organic carbon at the Tidal Area sites provides a ready matrix for chemical sorption. TOC values were as high as 40 percent in some of the soil samples.

8.1.1.8 Hydrolysis

Hydrolysis is the decomposition of a chemical through a reaction with water. The process consists of an exchange between the hydroxyl ion of a water molecule and an ionic group from the chemical compound, resulting in decomposition of the compound.

Acid-base hydrolysis of a chemical compound results in the formation of a weak acid, base, or both. Acid-base hydrolysis controls hydrogen and hydroxyl ion concentration and thereby affects the pH of the medium. Hydrolysis reactions may ultimately influence the leachability of inorganic chemicals in the Tidal Area soil, because the solubility and mobility of inorganic compounds in soil are largely controlled by pH. For organic chemicals at the Tidal Area sites, hydrolysis is likely insignificant compared to processes such as biodegradation.

8.1.1.9 Oxidation-Reduction

An oxidation-reduction (redox) reaction results when a reacting chemical species (oxidizing agent) accepts electrons from other substances and is thereby reduced, while the reactant (reducing agent) donates electrons to other substances and is oxidized. Changes in oxidation state result in changes in sorption, solubility, toxicity, and other chemical characteristics. The potential importance of redox processes for Tidal Area sites is through the biologically mediated reaction of organic compounds. For example, sulfate-reducing bacteria may use sulfate as an oxidizing agent to convert sulfate and organic compounds to sulfide and inorganic carbon. Redox reactions are not considered to have a dominant influence on the fate and transport of chemicals for Tidal Area sites.

8.1.1.10 Precipitation and Dissolution

Precipitation occurs when the concentration of a chemical compound in solution exceeds the solubility limit. Inorganic compounds usually form a solid precipitate, while organic compounds form a liquid phase separate from the solvent. Dissolution is essentially the reverse of precipitation. Dissolution occurs when a chemical compound undergoes a phase change from a solid to a liquid. Precipitation and dissolution are influenced by temperature, pressure, concentration, ionic species activity, pH, and ionic strength of the solution. Precipitation and dissolution reactions are likely important in the seasonal surface water ponds at Sites 2, 9, and 11. High evaporation rates during summer months result in concentrating solutes in ephemeral pools, as evidenced by precipitation of salts observed around the pond perimeter during site visits and field sampling.

8.1.1.11 Biological Processes

Biological processes within the surface and subsurface soil modify the concentration and structure of chemicals in the environment. Biological processes of concern at the Tidal Area sites include bioconcentration, bioaccumulation, and biodegradation. Bioconcentration is the uptake and retention of chemicals from water. Bioaccumulation refers to the total uptake of chemicals from all media, including

water, soil, sediment, and food. Biodegradation is a general process involving microorganisms by which a chemical is destroyed or transformed into other, usually less harmful, forms. Biodegradation of risk drivers is influenced by microbes, oxygen, soil moisture content, temperature, pH, and the availability of nutrients. Biodegradation is likely an important process influencing the fate and transport of risk drivers at Tidal Area sites because of the presence of organic constituents in soils.

8.1.2 Mobility and Persistence of Chemicals

Each of the processes described in Section 8.1.1 depends on the physical and chemical properties of the compound and the physical and chemical properties of the soil and water. The net effect of these factors is a time-dependent redistribution (transport and fate) of the risk drivers in the water, soil, and air phases. This section discusses the mobility and persistence of these chemicals. Organic human health risk drivers in soil at the Tidal Area sites include PAHs, dioxin-like PCBs, dioxins, and furans. The only inorganic human health risk driver is arsenic, in both soil and surface water. No significant ecological risk drivers were identified in the ERA. However, chlordane in soil at the Froid and Taylor Road Site and mercury in sediment and surface water in Otter Sluice may pose potential risk in limited areas.

8.1.2.1 Organic Chemicals

The persistence of chemicals in the environment is important in assessing how rapidly a risk driver may degrade in the environment. Table 8-2 summarizes organic chemical persistence data for the Tidal Area risk drivers gathered from Howard and others (1991). These criteria are commonly presented in days for the chemical to be degraded by abiotic (for example, hydrolysis) or biotic processes to a concentration one-half of the original concentration. The criteria is expressed in a unit, referred to as the half-life.

The octanol water partition coefficient (K_{ow}) is useful in predicting the behavior of organic chemicals, particularly the affinity of a chemical for sorption by organic matter and its bioconcentration into biota. The K_{oc} is also useful in predicting sorption by soil or aquifer materials when the percent organic matter is known or can be estimated. The mobility of risk drivers in the soil solution can be predicted using K_{ow} and K_{oc} values (see Table 8-3).

Table 8-3 identifies mobility and persistence factor classes (low, medium, and high) based on physical-chemical properties and persistence factors. The physiochemical data from Tables 8-1 and the persistence data from Table 8-2 were reviewed relative to the criteria listed in Table 8-3 to evaluate site-related risk drivers for overall mobility potential. Each chemical was rated as low, medium, or high for mobility,

volatilization potential, and persistence in groundwater and surface water. Table 8-4 presents the results of this evaluation.

In general, organic risk drivers at the Tidal Area sites have low to medium mobility, low persistence in surface water, and high persistence in groundwater (see Table 8-4). Of particular importance at the Tidal Area sites is the low mobility associated with the log K_{oc} values greater than 2.7. This low mobility, in combination with the high TOC content of Tidal Area soil is a principal factor in retarding risk driver transport. This retardation is evidenced by the higher concentrations of risk drivers in surface soil compared to subsurface soil (depths greater than 2.5 feet bgs).

8.1.2.2 Inorganic Chemicals

The chemical attenuation and resulting persistence of inorganic risk drivers in the Tidal Area soil was evaluated based on two major types of reactions: (1) precipitation and dissolution (including redox); and (2) sorption and desorption and ion exchange.

Understanding the chemical form or aqueous speciation for each chemical and compound is important in evaluating the potential for either type of attenuation. The chemical's speciation may be as a monomolecular-charged species or as some complex charged formation. Speciation can significantly affect the mobility of metals, primarily because of its effect on a metal's aqueous solubility, the retention strength of the metal on the exchange site, and the sorption potential of inorganic chemicals within the porous medium.

The precipitation of inorganic minerals from solution is largely controlled by the concentration of calcium carbonate or hydroxides and by the percentage of organic materials or clay. The solubility of calcium carbonate is affected by carbonate equilibria, including the partial pressure of carbon dioxide, the pH of the solution, and the concentration of calcium present. The concentration of carbon dioxide in natural and agricultural soil may be 100 times or more higher than the level in the atmosphere. Calcium carbonate solubility is strongly influenced by the pH of the soil solution.

The persistence of inorganic constituents in Tidal Area soils is also influenced by other factors that affect the precipitate or coprecipitate (a minor component precipitating with another, more major component) of metals. Many metal ion species have been shown to incorporate themselves into coatings on grains by coprecipitation effects with calcite and other alkaline earth carbonates. Coprecipitation with other mineral phases, such as ferric oxyhydroxides, has also been postulated (Hem 1989). Aluminum, iron, and manganese are known to form amorphous precipitates of oxides and hydroxides that become the basis for the sorption sites for other metals.

Another major factor affecting the attenuation of metals in soils is redox potential. For the Tidal Area sites, the potential for reducing conditions is prevalent because of the anoxic soil environment. The reducing environment in the source area has resulted in conditions favorable for precipitation or coprecipitation of metals, which may have resulted in a high level of attenuation and limited migration of inorganic risk drivers.

Sorption and desorption and ion exchange reactions also influence the persistence of inorganic constituents as potential contaminant sources at the Tidal Area sites. Sorption occurs when an ion or molecule becomes attached to the surface of a solid particle such as clay. Metals are also known to sorb to oxides and oxyhydroxides of aluminum, iron, and manganese in the subsurface. In systems with hydrous oxides, it is often difficult to differentiate among coprecipitation, sorption, and ion exchange.

The ion exchange capacity for soils is pH dependent and increases with increasing pH. Clays and oxides at neutral pHs have relatively high ion exchange capacities. Soil, in general, carries a net negative charge and therefore has a greater affinity for cations (positively charged ions) than for anions (negatively charged ions). Cation exchange capacities (CEC) for common soil constituents range from 3 to 150 milliequivalents per 100 grams (meq/100g) for clay. Soil organic material may have a CEC of 100 to 350 meq/100g (Dragun 1988). Tidal Area soils typically have a high clay and organic matter content.

8.2 SITE-SPECIFIC FATE AND TRANSPORT

Based on the previous discussion of general fate and transport mechanisms, the following section describes the fate and transport of residential scenario risk drivers summarized in Table 8-1. Residential scenario risk drivers are discussed, because the residential scenario is more conservative than the industrial scenario; therefore, the scenario risk drivers include all of the industrial scenario risk drivers, plus other chemicals identified as risk drivers under the residential scenario. Ecological risk drivers are those identified in the ERA as posing potential risk to benthic invertebrates or fishes. No ecological risk drivers were identified for plants, birds, or mammals.

8.2.1 Site 2 – R Area Site Disposal

Human health risk drivers identified for soil in the R Area Site are PAHs benzo(a)pyrene and dibenz(a,h)anthracene), PCB-126, and arsenic. No ecological risk drivers were identified in the ERA. No human health or ecological risk drivers were identified for surface water at the site. PAHs may occur from waste disposed of on site and airborne deposition and runoff of smoke and vehicle exhaust. PAH concentrations exceeding PRGs were detected in samples collected from two distinct portions of the site:

in soil (sediment) from the northwestern portion of the site, along Otter Sluice and Baker Road, and in soil from the drainage ditch that runs along the southern portion of the site. These PAHs have low mobilities, which indicate that they will remain sorbed to soil and potentially be transported by soil erosion from surface water runoff. However, if these PAHs desorb into surface water, their persistence is low and they will degrade quickly (see Table 8-4). The limited fate and transport of these PAHs is further supported by the fact that the PAHs are limited to two distinct areas. No SVOCs were detected in surface water samples from the site; therefore, the PAHs appear to remain sorbed to the soil.

PCB-126 (3,3',4,4',5), also known as PCB-126, is a human health risk driver at R Area Site. This PCB, which has dioxin-like activity, was the only congener for which risks were greater than 1E-06. It was detected in 13 of 65 surface soil samples at concentrations ranging from 0.00016 to 0.0037 mg/kg. Deeper samples were not analyzed for PCB congeners.

The most likely transport mechanism for arsenic is erosion of the soil by surface water. Arsenic was detected in soils collected at locations throughout the site. The arsenic in the surface water may be from arsenic desorbing from site soil, or it may exist in the surface water entering the site. Most arsenic concentrations in soil and sediment were less than the estimated Tidal Area ambient concentration in soil. Because it is found throughout the Tidal Area sites and in the upland soil, arsenic concentrations likely represent native soil conditions.

R Area Site risk drivers could also be transported by groundwater. The flow velocity of groundwater through Bay Mud is so slow that this pathway is not considered to be viable. However, the flow of groundwater through fill (for example, berm fill) is a viable pathway although there is no evidence that groundwater transport is occurring. The transport of risk drivers by groundwater would depend on risk drivers desorbing into the groundwater or on groundwater transporting small soil particles with sorbed risk drivers. The lack of PAHs and arsenic in surface water samples collected from the site supports the evaluation that these chemicals have an affinity for soil; therefore, groundwater transport of these chemicals is assumed to be limited.

8.2.2 Site 9 – Froid and Taylor Road Site

The human health risk drivers identified for soil at the Froid and Taylor Road Site are benzo(a)pyrene and PCBs with dioxin-like activity. Arsenic was identified as a human health risk driver for surface water at the site. Chlordanes in sediments were identified as potential risk drivers for benthic invertebrates in a small area of the site.

Benzo(a)pyrene may result from airborne fallout and runoff of wood smoke and vehicle exhaust. Benzo(a)pyrene concentrations greater than PRGs were detected in soils collected along the eastern and southeastern portions of the site adjacent to Taylor Road. Benzo(a)pyrene has a low mobility, and therefore will most likely remain sorbed to soil and be transported by soil erosion from surface water. However, if benzo(a)pyrene does desorb into surface water, it has low persistence in surface water and will degrade quickly (see Table 8-4). No PAHs were detected in the surface water samples from the site, which indicates that the benzo(a)pyrene remains sorbed to the soil. PCB 126, which has dioxin-like activity, was detected in 2 of 12 surface soil samples.

The most likely transport of arsenic would be erosion of the soil by surface water. Arsenic was detected in all surface water samples collected at the site. The arsenic in surface water may be from arsenic desorbing from site soil or it may exist in the surface water entering the site. Most concentrations of arsenic are less than the estimated Tidal Area ambient concentration.

Elevated concentrations of chlordane indicate a small site release or applied pesticides in a localized area. No other elevated concentrations of chlordane were detected at the Froid and Taylor Road Site wetland habitat, indicating that this chemical is not being transported from the area of origin.

Groundwater transport of the risk drivers identified at Froid and Taylor Road Site would be very limited. The flow velocity of groundwater through Bay Mud is so slow that this pathway is not considered to be viable; however, the flow of groundwater through fill (for example, construction and road fill) is a viable pathway. The transport of risk drivers by groundwater would depend on risk drivers desorbing into the groundwater, or on the groundwater transporting small soil particles with sorbed risk drivers. The lack of benzo(a)pyrene and infrequent PCBs in surface water samples from the site indicate that these compounds have an affinity for soil; therefore, groundwater transport of benzo(a)pyrene and PCBs is assumed to be limited.

8.2.3 Site 11 – Wood Hogger Site

Human health risk drivers identified for soil at the Wood Hogger Site are PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd) pyrene), dioxins, furans, and PCBs with dioxin-like activity. No human health or ecological risk drivers were identified for surface water at this site. Mercury in sediment was indicated as posing a potential risk to benthic invertebrates at one location in the Wood Hogger Site.

PAHs may result from site activities, airborne deposition, and runoff of exhaust and smoke particles. Benzo(a)pyrene was detected in soil samples in the northern and southern areas of the site. The PAHs

other than benzo(a)pyrene were detected only in soil samples collected around the wood hogger machinery and Building A-29 at SWMU 37. All of the PAHs have low mobilities; therefore, they will most likely remain sorbed to soil and may be transported by soil erosion from surface water runoff. However, if benzo(a)anthracene or benzo(a)pyrene desorb into surface water their persistence is low and they will degrade quickly (see Table 8-4). The persistence of benzo(b)fluorathene, benzo(k)fluoranthene, and dibenz(a,h)anthracene in surface water ranges from low to high, and the persistence of indeno(1,2,3-cd) pyrene is high, so these PAHs would persist if they desorbed into surface water. The limited fate and transport of benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene is further supported by the fact that they are limited to the southwestern corner of the site. No PAHs were detected in the surface water samples collected from the site, which indicates that the PAHs will remain sorbed to the soil.

Dioxins and furans may result from the presence of PCP on site or from combustion of wood products in the former incinerator on site. Atmospheric fallout may also be a major contributor to ambient dioxin concentrations in soil (EPA 1994b). Samples analyzed for dioxins were collected from the area of the former incinerator were detected only on the eastern side of the incinerator. The mobility of dioxins is low, which indicates that they will remain sorbed to soil and potentially be transported by soil erosion from surface water runoff. However, if dioxins desorb into surface water, their persistence is high and they will degrade slowly (see Table 8-4).

Arsenic is a risk driver for soil. Arsenic was detected only twice at levels exceeding the estimated ambient concentration and they were from soil samples collected along the northern and western edges of the site. Arsenic was detected in surface water samples but is not considered to be a risk driver in surface water. The arsenic in the surface water may be from arsenic desorbing from site soil, or the arsenic may exist in the surface water entering the site. As discussed earlier, the soil beneath ponded water may have a higher metal content than other site soils.

Mercury in sediment was detected in an area near the southwestern corner of the Wood Hogger Site. Mobility of mercury in sediment at this site appears to be limited, because nearby samples did not contain elevated concentrations. Concentrations of mercury in biotic samples collected from the area indicate that mercury is not biomagnifying to a significant extent at the site.

Groundwater transport of the risk drivers identified at Wood Hogger Site would be very limited. The flow velocity of groundwater through Bay Mud is so slow that this pathway is not considered to be viable; however, the flow of groundwater through fill (for example, berm fill) is a viable pathway. The transport of risk drivers by groundwater would depend on risk drivers desorbing into groundwater or on

groundwater transporting small soil particles with sorbed risk drivers. The lack of PAHs in surface water samples from the site indicates that these chemicals stay sorbed to soil; therefore, groundwater transport of these chemicals is assumed to be limited.

8.2.4 Otter Sluice

Human health risk drivers identified in sediment in Otter Sluice are benzo(a)pyrene and arsenic. No human health risk drivers were identified in surface water. The only potential risk to benthic invertebrates and fishes identified in the ERA was mercury in surface water.

Benzo(a)pyrene may occur from waste disposed in adjacent Tidal Area sites, airborne disposition, and runoff of smoke and vehicle exhaust. Benzo(a)pyrene was detected in 2 of 11 sediment samples at concentrations of 0.039 and 0.14 mg/kg. No PAHs were detected in surface water, which indicates that they remain sorbed to sediment.

Although statistical analysis indicated that site concentrations of arsenic were greater than ambient concentrations, the degree of exceedance is small. Arsenic occurs naturally in sediments, and the arsenic concentrations do not appear to be site-related and no source was identified.

Surface water exposure concentrations for mercury exceeded AWQCs. Because the detection limit for mercury in surface water was generally higher than the AWQC, risk posed by mercury is not known. The elevated mercury was detected in a surface water sample collected from Otter Sluice, adjacent to a sediment sampling location in the Wood Hogger Site where mercury was also elevated. It is possible that aquatic organisms exposed to this particular location may be at risk from exposure to mercury. However, the remaining sediment and surface water data indicate no unacceptable risk to benthic invertebrates or fishes in Otter Sluice, suggesting that no significant transport or biomagnification of mercury is occurring in Otter Sluice. Mercury in clam tissue collected from Otter Sluice was below risk effect levels reported in the literature.

8.3 CONCEPTUAL SITE MODELS

The CSM defines the exposure pathways evaluated in the risk assessment. It also provides other key information, such as contaminant sources and release and transport mechanisms, and the relative importance of each of those processes or components to specific measurement and assessment endpoints. The CSM establishes whether a complete exposure pathway exists to a receptor of interest and aids in identifying (1) missing information and (2) areas of uncertainty in the understanding of how different stressors may pose a risk to selected receptors. Site specific CSMs are presented in the following sections.

8.3.1 R Area Site Conceptual Site Model

The R Area Site consists of a mosaic of brackish and salt marsh habitat that is seasonally inundated and completely surrounded by berms. Culverts allow some surface water to pass between Otter Sluice and the R Area Site, although at least one of the culverts may now be blocked. During periods of heavy rainfall, the R Area Site may fill with water, which gradually drains through culverts to Otter Sluice and Suisun Bay. During extreme high tides, water may flow in the opposite direction, from Otter Sluice into the R Area Site. During the dry season, most of the marsh surface remains dry, and water remains only in a few brackish ponds in a remnant tidal slough on the western side of the R Area Site.

The CSM (see Figure 8-1) lists potential sources and highlights the most likely chemical migration routes (PRC 1995a). Except for the triangular area in the northwestern part of the site bounded by Miller and Baker Roads and which has been filled to a higher elevation, the remainder of the R Area Site is subject to seasonal flooding. Waste consisting of construction debris along Baker Road and empty ammunition boxes along Pickett Road, was observed during site visits and field investigations. Except for fill areas, the larger area is a seasonal wetland, with no physical evidence of disposal. Because the area floods periodically and the weak marsh surface lacks roadway access to the area, even minor disposal of waste is considered unlikely to be in the R Area Site.

The major exposure media are expected to be surface soil and surface water, although the extent of surface water varies seasonally. Wind transport is not considered to be an important transport pathway for the R Area Site. The site consists of surface water and wet, clayey soils; therefore, dust is not expected to be generated. Volatilization is not considered to be a pathway; no VOCs were detected during the RI. The major migration pathway for chemicals in the R Area Site is likely surface flow from the seasonally flooded area through the culverts into Otter Sluice. The RI results indicate that the Otter Sluice surface water was not affected by any identifiable source of contamination.

8.3.2 Froid and Taylor Road Site Conceptual Site Model

The Froid and Taylor Road Site includes two habitat areas: (1) a small, upland habitat north of the road, which is typically dry, and (2) a wetland south of the road, which has some ponded water most of the year. The CSM for the Froid and Taylor Road Site (see Figure 8-2) lists potential sources of chemicals and highlights the most likely migration routes of chemicals. The Froid and Taylor Road Site is bounded by roads and a railroad trestle to the west. Historical photographs show that a road ran through the middle of the site, segments of which are still visible. Although small pieces of metal debris have been observed

at the site, and a piece of ordnance was found during the IAS, no other potential sources of chemicals are visible at the site.

The area south of Froid Road contains a ponded area surrounded by a small wetland, which is the remnant channel of Otter Sluice before it was channelized in the 1940s by the Navy. This site receives tidal inflow only during very high tides, followed by a gradual decrease in surface water and an increase in salinity (to more than 50 parts per thousand in July 1994) through evaporation. High turbidity and low dissolved oxygen are typical of late summer periods of dry down (WESCO 1995). Some of the surface water drains to the south through a culvert under Taylor Road and then to Otter Sluice, upstream of the Wood Hogger Site.

Surface waters and surface soils are expected to be the major exposure media at the site. Wind transport is not considered to be an important transport pathway for the Froid and Taylor Road Site. The site consists of surface water and wet, clayey soils; therefore, dust is not expected to be generated. Volatilization is not considered to be a pathway; no VOCs are present at the site. The major chemical migration pathway at the site appears to be associated with surface water movement.

8.3.3 Wood Hogger Site Conceptual Site Model

Most of the site is upland (the center of Wood Hogger Site is a large, rectangular, nonvegetated paved area); wetlands occur to the west and the south, where the Wood Hogger Site borders Otter Sluice. The boundary between upland and wetland habitats at the Wood Hogger Site is dynamic and influenced by hydrologic factors. Because of annual variability in water level, the boundary between these two habitats varies from year to year. The CSM shown on Figure 8-3 reflects information gained to date on exposure pathways and chemical migration in the Wood Hogger Site. The CSM (see Figure 8-3) lists potential sources and highlights the most likely chemical migration routes. The Wood Hogger Site is bounded by Otter Sluice on the south, a levee along Otter Sluice on the west, Taylor Road on the north, and the Froid and Taylor Road Site on the east. Although no physical evidence of chemical releases is present in the northern area, the area may receive runoff from the former dunnage yard and presently delineated SWMU 37 area, where metal materials were stored. These northwestern and southern areas are seasonally flooded.

Site surface waters and soils in several locations are expected to be the major exposure media at the site. Wind transport is not considered to be an important transport pathway for the Wood Hogger Site. The site consists of surface water and wet, clayey soils; therefore, dust is not expected to be generated. Volatilization is not considered to be a pathway because of the lack of VOCs detected during the RI.

8.3.4 Otter Sluice Conceptual Site Model

During the construction of SBD Concord, Otter Sluice was created to route water around the Wood Hogger Site and R Area Site. This permanently inundated channel is the only perennially aquatic habitat in the Tidal Area. Otter Sluice provides a narrow channel of open water along the western and southern boundary of the Tidal Area sites. The channel is about 6 to 8 feet deep at high tide and provides year-round habitat for fish and aquatic invertebrates; water depth varies with tidal height. Otter Sluice was included in the supplemental field investigation in 1998 to address concerns that chemicals released in the R Area Site or Wood Hogger Site may have migrated into Otter Sluice.

Sediment and surface water in Otter Sluice are the major exposure media. However, sediment concentrations in Otter Sluice were generally low, as described in the ERA summary (Section 7.0). Surface water samples were generally uncontaminated. As discussed for the Wood Hogger Site, high detection limits for mercury make it difficult to estimate the extent of elevated concentrations of mercury at the site; therefore, the extent of mercury contamination in Otter Sluice is uncertain. Organic chemicals were detected infrequently in surface water samples from Otter Sluice.

TABLE 8-1

PHYSICAL-CHEMICAL PROPERTIES OF RISK DRIVERS [a]
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD CALIFORNIA

CAS Number	Analyte	COC Medium	Analyte Class[b]	Chlorinated (Y/N)[c]	Solubility (mg/L at 25°C)	Vapor Pressure (mm Hg at 20°C)	Henry's Law Constant (atm-m^3/mol at 20°C)	Log K_{ow}	K_{oc}	Log K_{oc}	Molecular Weight	Density (g/cm^3 at 20°C)
7440-38-2	Arsenic	Soil, Surface Water	M	--	Insoluble	--	--	--	--	--	74.9	5.727
7439-97-6	Mercury[d]	Soil	M	--	0.28	2.00E-03	--	5.95	--	--	201	13.53
56-55-3	Benzo(a)anthracene	Soil	S	N	0.010	2.2E-08	1.0E-06	5.61	--	5.30	228	1.274
50-32-8	Benzo(a)pyrene[1]	Soil	S	N	4.00E-03	5.60E-09	2.40E-06	6.50	1.95E+06	6.29	252	1.35
205-99-2	Benzo(b)fluoranthene	Soil	S	N	2.3E-03	5.6E-09	4.9E-07	6.06	--	6.74	252	1.351
207-08-9	Benzo(k)fluoranthene	Soil	S	N	7.6E-04	9.59E-11	--	6.06	--	5.74	252	--
53-70-3	Dibenzo(a,h)anthracene[1]	Soil	S	N	2.49E-03	1.00E-10	7.33E-09	6.50	1.66E+06	6.22	278	1.28
193-39-5	Indeno(1,2,3-cd)pyrene	Soil	S	N	0.062	1.00E-11 to 1.00E-06	6.95E-08	6.58	2.01E+04	6.20	276	--
57465-28-8	PCB-126 (3,3',4,4',5)	Soil	P	Y	--	--	--	--	--	--	326	--
35822-46-9	1,2,3,4,6,7,8-HPCDD[2]	Soil	D	Y	2.0E-08	--	--	--	--	--	--	--
67562-39-4	1,2,3,4,6,7,8-HPCDF[2]	Soil	F	Y	1.4E-04	1.68E-08	4.1E-06	7.92	--	--	409	--
3268-87-9	1,2,3,4,6,7,8,9-OCDD[2]	Soil	D	Y	7.4E-08	8.25E-13	6.74E-06	10.07-12.26	--	--	460	--
39001-02-0	1,2,3,4,6,7,8,9-OCDF[2]	Soil	F	Y	1.2E-06	--	1.7E-06	8.20	--	8.57	444	--
1746-01-6	2,3,7,8-TCDD[c,2]	Soil	D	Y	3.17E-10	1.0E-05 to 1.7E-06	5.4	6.15 to 6.84	9.9E+05 to 3.3E+06	6.00 to 6.52	322	1.827 (25°C)

TABLE 8-1 (Continued)

PHYSICAL-CHEMICAL PROPERTIES OF RISK DRIVERS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD CALIFORNIA

Notes:

a	Human health and ecological risk drivers.
b	Analyte classes are classified as metals (M), semivolatile organic compounds (S), polychlorinated biphenyls (B), dioxin (D), or furan (F).
c	For organic compounds, N indicates that the compound is not chlorinated; Y indicates that the compound is chlorinated.
d	Mercury is only an ecological risk driver. All other chemicals listed in Table 8-1 are human health risk drivers
e	2,3,7,8-TCDD was not detected above laboratory method detection limits. It is included because equivalent concentrations of this dioxin are calculated from the detected dioxin concentrations.

atm-m^3/mol	Atmospheres-cubic meters per mole	K_{oc}	Organic carbon partition coefficient
CAS	Chemical Abstracts Service	K_{ow}	Octanol/water partition coefficient
COC	Chemical of concern	mg/L	Milligrams per liter
g/cm^3	Grams per cubic centimeter	mm Hg	Millimeters of mercury
HPCDD	Heptachlorodibenzo-p-dioxin	TCDD	Tetrachlorodibenzo-p-dioxin

References:

--	Information not available or not applicable.
1	Information regarding this chemical gathered from Montgomery and Welkon (1991); Merck Index, 11th Edition; National Institute of Occupational Safety and Health (1994); Howard and others (1991); EPA (1988)
2	Hazardous Substances Databank

TABLE 8-2

PERSISTENCE OF RISK DRIVERS[a]
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD CALIFORNIA

CAS Number	Analyte	Half-Life (days)		
		Soil	Surface Water	Groundwater
7440-38-2	Arsenic	--	--	--
7439-97-6	Mercury[b]	--	--	--
56-55-3	Benzo(a)anthracene	365	4-5	--
50-32-8	Benzo(a)pyrenea	57-530	0.02-0.05	114-1,060
205-99-2	Benzo(b)fluoranthene	--	--	--
207-08-9	Benzo(k)fluoranthene	730	--	--
53-70-3	Dibenzo(a,h)anthracene[c]	361-940	0.25-32.6	722-1,880
193-39-5	Indeno(1,2,3-cd)pyrene	--	--	--
57465-28-8	PCB-126 (3,3',4,4',5)	--	--	--
35822-46-9	1,2,3,4,6,7,8-HPCDD	--	--	--
67562-39-4	1,2,3,4,6,7,8-HPCDF[d]	--	--	--
3268-87-9	1,2,3,4,6,7,8,9-OCDD[2]	--	--	--
39001-02-0	1,2,3,4,6,7,8,9-OCDF[2]	--	--	--
1746-01-6	2,3,7,8-TCDD[d,e]	1-12 years	46 days to >50 years	--

Notes:

a Human health and ecological risk drivers.

b Mercury is only an ecological risk driver. All other chemicals listed in Table 8-2 are human health risk drivers.

c Howard, P.H. and others. 1991. "Handbook of Environmental Degradation Rates." Lewis Publishers, Chelsea, Michigan.

d Hazardous Substance Databank.

e 2,3,7,8-TCDD was not detected above laboratory method detection limits. It is included because equivalent concentrations of this dioxin are calculated from the detected concentrations.

-- Information not available

CAS Chemical Abstracts Service
HPCDD Heptachlorodibenzo-p-dioxin
TCDD Tetrachlorodibenzo-p-dioxin

TABLE 8-3

MOBILITY AND PERSISTENCE FACTORS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD CALIFORNIA

	Mobility Factors					Persistence Factors	
Mobility and Persistence Class	**Water Solubility (mg/L)**	**Log K_{ow}**	**Log K_{oc}**	**Vapor Pressure (mm Hg)**	**Henry's Law Constant (atm-m^3/mol)**	**Surface Water Half-Life (days)**	**Groundwater Half-Life (days)**
Low	< 10	> 3	> 2.7	< 1.0E-7	< 3.0E-7	< 0.5	< 30
Medium	10 to 1,000	2.7 to 3.0	1.7 to 2.7	1.0E-7 to 0.01	3.0E-7 to 0.001	0.5 - 1.0	30 to 90
High	> 1,000	< 2.7	< 1.7	> 0.01	> 0.001	> 1.0	> 90

Notes:

atm-m^3/mol	Atmospheres-cubic meters per mole
K_{oc}	Organic carbon partition coefficient
K_{ow}	Octanol/water partition coefficient
mg/L	Milligrams per liter
mm Hg	Millimeters of mercury

TABLE 8-4

MOBILITY AND PERSISTENCE FACTORS FOR RISK DRIVERS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD CALIFORNIA

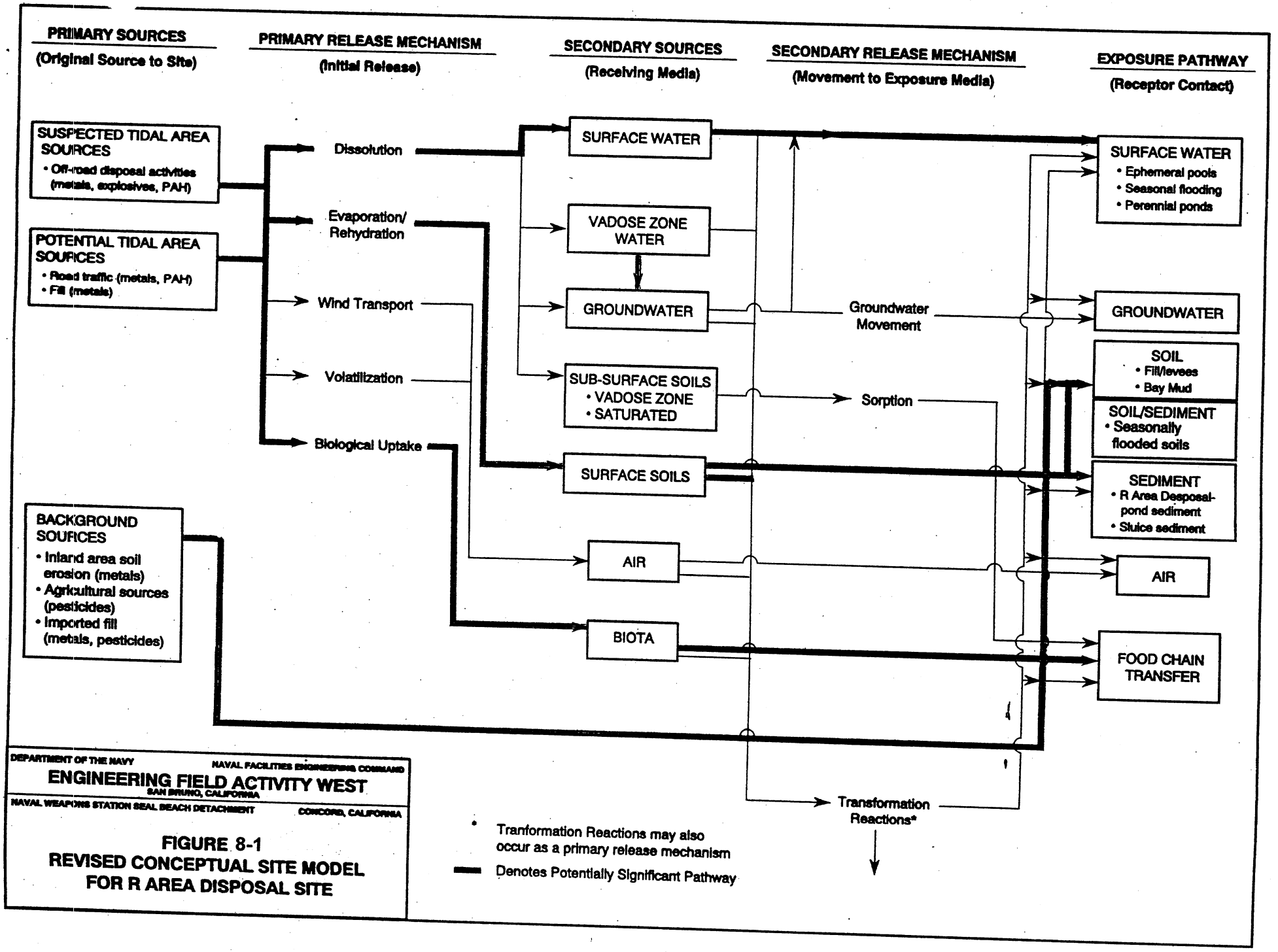
Analyte	Mobility Factors					Persistence Factors	
	Water Solubility Class	Log K_{ow} Class	Log K_{oc} Class	Vapor Pressure Class	Henry's Law Constant Class	Surface Water Half-Life Class	Groundwater Half-Life Class
Arsenic	--	--	--	--	--	--	--
Mercury	Low	Low	--	Medium	--	--	--
Benzo(a)anthracene	Low	Low	Low	Low	Medium	High	--
Benzo(a)pyrene	Low	Low	Low	Low	Medium	Low	High
Benzo(b)fluoranthene	Low	Low	Low	Low	Medium	--	--
Benzo(k)fluoranthene	Low	Low	Low	Low	--	--	--
Dibenz(a,h)anthracene	Low	Low	Low	Low	Low	Low to high	High
Indeno(1,2,3-cd)pyrene	Low	Low	Low	Low to Medium	Low	--	--
PCB-126 (3,3',4,4',5)	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HPCDD	Low	--	--	--	--	--	--
1,2,3,4,6,7,8-HPCDF[2]	Low	Low	--	Low	Medium	--	--
1,2,3,4,6,7,8,9-OCDD[2]	Low	Low	--	Low	Medium	--	--
1,2,3,4,6,7,8,9-OCDF[2]	Low	Low	Low	--	Medium	--	--
2,3,7,8-TCDD[a]	Low	Low	Low	Medium	High	High	--

TABLE 8-4 (Continued)

MOBILITY AND PERSISTENCE FACTORS FOR RISK DRIVERS
REVISED DRAFT FINAL REMEDIAL INVESTIGATION
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD CALIFORNIA

Notes:

HPCDD	Heptachlorodibenzo-p-dioxin
K_{oc}	Organic carbon partition coefficient
K_{ow}	Octanol/water partition coefficient
TCDD	Tetrachlorodibenzo-p-dioxin
a	2,3,7,8-TCDD was not detected above laboratory method detection limits. However, 2,3,7,8-TCDD is included because equivalent concentrations of this dioxin were calculated from the concentrations of other detected dioxin compounds.
--	Information not available



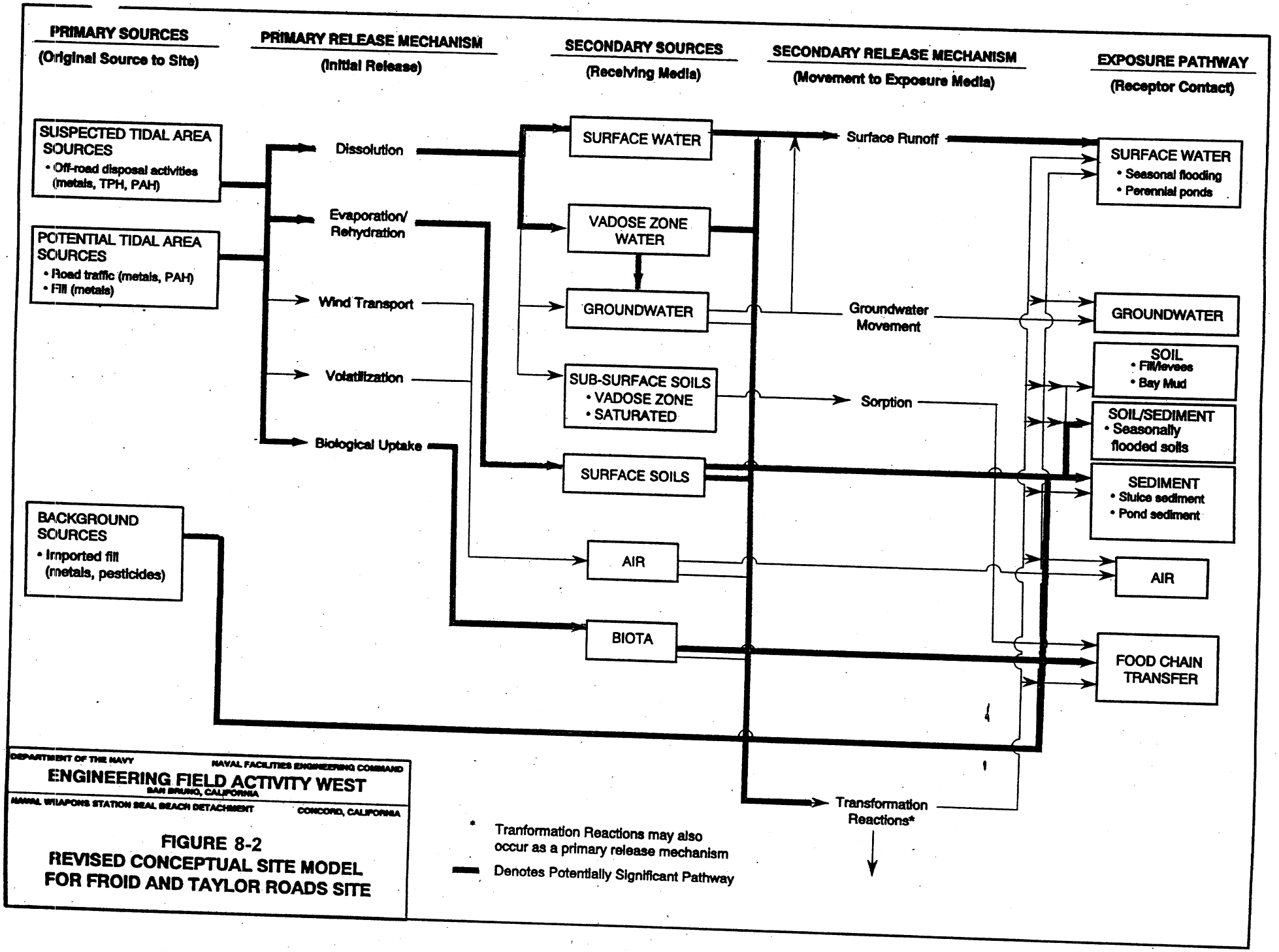
DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

ENGINEERING FIELD ACTIVITY WEST

SAN BRUNO, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH DETACHMENT — CONCORD, CALIFORNIA

FIGURE 8-1
REVISED CONCEPTUAL SITE MODEL FOR R AREA DISPOSAL SITE



DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
ENGINEERING FIELD ACTIVITY WEST
SAN BRUNO, CALIFORNIA
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT — CONCORD, CALIFORNIA

FIGURE 8-2
REVISED CONCEPTUAL SITE MODEL FOR FROID AND TAYLOR ROADS SITE

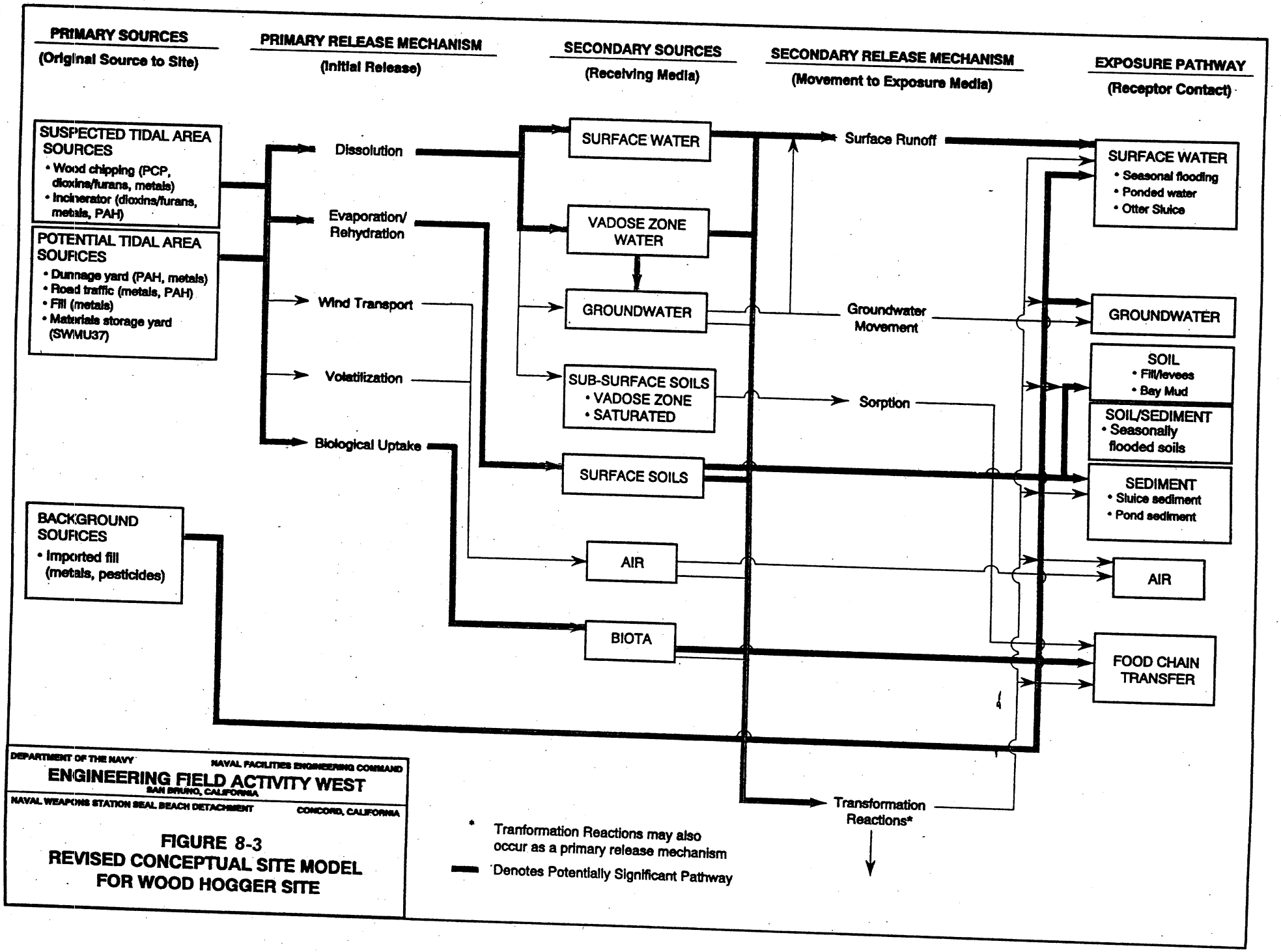


FIGURE 8-3
REVISED CONCEPTUAL SITE MODEL
FOR WOOD HOGGER SITE

9.0 CONCLUSIONS AND RECOMMENDATIONS

This RI for the Tidal Area sites at Naval Weapons Station SBD Concord, California includes the following sites: the R Area (Site 2), Froid and Taylor Road (Site 9), and the Wood Hogger (Site 11, including SWMU 37). Due to its proximity adjacent to the R Area and Wood Hogger, Otter Sluice was included as an additional AOI to evaluate whether contaminants were present. As mentioned throughout the report, the Tidal Area Landfill (Site 1) was only briefly discussed in this document because the Landfill is the subject of a separate response action.

The main purposes of the RI were as follows:

1. Describe the general environmental features and operational history of the Tidal Area sites that would contribute to identifying sources of contamination and chemicals associated with these sources
2. Describe the field and laboratory investigation methods
3. Characterize the geology and hydrogeology of the Tidal Area sites
4. Assess the nature and extent of soil, sediment, surface water, and groundwater contamination at each site
5. Conduct an HHRA and ERA
6. Assess the fate and transport of chemical constituents found to present a potential risk to human health or the environment
7. Develop conclusions and recommendations on the need of a response action that would be addressed in a FS

The following sections provide summaries of site-specific results and recommendations for the Tidal Area sites. Conclusions and recommendations presented in this section focus on the findings of this report (and the ERA [TtEMI 2002]), including chemical characterization, HHRA, ERA, and contaminant fate and transport. As mentioned previously, the Landfill itself is not included in the HHRA or ERA. However, the R Area Site is located in the immediate proximity of the Landfill, and the Landfill's potential impacts on the R Area Site are evaluated in this RI.

The recommendations of this RI are based on human health and ecological risk evaluations. Risk to human and ecological receptors were modeled using toxicity benchmarks. Uncertainty exists with the risk assessment modeling due to chemicals lacking toxicity benchmarks and chemicals detected above evaluation criteria. This uncertainty is limited, since the scientific community and others have considered the chemicals of most priority and reasonable assumptions have been used to address nondetected chemicals or chemicals above evaluation criteria.

Based on the results of this RI, no further action is recommended for the R Area (Site 2), Froid and Taylor Road (Site 9), and Wood Hogger (Site 11) IRP sites. Because these three sites are recommended for no further action (NFA), no FS is recommended. None of the these three Tidal Area sites pose significant risk to human health or ecological receptors based on the data available and the risk scenarios assessed.

This RI further concluded there are no apparent groundwater contaminants. In addition, groundwater does not provide a signicant exposure pathway for human or ecological receptors. Groundwater at the site is not potable because none of the wells are suitable under state criteria for use as a potential groundwater supply due to TDS concentrations that exceed 3,000 mg/L. While some wells at the site do not exceed the federal TDS concentrations (10,000 mg/L) many others exceed the TDS of seawater (35,000 mg/L). Further evaluation of groundwater is scheduled to occur to evaluate the potential for the release of contaminated groundwater from the Tidal Area Landfill (Site 1) as part of the response action for the Landfill.

A summary for each of the Tidal Area sites is presented in the following sections.

9.1 R AREA SITE SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The follow sections summarize the chemical characterization, HHRA, ERA, and contaminant fate and transport for the R Area Site. In addition, overall recommendations are presented for the site.

9.1.1 R Area Site Chemical Characterization

Soil and sediment samples from 0 to 0.5 foot bgs were collected at 111 locations at the R Area Site in July and August 1995, using an unbiased grid sampling design. Each square grid section measured 200 feet on a side. Unbiased subsurface samples were collected at 20 randomly selected grid nodes to assess soil chemical concentrations at depth. Focused (biased) soil samples were collected at locations where evidence of disposal activities was observed or reported in earlier investigations. Surface soil samples were analyzed for SVOCs, pesticides, PCBs, and inorganic chemicals. Subsurface soil samples also were analyzed for VOCs. Several soil samples also were analyzed for explosive compounds and hexavalent chromium.

The R Area Site has no permanent surface water, but becomes inundated during the wet season; isolated ponded areas remain for variable durations during drydown. Surface water in the R Area Site is a combination of rain that falls directly within the bermed site and Suisun Bay water that enters through culverts in the western portion of the site.

Surface water samples collected from 36 locations were analyzed for metals, and organic chemicals were analyzed at 35 of the 36 locations. Table 5-1 summarizes the samples collected from all Tidal Area sites. Four rounds of surface water sampling were conducted: July and October 1995 and January and May 1996. Water was not present at all sampling locations during each sampling event. Sampling locations included sloughs, continually flooded areas, and ephemeral ponds. Unfiltered surface water samples from the R Area Site were analyzed for VOCs, SVOCs, pesticides, PCBs, explosives, and inorganic chemicals.

9.1.2 R Area Site Human Health Risk Assessment

The objective of the HHRA completed for the R Area Site was to evaluate potential cancer risks and noncancer health effects associated with exposure to COPCs in soil and surface water at the site. Residential and industrial land use scenarios were evaluated for surface (0 to 0.5 foot bgs) and subsurface (0 to 6 feet bgs) soils. However, because the risk estimates were very similar for the two soil depth intervals, only the higher of the two results is presented below. Soil and surface water COPCs evaluated in the HHRA were metals, VOCs, SVOCs, pesticides, and PCBs.

For the residential exposure scenario, the RME cancer risk for soil (5×10^{-5}) was within the risk management range of 10^{-6} to 10^{-4} and the segregated HI was less than 1, the level of concern. Arsenic was the primary contributor to the cancer risk (4×10^{-5}) and HI (0.6). However, arsenic occurs naturally in soils, and concentrations of arsenic do not appear to be site-related; no source was identified, and site concentrations are comparable to ambient levels. PAHs (7×10^{-6}) were the only other chemicals for which the cancer risk estimates exceeded 10^{-6}.

For the industrial exposure scenario, the RME cancer risk for soil (1×10^{-5}) was within the risk management range and the HI was less than 1. Similar to the residential scenario, arsenic (9×10^{-6}) and PAHs (2×10^{-6}) were the main contributors to the cancer risk.

RME concentrations of lead in soil were less than EPA Region 9 PRGs for residential and industrial soils.

For surface water, RME cancer risks for residential (3×10^{-7}) and industrial (2×10^{-7}) scenarios were below the risk management range and HIs were less than 1.

9.1.3 R Area Site Ecological Risk Assessment

Wetland plants, benthic invertebrates, and birds and mammals were the principal receptors of concern at the R Area Site. The sections below summarize the risk characterization for each receptor group. Details

are in the revised draft final ERA (TtEMI 2002) and the responses to comments on the same ERA document, provided in Appendix A of this RI.

9.1.3.1 Risk to Wetland Plants

Estimates of exposure and effects to wetland plants were based on two qualitative measures: (1) comparison of soil chemical gradients and pickleweed health in the Tidal and Litigation Areas and (2) evaluation of pickleweed growth in "bare spots" of the R Area Site since 1993. Quantitative measures, such as comparison of sediment concentrations with phytotoxicological benchmarks, were determined by the agencies to be inappropriate for halophytes in a tidal marsh (TtEMI 2000a). Comparison of sediment concentrations in the R Area Site with those in the Litigation Area supported the conclusion that pickleweed and other wetland plants are not at risk from chemicals in the R Area Site. Chemical concentrations in the R Area Site are significantly lower than chemical concentrations in the Litigation Area, which were determined to pose little or no risk to wetland plants. Based on comparison of sediment concentrations in the R Area Site with those in the Litigation Area and on the apparently healthy growth of pickleweed in formerly bare spots, it is reasonable to assume that chemicals in the R Area Site pose no significant risk to pickleweed or other wetland plants.

9.1.3.2 Risk to Benthic Invertebrates

Risk to benthic invertebrates exposed to sediment and surface water in the R Area Site was evaluated quantitatively using generally accepted toxicological benchmarks and criteria. Neither sediment nor surface water pose unacceptable risk to benthic invertebrates at the site.

Risk to invertebrates exposed to chemicals in sediment was evaluated quantitatively by calculating the mean ER-M_q, which considers the additive effect of exposure to chemical mixtures (Long and MacDonald 1998). In the R Area Site, no sediment sampling locations were ranked as high priority; only four locations were medium to high priority. The maximum ER-M_q (0.55) was attributed to nickel and zinc. The ER-M for nickel is not considered to be a meaningful indicator of risk to benthic invertebrates, because ambient nickel concentrations in San Francisco Bay sediment are almost three times higher than the ER-M. The HQ for zinc at one location was 2.34, which does not represent significant risk to invertebrate populations. Ninety-six percent of the samples in the R Area Site were either low or medium to low priority, with a maximum of three chemicals exceeding the ER-M, including nickel. The distribution of ER-M_qs across the R Area Site indicates little risk to populations of invertebrates.

Risk to invertebrates from exposure to surface water was evaluated by calculating HQs using AWQCs. Inorganic HQs for surface water were exceeded for five metals, but were greatest for aluminum and mercury. Because aluminum is toxic only under pH conditions much lower than the typical pH of surface water in the area, aluminum is not considered to pose a significant risk at the site. The current land use in the R Area Site is to provide a buffer zone for Navy activities at the shore; this land use is not expected to change. If activities at the site were expected to result in a reduction of pH to below 5.5, the toxicity of aluminum should be reevaluated.

Risk posed by mercury in surface water is not as easily characterized, because the detection limit often exceeded the AWQC for this chemical. The greatest concern with mercury is bioaccumulation and subsequent biomagnification in birds and mammals, which was evaluated using food-chain modeling. However, sediment concentrations of mercury were less than Tidal Area ambient concentrations, indicating that mercury poses no unacceptable risk to aquatic organisms in the R Area Site. Organic chemicals were detected infrequently in surface water in the R Area Site (1 or 2 out of 35 samples); none of these chemicals was considered to pose an unacceptable risk to aquatic organisms in the R Area Site.

9.1.3.3 Risk to Birds and Mammals

Risk to birds and mammals was evaluated using food-chain modeling of ingested chemicals described in the revised draft final ERA (TtEMI 2002). Data were reevaluated using new methods proposed by the agencies, as described in the responses to comments on the ERA (see Appendix A). The food-chain modeling focused on inorganic COPECs in sediment identified by comparison with Tidal Area ambient concentrations and all detected organic chemicals for which TRVs were available. Site-specific doses were calculated for Great Blue Heron, Northern Harrier, and gray fox ingesting rodents and sediment in the R Area Site. Doses for the salt marsh harvest mouse were based on ingestion of pickleweed and sediment.

No $HQ_{(high\ dose/high\ TRV)}$s for birds or the gray fox were greater than 1.0. However, unacceptable risk to the salt marsh harvest mouse from aluminum and barium was suggested in the R Area Site. The $HQ_{(high\ dose/high\ TRV)}$ for aluminum was 11.16; however, the WET-adjusted HQ using the low TRV was not different from the WET-adjusted HQ for Tidal Area ambient aluminum concentrations. The $HQ_{(high\ dose/high\ TRV)}$ for barium was 1.97, which indicates some potential for adverse effects. The WET-adjusted HQ was 0.22 and similar to the HQ (0.12) for Tidal Area ambient barium concentrations. The mean and UCL_{95} concentrations of barium in the R Area Site were well below the Tidal Area ambient concentration; however, the dose estimate for the salt marsh harvest mouse was based on the maximum sediment concentration of barium, which was 45 times higher than the UCL_{95}. The contribution of sediment to the

total dose was an order of magnitude higher than that of pickleweed, which is consistent with data collected at the Concord Litigation Area that showed sediment:pickleweed BAFs for barium were less than 1.0. It is possible that an individual salt marsh harvest mouse ingesting sediment at the location with the maximum concentration of barium in sediment may be at some risk. However, salt marsh harvest mice move about the habitat in response to fluctuations in water level and in search of pickleweed to eat. As a result, it is unlikely that an individual salt marsh harvest mouse would actually experience the conditions assumed in the food-chain model of the high dose.

9.1.4 R Area Site Contaminant Fate and Transport

The HHRA identified PAHs as risk drivers. The mobility of PAHs is low. Therefore, they will most likely remain sorbed to soil, although they may be transported by soil erosion from surface water runoff. The limited transport potential of these PAHs is further supported by the fact that these PAHs are in general, detected in only two discrete areas of the site. No SVOCs were detected in surface water samples from the site, so the PAHs appear to remain sorbed to the soil.

The ERA compared chemical concentrations in sediment on the eastern and western sides of the R Area Site. This comparison was performed to address regulatory agency concerns that the Landfill may have leached chemicals into the R Area Site. The data did not support the assumption of leaching from the Landfill. In fact, concentrations of all inorganic and organic chemicals (except beryllium and manganese) were higher in the western side of the site than in the eastern side, which is the opposite pattern one would expect of higher concentrations near the Landfill. In addition, 12 organic chemicals were detected in sediment from the western side only. In contrast, only one organic chemical (isophorene) was detected in sediment only from the eastern side. The data suggest that the Landfill did not leach significant concentrations of chemicals to the R Area Site wetland. These data indicate that chemicals are not generally migrating across the R Area Site.

The most likely transport of arsenic is erosion of the soil by surface water. Because of the concentrating effect of evaporation of ponded water at the site, the soil beneath areas where ponded water is found may have a higher metal content than the other site soil.

9.1.5 R Area Site Conclusions and Recommendations

Naval Weapons Station SBD Concord is an active naval base and is not scheduled to close; future land use at R Area Site is not expected to change from current use, and future development in the area would require placement of fill materials over the existing surface. Base personnel are not routinely present at

the site, so the risk estimates for the commercial/industrial worker provide upper-bound estimates of potential risks to individuals intermittently exposed under current and likely future land use conditions. Estimated cancer risks under an industrial scenario are mainly attributable to ambient arsenic concentrations in site soil, not a site-related source. The cancer risks from PAHs are at the lower end of the risk management range. The HI is less than 1, and RME concentrations of lead in soil are less than the EPA Region 9 PRG for industrial soils.

EPA guidance recommends a risk management decision for calculations that lie within the risk management range. Considering the low likelihood that this site would ever be developed into a residential community without burial of the existing surface under imported fill, the Navy recommends a risk management decision for NFA at the R Area Site.

The ERA indicated no significant risk to ecological receptors at this site; therefore, a risk management decision of NFA at the R Area Site is recommended.

9.2 FROID AND TAYLOR ROAD SITE SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The follow sections summarize the chemical characterization, HHRA, ERA, and contaminant fate and transport for the Froid and Taylor Road Site. In addition, overall recommendations are presented for the site.

9.2.1 Froid and Taylor Road Site Chemical Characterization

Sediment samples were collected at 11 locations in the wetland habitat south of Froid Road. The triangular-shaped portion of upland habitat north of Froid Road was sampled in only one location, and two confirmation samples were collected subsequently for chlordane analysis. Table 5-1 summarizes the samples collected at Tidal Area sites.

Soil and sediment samples from 0 to 0.5 foot bgs (surface) were analyzed for inorganic and organic chemicals at 12 locations at Froid and Taylor Road Site. At nine of these locations, subsurface samples were also collected. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, explosive compounds, TPH-e, hexavalent chromium, and inorganic compounds.

Surface water enters the Froid and Taylor Road Site as rainfall and through overland flow from Otter Sluice and other low elevation areas during extreme high tides. Surface water at the site may disappear during prolonged drought. Surface water samples were collected at two locations (FTSSW001 and FTSSW002) during the RI at the Froid and Taylor Road Site. Surface water samples were collected in

July and October 1995 and January and May 1996. Surface water samples also were collected at three additional locations during a round of sampling in June 1998, from Locations FTSSL102, FTSSL103, and FTSSL104 (see Figure 1-2). Surface water samples collected at the Froid and Taylor Road Site during the first four sampling events were analyzed for VOCs, SVOCs, pesticides, PCBs, explosives, and inorganic constituents. Samples collected in 1998 were analyzed for SVOCs and inorganic chemicals.

9.2.2 Froid and Taylor Road Site Human Health Risk Assessment Summary

The objective of the HHRA completed for Froid and Taylor Road Site was to evaluate the potential cancer risks and noncancer health effects associated with exposure to COPCs in soil and surface water at the site. Residential and industrial land use scenarios were evaluated for surface (0 to 0.5 foot bgs) and subsurface (0 to 3 feet bgs) soils. However, because the risk estimates were very similar for the two soil depth intervals, only the higher of the two results is presented below. The soil and surface water COPCs evaluated in the HHRA were metals, VOCs, SVOCs, pesticides, and PCBs.

For the residential exposure scenario, the RME cancer risk for soil (6×10^{-6}) was within the risk management range of 10^{-6} to 10^{-4} and the HI was less than 1, the level of concern. PAHs (3×10^{-6}) and PCBs (3×10^{-6}) were the only chemicals for which the cancer risk estimates exceeded 10^{-6}.

For the industrial exposure scenario, the RME cancer risk for soil (2×10^{-6}) was at the lower end of the risk management range and the HI was less than 1. Cancer risks for all chemicals were less than 1×10^{-6}.

The RME concentrations of lead in soil were less than the EPA Region 9 PRGs for residential and industrial soils.

For surface water, the RME cancer risks for residential (6×10^{-6}) and industrial (4×10^{-6}) scenarios were within the risk management range and the HIs were less than 1. Arsenic (5×10^{-6} and 3×10^{-6}, respectively) was the primary contributor to the cancer risk.

9.2.3 Froid and Taylor Road Site Ecological Risk Assessment Summary

Terrestrial plants, benthic invertebrates and fishes, and birds were the principal receptors of concern at Froid and Taylor Road Site. The sections below summarize the risk characterization for each receptor group. Details are in the ERA (TtEMI 2002).

9.2.3.1 Risk to Terrestrial Plants

Chlordane was the most prominent chemical in the small, upland habitat at the Froid and Taylor Road Site. Chlordane was widely used in the mid-1900s as an insecticide in lawns and gardens; although no phytotoxicity benchmarks are available for chlordane, it is not generally thought to be toxic to plants. Inorganic chemicals in the Froid and Taylor Road Site upland were generally representative of Tidal Area ambient concentrations. Available data indicate no unacceptable risk to terrestrial plants at Froid and Taylor Road Site.

9.2.3.2 Risk to Benthic Invertebrates and Fishes

None of the sediment samples in the Froid and Taylor Road Site wetland had an ER-M_q, indicating high priority for potential risk. One sampling location in the northernmost portion of the wetland habitat (FTSSL102) was designated as medium to high priority. No inorganic chemical exceeded its ER-M at this location. However, the ER-Ms for eight organic chemicals were exceeded; most of these exceedances were based on substitution of one-half of the detection limit for ND data. Three of the eight chemicals were detected at concentrations above the ER-M: alpha-chlordane, gamma-chlordane, and DDT. Location FTSSL102 is outside of the channelized portion of the wetland and is dry most of the year. However, the combined effect of pesticides at this location may pose some risk to benthic invertebrates during periods of inundation.

In surface water, aluminum, arsenic, copper, mercury, nickel, silver, and zinc concentrations exceeded AWQCs. HQs were greater than 10 for aluminum and silver; however, neither of these chemicals is expected to pose a serious risk to receptors at the site. The toxicity of aluminum is inversely correlated with pH. Aluminum toxicity is not expected at the circumneutral pH typical of the Tidal Area sites. The HQ for silver (60) was based on only two detected concentrations (of nine samples). Based on the limited detection of silver in surface water and because the maximum detected concentration of silver in sediment was well below the ER-L, silver is not considered to pose unacceptable risk to benthic invertebrates or fishes at Froid and Taylor Road Site.

9.2.3.3 Risk to Birds (Wetland Only)

Risk to birds was estimated using food-chain modeling methods described in the revised draft final ERA (TtEMI 2002). Data were reevaluated using new methods proposed by the agencies, as described in the responses to comments on the ERA (see Appendix A). Food-chain modeling indicated no unacceptable risk to birds (represented by Northern Harrier and Black-necked Stilt) in the Froid and Taylor Road Site

wetland. All HQs calculated using the high TRVs were less than 1.0; HQs using the low TRV were greater than 1.0 for lead only. However, WET-adjusted lead HQs were less than 5 for both avian species, and no substantial difference exists between these HQs and HQs based on Tidal Area ambient concentrations of lead. No unacceptable risk is posed to birds at Froid and Taylor Road Site.

9.2.4 Froid and Taylor Road Site Contaminant Fate and Transport

Benzo(a)pyrene has a low mobility, and therefore will most likely remain sorbed to soil and be transported by soil erosion from surface water. However, if benzo(a)pyrene does desorb into surface water, it has low persistence in surface water and will degrade quickly (see Table 8-4). No PAHs were detected in the surface water samples from the site, which indicates that the benzo(a)pyrene remains sorbed to the soil. PCB 126, which has dioxin-like activity, was detected in 2 of 12 surface soil samples. Elevated concentrations of chlordane indicate small site release or applied pesticides in a localized area. No other elevated concentrations of chlordane were detected at the Froid and Taylor Road Site wetland habitat, indicating that this chemical is not being transported from the area of origin.

9.2.5 Froid and Taylor Road Site Conclusions and Recommendations

Naval Weapons Station SBD Concord is an active naval base and is not scheduled to close; therefore, future land use at Froid and Taylor Road Site is not expected to change from current use, and future development in the area would require placement of fill materials over the existing surface. Base personnel are not routinely present at the site, so the risk estimates for the commercial/industrial worker provide upper-bound estimates of potential risks to individuals intermittently exposed under current and likely future land use conditions. Cancer risks under an industrial scenario are at the lower end of the risk management range. The HI is less than 1, and RME concentrations of lead in soil are less than the EPA Region 9 PRG for industrial soils.

EPA guidance recommends a risk management decision for calculations that lie within the risk management range. Considering the low likelihood that this site would ever be developed into a residential community without burial of the existing surface under imported fill, the Navy recommends a risk management decision for NFA at the Froid and Taylor Road Site.

Risk to ecological receptors at the Froid and Taylor Road Site is spatially limited. Alpha-chlordane, gamma-chlordane, and DDT were detected in sediment from Location FTSSL102 at concentrations greater than the ER-M. The ERA characterized this site as wetland habitat to distinguish it from the upland habitat north of Froid Road. However, Location FTSSL102 is outside of the channelized portion

of the wetland and is dry for much of the year. No inorganic chemical exceeded its ER-M at this location, but the combined effect of pesticides at this location may pose some risk to benthic invertebrates during periods of inundation. No other elevated concentrations of chlordane were detected at the Froid and Taylor Road Site wetland habitat, indicating that his chemical is not being transported from the area of origin. Additionally, chlordane was not present in fish and amphipod tissues at concentrations sufficient to cause adverse effects to their avian predators. No significant risk to receptors outside of the small area represented by Location FTSSL102 is indicated at Froid and Taylor Road Site.

The ERA indicated no significant risk to ecological receptors at the site; therefore, a risk management decision of NFA at the Froid and Taylor Road Site is recommended.

9.3 WOOD HOGGER SITE SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The follow sections summarize the chemical characterization, HHRA, ERA, and contaminant fate and transport for the Wood Hogger Site. In addition, overall recommendations are presented for the site.

9.3.1 Wood Hogger Site Chemical Characterization

Purposive samples were collected at suspected disposal locations in the Wood Hogger Site; unbiased soil samples were collected at additional locations intended to provide uniform spatial coverage of the site. Soil sampling locations at SWMU 37 were selected based on present wood storage and processing locations at the site.

Soil sampling was conducted at the Wood Hogger Site in July and August 1995 as part of the RI. Unbiased grid sampling of surface soil was conducted to define site-wide variances in soil chemical concentrations. Unbiased subsurface samples were collected at randomly selected grid nodes to assess soil chemical concentrations at depth and to determine the depth to Bay Mud at the site. Purposive samples were collected at locations where evidence of disposal activities had been reported. Some field contingency samples were collected based on conditions observed at the time of sampling, such as stained soil or newly encountered disposal areas. Soil samples were collected in both the fill and Bay Mud.

Surface soil and sediment samples (0 to 0.5 foot bgs) were analyzed for inorganic chemicals at 68 locations; organic chemicals also were analyzed at 49 locations. Subsurface samples (generally from 5.0 to 6.0 feet bgs) were collected at 44 locations in SWMU 37. Two composite samples were collected in the immediate area of the Wood Hogger Site and analyzed for dioxin compounds. Because dioxins were detected in the two composite samples, a more extensive sampling and analysis for dioxins was

completed in 1998. Polychlorinated dibenzo-dioxins and furans were analyzed in nine soil samples and three sediment samples collected from the Wood Hogger Site, near the location of the former incinerator (see Figure 1-2). The subsurface sample collected from Purposive Boring WHSSB030 also was analyzed for BTEX compounds. Table 5-1 summarizes the samples collected at the Tidal Area sites.

Extent of surface water at the Wood Hogger Site varies seasonally as certain locations become inundated, then dry out. Rainfall may collect in low areas of the Wood Hogger Site and mix with water from Suisun Bay that flows into the site when Otter Sluice overflows its banks. Surface water samples were collected from permanent and ephemeral bodies of water.

Surface water samples collected from 12 locations were analyzed for inorganic and organic chemicals. Four rounds of surface water sampling were conducted during the RI. Surface water was collected in July and October 1995 and January and May 1996 at three locations in the Wood Hogger Site. Unfiltered surface water samples were analyzed for TPH, VOCs, SVOCs, pesticides, PCBs, explosive compounds, and inorganic chemicals.

9.3.2 Wood Hogger Site Human Health Risk Assessment Summary

The objective of the HHRA completed for Wood Hogger Site was to evaluate potential cancer risks and noncancer health effects associated with exposure to COPCs in soil and surface water at the site. Residential and industrial land use scenarios were evaluated for surface (0 to 0.5 foot bgs) and subsurface (0 to 11 feet bgs) soils. However, because the risk estimates were very similar for the two soil depth intervals, only the higher of the two results is presented. Soil and surface water COPCs evaluated in the HHRA were metals, VOCs, SVOCs, pesticides, PCBs, and dioxins and furans.

For the residential exposure scenario, the RME cancer risk for soil (9×10^{-5}) was at the upper end of the risk management range of 10^{-6} to 10^{-4} and the total HI was 1, the threshold level of concern. The chemicals for which cancer risk estimates exceeded 10^{-6} were PAHs (4×10^{-5}), PCBs (4×10^{-6}), and dioxins and furans (5×10^{-5}).

For the industrial exposure scenario, the RME cancer risk for soil (3×10^{-5}) was within the risk management range and the HI was less than 1. Similar to the residential scenario, PAHs (1×10^{-5}), PCBs (1×10^{-6}), and dioxins and furans (1×10^{-5}), and were the main contributors to the cancer risk.

The RME concentrations of lead in soil were less than the EPA Region 9 PRGs for residential and industrial soil.

For surface water, RME cancer risks for the residential (5×10^{-8}) and industrial (4×10^{-8}) scenarios were less than the risk management range and HIs were less than 1.

9.3.3 Wood Hogger Site Ecological Risk Assessment Summary

Plants, benthic invertebrates and fishes, and birds and mammals were the principal receptors of concern at Wood Hogger Site. The sections below summarize the risk characterization for each receptor group. Details are in the revised draft final ERA (TtEMI 2002).

9.3.3.1 Risk to Plants

No inorganic or organic chemicals were considered to pose risk to terrestrial plants at the Wood Hogger Site. All HQs based on phytotoxicological benchmarks were less than 1.0 (except cadmium, which was 1.5). Risk to wetland plants was not quantified. However, inspection of aerial photographs and recent site visits suggest that stands of pickleweed are larger in the Wood Hogger Site than they have been in previous years. Supporting evidence for the health of the pickleweed population in this site comes from the small mammal surveys, during which several salt marsh harvest mice were trapped.

9.3.3.2 Risk to Benthic Invertebrates and Fishes

One sediment sample (WHSSB022), in the extreme southwestern corner of the Wood Hogger Site wetland habitat, was designated as high priority. The ER-M_q of 2.75 was attributed solely to mercury, with an HQ of 26.06. One location within the boundary of SWMU-37 (WHSSBB05) was designated as medium to high priority; the ER-M for mercury was exceeded. The ER-M_q at this location also included five PAHs that exceeded their ER-Ms, based on a substitution of one-half of the detection limit for ND data, which lends some uncertainty to the medium to high priority designation. The concentrations of mercury in sampling locations adjacent to WHSSB022 were not elevated, indicating that mercury is spatially confined to a small area. Overall, risk to benthic invertebrates at the Wood Hogger Site is expected to be significant only at location WHSSB022. The significance of this risk is uncertain for benthic invertebrates, but based on food-chain modeling results, the risk is not apparent in upper tropic levels, as described in Section 9.3.3.3.

AWQCs were exceeded for aluminum, mercury, copper, and zinc. Aluminum is not considered to pose a risk to aquatic organisms in waters of circumneutral pH. Because the detection limit for mercury in surface water was generally higher than the AWQC, risk posed by mercury is unknown. The single detected concentration was in a sample collected from the upland area within SWMU-37, where no

permanent wetland or aquatic habitat exists. HQs for copper and zinc were less than 3.0, and these chemicals are not considered to pose a significant risk to receptors in the Wood Hogger Site.

9.3.3.3 Risk to Birds and Mammals

Risk to birds was estimated using food-chain modeling methods described in the revised draft final ERA. Data were reevaluated using new methods proposed by the agencies, as described in the response to comments on the ERA (see Appendix A). Site-specific high doses were calculated for the Great Blue Heron, Northern Harrier, salt marsh harvest mouse, and gray fox. The only HQ greater than 1.0 using the high TRV was aluminum for the salt marsh harvest mouse, indicating potential risk to this species if aluminum is bioavailable. The WET-adjusted $HQ_{(\text{high dose/low TRV})}$ was less than 10 but slightly higher than the Tidal Area ambient HQ, indicating some incremental site risk. Aluminum is generally only toxic in low pH conditions and is not expected to be bioavailable and toxic in the circumneutral pH conditions in the wetland.

The salt marsh harvest mouse dose for lead exceeded the low TRV, assuming 100 percent bioavailability of lead. However, using the WET ratio to adjust for the actual bioavailability of lead resulted in HQs that were greater than 1.0; these HQs were not substantially different from Tidal Area ambient HQs for lead. The salt marsh harvest mouse is not considered to be at risk from lead exposure in the Wood Hogger Site.

Neither gray fox nor avian receptors had any HQs exceeding 1.0 using the high TRV. Although the low TRV was exceeded for all three receptors, the WET-adjusted HQs for lead in the Wood Hogger Site were less than 10 and comparable with HQs for Tidal Area ambient concentrations, indicating that no unacceptable risk is posed to birds or mammals feeding on rodents at the Wood Hogger Site.

9.3.4 Wood Hogger Site Contaminant Fate and Transport

The mobility of PAHs is low. Therefore, they will most likely remain sorbed to soil, although they may be transported by soil erosion from surface water runoff. The infrequent detection of PAHs in the sediment indicates that these PAHs are unlikely to be subject to off-site transport by soil erosion. No SVOCs were detected in surface water samples from the site; therefore, the PAHs appear to remain sorbed to the soil.

PCBs and dioxin-like PCBs have low mobilities and therefore will most likely remain sorbed to soil, although they may be transported by soil erosion from surface water runoff. Dioxins may result from combustion of PCP-treated wood products in the former incinerator on site.

The mobility of mercury in soil is low. Its mobility at the Tidal Area sites appears to be limited, as evidenced by low concentrations in soil samples adjacent to the elevated concentration.

9.3.5 Wood Hogger Site Conclusions and Recommendations

Concord is an active naval base and is not scheduled to close; future land use at Wood Hogger Site is not expected to change from current use. Base personnel are not routinely present at the site, so the risk estimates for the commercial/industrial worker provide upperbound estimates of potential risks to individuals intermittently exposed under current and likely future land use conditions. Estimated cancer risks under an industrial scenario are the within the risk management range. HIs are less than 1, and RME concentrations of lead in soil are less than the EPA Region 9 PRG for industrial soils. HHRA results indicate that no action is warranted at Wood Hogger Site. Although the calculated human health risk due to potential carcinogens is in the upper end of the risk range, it is highly unlikely that people could ever be exposed to RME concentrations as assumed in the residential risk exposure scenario. This is because the Wood Hogger Site is generally on low-lying lands that would require the placement of fill soils prior to a change in land use to a residential type of development.

EPA guidance recommends a risk management decision for calculations that lie within the risk management range. Considering the low likelihood that this site would ever be developed into a residential community without burial of the existing surface under imported fill, the Navy recommends a risk management decision for no further action at the Wood Hogger Site.

Risk to benthic invertebrate was indicated at a single location (WHSSB022) in the southwestern corner of the Wood Hogger Site. The ER-M_q of 2.75 was attributed solely to mercury, with an HQ of 26.06. Additionally, Location WHSSBB05, within the boundary of SWMU-37, was designated as medium to high priority because of mercury. These isolated sediment samples do not constitute a significant risk to ecological receptors at the Wood Hogger Site.

The ERA indicated little or no significant risk to ecological receptors in the site; therefore, a risk management decision of NFA at the Wood Hogger Site is recommended.

9.4 OTTER SLUICE SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Sediment, surface water, animal tissue, and bioassay samples were collected throughout Otter Sluice as part of the RI and ERA.

9.4.1 Otter Sluice Chemical Characterization

Sediment and surface water were collected from the entire length of Otter Sluice as part of the supplemental sampling effort in summer of 1998. Samples collected from Otter Sluice in 1995 include two that were designated as part of the R Area Site (RADSL001 and RADSL002) and three that were part of the Wood Hogger Site (WHSSL001, WHSSL002, and WHSSL003). These samples are included in the Otter Sluice data set for this revised draft final RI; raw data for the samples are in Appendix F.

Sediment samples from 0 to 0.5 foot bgs were analyzed for metals, PCBs, pesticides, and SVOCs at 14 locations in Otter Sluice. Four of the samples from nearest the Wood Hogger Site were analyzed for dioxins and furans. Table 5-1 summarizes the samples collected at Tidal Area sites.

Thirty-three surface water samples were collected from the entire length of Otter Sluice, the only perennially inundated habitat in the Tidal Area sites. Surface water in Otter Sluice is partially exchanged through tidal action twice daily. The composition of surface water in Otter Sluice is expected to change daily with the tidal cycle and annually with the rainy season.

9.4.2 Otter Sluice Human Health Risk Assessment Summary

The objective of the HHRA completed for Otter Sluice was to evaluate potential cancer risks and noncancer health effects associated with exposure to COPCs in sediment and surface water at the site. Residential and industrial land use scenarios were evaluated for sediment (0 to 0.5 foot bgs). Analytical results were not available for deeper sediments. Sediment and surface water COPCs evaluated in the HHRA were metals, VOCs, SVOCs, pesticides, PCBs, and dioxins and furans.

For the residential exposure scenario, the RME cancer risk for sediment (5×10^{-5}) was within the risk management range of 10^{-6} to 10^{-4} and the segregated HI was 1.2, slightly above the threshold level of concern. Arsenic was the primary contributor to the cancer risk (5×10^{-5}) and HI (0.9). However, arsenic occurs naturally in sediments, and the concentrations of arsenic do not appear to be site-related; no source was identified, and site concentrations are comparable to ambient levels. PAHs (3×10^{-6}) were the only other chemicals for which cancer risk estimates exceeded 10^{-6}.

For the industrial exposure scenario, the RME cancer risk for sediment (1×10^{-5}) was within the risk management range and the HI was less than 1. Arsenic (1×10^{-5}), which was the main contributor to the cancer risk, was the only chemical for which the cancer risk exceeded 10^{-6}.

RME concentrations of lead in sediment were less than the EPA Region 9 PRG for residential and industrial soils.

For surface water, RME cancer risks for the residential (8×10^{-8}) and industrial (5×10^{-8}) scenarios were below the risk management range and the HIs were less than 1.

9.4.3 Otter Sluice Ecological Risk Assessment Summary

Benthic invertebrates, fishes, birds, and mammals were the principal receptors of concern at Otter Sluice. The sections below summarize the risk characterization for each receptor group. Details are in the ERA (TtEMI 2002).

9.4.3.1 Risk to Benthic Invertebrates and Fishes

Amphipods (*Eohaustorius estuarius*) exposed to whole sediment collected from North and South Otter Sluice showed no adverse effects on survival or reburial in laboratory toxicity tests. All sediment samples tested had greater than 92 percent survival and reburial of amphipods. The threshold of concern for this line of evidence was the San Francisco Bay reference envelope of 68 percent survival (RWQCB 1998). Based on bioassay results, sediments did not demonstrate toxicity to amphipods.

None of the 14 sediment samples from Otter Sluice was designated as high priority, based on the ER-M_q. The only detected chemical that exceeded the ER-M was nickel, which reflects ambient conditions in San Francisco Bay.

Surface water exposure concentrations for aluminum and mercury exceeded AWQCs. Aluminum toxicity is not expected to occur at the pH typical of Suisun Bay (and Otter Sluice), and the HQ was relatively low (less than 10). Because the detection limit for mercury in surface water was generally higher than the AWQC, risk posed by mercury is not known. The single detected concentration in surface water was in a sample collected from near the southwestern corner of the Wood Hogger Site, where mercury was elevated in sediment. It is possible that aquatic organisms exposed to this particular location may be at risk from exposure to mercury. That mercury does not appear to pose a significant risk is further supported by mercury concentrations in clam tissue collected from Otter Sluice, which are below risk effects levels reported in the literature. In addition, sediment and surface water data indicate no unacceptable risk to benthic invertebrates or fishes in Otter Sluice. No risk from mercury to upper tropic levels is expected based on food-chain modeling discussed in Section 9.4.3.2.

9.4.3.2 Risk to Birds and Mammals

Site-specific high doses were calculated for California Black Rail, Great Blue Heron, and river otter. No $HQ_{(high\ dose/high\ TRV)}$ exceeded 1.0 for the California Black Rail. WET-adjusted $HQs_{(high\ dose/low\ TRV)}$ exceeded 1.0 for copper, lead, and zinc; however, these HQs were not substantially different from HQs for the Tidal Area ambient concentration. Neither Great Blue Heron nor river otter had any HQs exceeding 1.0, using the high TRV. For the Great Blue Heron, the $HQ_{(typical\ dose/low\ TRV)}$ for total dioxins was 1.6; for the river otter, it was less than 1.0. The low TRV was also exceeded for lead; however, the WET-adjusted HQs for lead in Otter Sluice were less than 1.0 and comparable with the HQs for the Tidal Area ambient concentration, indicating that no unacceptable risk is posed to birds and mammals feeding on fish and clams at Otter Sluice.

9.4.4 Otter Sluice Contaminant Fate and Transport

Benzo(a)pyrene has low mobility and therefore will likely remain sorbed to sediment. Benzo(a)pyrene was detected in 2 of 11 sediment samples at concentrations of 0.039 and 0.14 mg/kg. Statistical analysis indicated that site concentrations of arsenic were greater than ambient concentrations, but the degree of exceedance is small. Arsenic occurs naturally in sediments, and the concentrations of arsenic do not appear to be site-related; no source was identified, and site concentrations are comparable to ambient levels.

The single location at which mercury is elevated indicates that mercury is not migrating throughout the site. The primary concern with mercury in the environment is that it is biomagnified as it is transferred through the food chain. In this investigation, mercury was not shown to be elevated in animal tissues collected from Otter Sluice, indicating that mercury concentrations in Otter Sluice do not pose a risk and that the transport of mercury off site is unlikely.

9.4.5 Otter Sluice Conclusions and Recommendations

Naval Weapons Station SBD Concord is an active naval base and is not scheduled to close; therefore, future land use at Otter Sluice is not expected to change from current use, and future development in the area would require placement of fill materials over the existing surface. Base personnel are not routinely present at the site, so the risk estimates for the commercial/industrial worker provide upperbound estimates of potential risks to individuals intermittently exposed under current and likely future land use conditions. Estimated cancer risks under an industrial scenario are mainly attributable to ambient concentrations of arsenic in site sediment, not a site-related source. The HI is less than 1, and RME

concentrations of lead in sediment are less than the EPA Region 9 PRG for industrial soils. HHRA results indicate that no action is warranted at Otter Sluice.

EPA guidance recommends a risk management decision for calculations that lie within the risk management range. Considering the low likelihood that this AOI would ever be developed into a residential community, the Navy recommends a risk management decision for NFA in Otter Sluice.

Chemical concentrations in Otter Sluice pose little to no risk to ecological receptors. The only detected concentration of mercury in Otter Sluice was near the southwestern corner of the Wood Hogger Site, where mercury was elevated in sediment. It is possible that individual benthic organisms exposed to this particular location may be at risk from exposure to mercury, but no population-level effects are indicated by the data. Other than that one location, sediment and surface water data do not indicate any significant risk to benthic invertebrates or fishes in Otter Sluice.

The ERA indicated no significant risk to ecological receptors in this AOI; therefore, a risk management decision of NFA at Otter Slucie is recommended.

9.5 GROUNDWATER CHARACTERIZATION

The Navy characterized groundwater in the draft RI and provided additional details in the Confirmation Groundwater Sampling TM (TtEMI 1998b). Groundwater quality is discussed only briefly in this RI report, because no complete groundwater exposure pathways exist to human or ecological receptors.

Groundwater flows radially towards the center of the R Disposal Area from all directions, where phreatophytic pumping discharges groundwater to the atmosphere. Evidence that this process is occurring in the R Area Site is as follows:

- Potentiometric surface maps from multiple seasons and hydrologic conditions consistently show that surface water in Otter Sluice and groundwater along the perimeter of the Tidal Area sites are elevated higher than groundwater and surface water in the center of the R Area Site, indicating that groundwater consistently flows radially towards the center of the R Area Site. Radial groundwater flow toward the center of the R Area Site could occur only if ongoing discharge was occurring at the center of the R Area Site.
- Groundwater salinity in the center of the R Area Site is consistently elevated, and it exceeds the salinity of sea water in several areas. Because the water that enters the local hydrologic system has far lower salinity than sea water, some mechanism at the Tidal Area sites appears to be causing higher salinity. Evapotranspiration is the likely mechanism that causes the increased salinity observed in the Tidal Area sites. If groundwater discharge through some other mechanism, such as vertical leakage through the underlying silty clay aquitard, were responsible for the observed radial groundwater flow, no significant increases in groundwater salinity would be observed.

- Stable isotope data presented in the confirmation groundwater sampling technical memorandum shows that groundwater in the Tidal Area sites has undergone extensive evaporative concentration of oxygen-18 (^{18}O) and deuterium in some areas. Concentrations of stable isotopes of oxygen and hydrogen in Tidal Area groundwater differ from those of meteoric water, water in Suisun Bay, and water in Otter Sluice, indicating that evaporative concentration is occurring in the Tidal Area sites.

The Navy believes that the evidence outlined above demonstrates that groundwater does not discharge to surface water or to deeper aquifers.

It appears that metals in groundwater in the Tidal Area are concentrated in the R Area Site by evaporative processes. However, the metals distribution maps do not show evident plumes of metals-contaminated groundwater emanating from the Tidal Area sites.

Groundwater in the Tidal Area is not affected to any significant extent by organic compounds. The analytical results for the most recent sampling event are consistent with previous sampling events. The lack of organic contamination of groundwater has been confirmed by the quarterly groundwater sampling in 1990/1991, the limited Tidal Area Sites Confirmation Study in 1993 (James M. Montgomery Consulting Engineers, Inc. 1993), and by the Confirmation Groundwater Sampling TM (TtEMI 1998b).

Because there is no groundwater pathway for exposure to receptors and because groundwater at the site has not been affected by inorganic and organic contaminants, no further investigation of the Tidal Area sites is necessary.

Although groundwater at the site is appropriately characterized in a general sense, periodic groundwater monitoring is still necessary at the perimeter of the Tidal Area Landfill and a long-term remedy for groundwater is not included in the Tidal Area Landfill ROD. Additional groundwater evaluation is proposed to further characterize groundwater conditions in the vicinity of the Tidal Area Landfill although the details of the study have not been established.

9.6 SUMMARY

Decisions for a CERCLA site, such as the Tidal Area, reflect input by all parties involved in the risk assessment process, including the Navy, EPA, DTSC, RWQCB, FWS, CDFG, NOAA, and the public. The Navy recommends that the R Area Site, Froid and Taylor Road Site, and the Wood Hogger Site proceed to a single NFA. In addition, NFA is recommended in Otter Sluice.

Additional groundwater assessment is planned for the Tidal Area Landfill (Site 1) as part of that response action, although the details have not yet been established.

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APPENDIX A

RESPONSES TO COMMENTS ON THE REVISED DRAFT FINAL ECOLOGICAL RISK ASSESSMENT

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY, WEST
NAVAL FACILITIES ENGINEERING COMMAND
2001 JUNIPERO SERRA BOULEVARD, SUITE 600
DALY CITY, CALIFORNIA 94014-1976

IN REPLY REFER TO :

27 June 2003

From: Commanding Officer, Engineering Field Activity West, Naval Facilities Engineering Command

To: Distribution

Subj: **RESPONSES TO AGENCY COMMENTS TIDAL AREA REMEDIAL INVESTIGATION SECONDARY DOCUMENTS FOR TIDAL AREA SITES 2, 9, AND 11, NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD, CONCORD, CALIFORNIA**

Encl: (1) Responses to Agency comments on "Revised Draft Final Ecological Risk Assessment for Tidal Area Sites 2, 9, and 11, Naval Weapons Station Seal Beach Detachment Concord, California" (ERA) dated 30 January 2002; and responses to Regional Water Quality Control Board comments on "Technical Memorandum, Confirmation Groundwater Sampling in the Tidal Area Sites, Naval Weapons Station Concord (CGS)," dated March 19, 1998.

1. In accordance with Section 10.2 (b) of the Federal Facility Agreement (FFA), enclosure (1) is provided. As stated in Section 10.2 (b) of the FFA, although the Navy will provide responses to comments received on draft secondary documents, the documents may be finalized in the context of the corresponding primary document. In this instance, the revised draft final remedial investigation (RI) report for the Tidal Area Sites 2, 9, and 11 will incorporate the relevant changes as described in enclosure (1). The revised draft final RI report is scheduled to be issued on 8 August 2003 according to the 12 June 2003 draft annual addendum to the Site Management Plan.

2. Enclosure (1) was developed through coordination with the regulatory agencies, including meetings on 13 May and 3 June 2003. The Navy thanks the Agencies for their assistance and cooperation.

3. If there are any questions or comments regarding the enclosure, please contact the undersigned at Telephone No. 650-746-7451.

Sincerely

STEPHEN F. TYAHLA, P.E., CHMM
By Direction

27 June 2003

Subj: **RESPONSES TO AGENCY COMMENTS TIDAL AREA REMEDIAL INVESTIGATION SECONDARY DOCUMENTS FOR TIDAL AREA SITES 2, 9, AND 11, NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD, CONCORD, CALIFORNIA**

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RESPONSES TO AGENCY COMMENTS
TIDAL AREA REMEDIAL INVESTIGATION SECONDARY DOCUMENTS
FOR TIDAL AREA SITES 2, 9, AND 11
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
June 27, 2003

The U.S. Environmental Protection Agency (EPA), the State of California Environmental Protection Agency Department of Toxic Substances Control (DTSC), and the San Francisco Bay Regional Water Quality Control Board (RWQCB) reviewed the U.S. Department of the Navy (Navy) document entitled, "Revised Draft Final Ecological Risk Assessment for Tidal Area Sites 2, 9, and 11, Naval Weapons Station Seal Beach Detachment Concord, California" (ERA), dated January 30, 2002. The document was prepared by Tetra Tech EM Inc. (TtEMI 2002a). The agencies' comments are provided in the following text along with the Navy's responses.

The Tidal Area ERA is a secondary document according to the Federal Facilities Agreement (FFA) signed between the Navy and the EPA. For secondary documents, the Navy is required to provide responses to agency comments, and the following responses are provided to fulfill that obligation. Also, according to the terms of the FFA, the Navy is permitted to address agency comments in the next related primary document. It is the Navy's opinion that the ERA will not require revision as a result of the following agency comments. The next primary document that draws upon the conclusions of the ERA is the revised draft final remedial investigation report (RI). The revised draft final RI will incorporate various revisions to reflect the Navy's responses to the agencies' comments.

The RWQCB also reviewed the report entitled, "Technical Memorandum, Confirmation Groundwater Sampling in the Tidal Area Sites, Naval Weapons Station Concord" (CGS), dated March 19, 1998. This report was also prepared by TtEMI. RWQCB staff that originally received the report in 1998 did not issue comments on the document. Last year, the Navy received comments from the RWQCB in their letter dated April 3, 2002. The CGS is also considered a secondary document to the Tidal Area Sites RI. The Navy will address the RWQCB comments regarding the CGS in the forthcoming revised draft final RI. Responses to the RWQCB comments on the CGS are presented in the enclosed document.

COMMENTS BY THE EPA ON THE TIDAL AREA ERA

The EPA comments were presented in a letter dated May 23, 2002.

EPA General Comment 1

The risk characterization concludes that risk at each Tidal Area site is acceptable; however, these conclusions are not consistently supported by the information presented in the report. For some localized areas of contamination, the Navy may need to provide additional data to support risk management decisions for no further action in the Tidal Areas. For example, mercury poses a potentially significant risk to benthic invertebrates along the west side of the Wood Hogger site (the area including sample locations WHSSB022, WHSSB018, and WHSSBB005). Additionally, mercury was detected in surface water at the site above water quality criteria. In fact, the detection limit for mercury in surface water at the Tidal Area was generally above the water quality criteria, so the extent of exceedences across the site is effectively unknown, particularly in Otter Sluice, which is the closest water body to the high mercury concentrations detected at the Wood Hogger site.

Similarly, concentrations of lead, DDT, chlordane, and PAHs at the Froid and Taylor Roads site (sample locations FTSSL102 andFTSSB002) pose risk to benthic invertebrates. It is not clear that the extent of contamination for these constituents in sediment and surface water has been established in the vicinity of those samples.

The areas identified as posing risk to ecological receptors and the chemicals for which data gaps remain should be further discussed by project managers to determine whether the characterization in these areas is sufficient to make risk management decisions.

Response: The ERA concluded that none of the Tidal Area sites pose significant risk, but there is potential risk to selected receptor groups at the Wood Hogger, Froid and Taylor, and Otter Sluice. As stated in Section 6.0, Risk Characterization, risk characterization integrates information from exposure and effects. A weight of evidence approach was used to organize multiple and sometimes conflicting lines of evidence. The evaluation of uncertainties associated with the risk assessment is a key aspect of risk characterization. The Navy has provided additional discussion about the risk characterization uncertainties in localized areas of the Tidal Area sites.

The potential risk to benthic invertebrates at all the wetland habitats of the Tidal Area sites, including the Wood Hogger and Froid and Taylor sites, was evaluated using the National Oceanic and Atmospheric Administration (NOAA) sediment screening values (Long and MacDonald 1998). Mean effects range median quotients (ER-Mq) were calculated and assigned priorities based on empirically derived values determined to be predictive of risk associated with complex chemical mixtures chemical in sediments. Risk predicted using these methods also has associated uncertainties.

Mercury concentrations at WHSSB022, WHSSBB05, and WHSSB018 exceeded the effects range-median (ER-M). Of these samples, WHSSB022 was the only sample with an ER-M quotient (ER-Mq) priority rating of high, which indicates potential significant risk. The ER-Mq rating for WHSSBB05 of medium-high priority is attributed to mercury and nickel as well as five polycyclic aromatic hydrocarbons (PAH) that exceeded the ER-Ms based on substitution of one-half the detection limit for nondetected data. The mercury ER-Mq at WHSSB018 resulted in a medium-low priority. These results suggest that mercury may potentially pose a significant risk to invertebrates along the western side of the Wood Hogger, most notably at WHSSB022. A source that could have contributed to mercury has not been determined. This southwest corner of the Wood Hogger consists of wetland and terrestrial habitats. To illustrate the degree to which mercury has been characterized in the vicinity of these three stations, a map showing all adjacent (sediment and soil) sampling locations is provided in Figure A-1 of Appendix A in this RTC document. None of the sediment concentrations from the surrounding sampling stations exceeds the mercury concentrations from these three stations, suggesting that the mercury contamination appears to be limited to the southwest corner of the Wood Hogger site.

Another line of evidence considered in evaluating risk posed by mercury is comparing surface water concentrations of mercury with the ambient water quality criteria (AWQC). Mercury was detected in one surface water sample from the Wood Hogger. Because the detection limit (0.01 microgram per liter [µg/L]) for mercury in surface water was below the AWQC for mercury (0.025 µg/L), however, there was uncertainty in evaluating risk because of mercury in surface water. The RI and feasibility study work plan Volume II (PRC Environmental Management, Inc. [PRC] 1995a) did not identify a specific source for mercury at the time the field sampling program was being developed, so no special method for mercury analysis was requested. Analytical methods with sufficiently low detection limits have only more recently been developed for broader application in field investigations.

The risk of mercury to birds and mammals was evaluated through food chain modeling, using prey tissue from invertebrates and fish collected from the Tidal Area sites. No risk to higher tropic receptors was attributed to mercury. Consequently, although mercury in sediment at three stations in the Wood Hogger pose potential risk to invertebrates, the risk appears to be spatially isolated, and mercury does not appear to pose a risk to birds and mammals. Consequently, the potential risk at the Wood Hogger site is not considered to warrant further action.

The risk to invertebrates at sampling station FTSSL102 of the Froid and Taylor was characterized as a medium-high priority based on the ER-Mq method, suggesting it may pose an unacceptable risk. Other lines of evidence did, however, suggest that the potential risk is likely overestimated. Several organic chemicals (PAHs) that exceeded the ER-M, but not detected, were included in the calculations of the ER-Mq. Long and MacDonald (1998) derived the ER-Mq indices by calculating the average of 25 quotients associated with individual chemical concentrations. It was therefore considered conservative to retain nondetected chemicals in the calculations since the ER-Mq priority rating is an empirically derived value that predicts risk based on considering an aggregate number of chemicals. And while these chemicals were not detected, they were estimated in the risk calculations at half the detection limit, a standard practice in risk assessment. At station FTSSB002, lead was detected above the ER-M; however, the 99th percentile ambient lead exposure point concentration for lead is 95 mg/kg, nearly at the exposure point concentration for lead (85.4 mg/kg) at Froid and Talyor. No adjacent samples contained elevated lead, and the overall risk posed by chemicals at this sampling station and all others except FTSSL102 and FTSSB007 (which was lowest) was ranked medium low priority based on the ER-Mq. Therefore, potential risk at the Froid and Taylor site is not considered to warrant further action.

Uncertainty exists in classifying risk based on the ER-Mq results because the method does not indicate whether samples exceeding the ER-M values will be toxic. The reliability of the ER-M to result in a false-positive prediction of toxicity was high for several constituents of interest, including mercury, dichlorodiphenyldichloroethene (DDE), total DDT, and total polychlorinated biphenyls (PCB).

The amphipod toxicity test conducted to assess potential risk to invertebrates exposed to sediment in the Otter Sluice served as another line of evidence. This test did not

result in unacceptable toxicity; therefore, concerns about chemicals in sediment posing a risk to invertebrates are not supported by toxicity testing in Otter Sluice. Otter Sluice is considered an important indicator to evaluating overall risk in the Tidal Area sites because it is tidally linked to all the other Tidal Area sites and provides habitat for aquatic and wetland receptors. The absence of toxicity in sediments in Otter Sluice is considered an overall indicator of minimal risk to aquatic organisms in the Tidal Area.

See also response to EPA specific comment 14 in reference to the assessment of risk based on amphipod bioassays in Otter Sluice.

EPA General Comment 2

Appendix A provides Navy responses to agency comments on the Draft version of the report, and minutes of meetings held to resolve agency comments on the Draft Final version of the report. Although the Navy did not provide formal responses to comments on the Draft Final version, please provide a copy of the agency comments in Appendix A.

Response:

A copy of the comments is provided with these responses to agency comments as Appendix B of these RTC.

EPA General Comment 3

The Tidal Area ambient concentrations used in the Screening Level Ecological Risk Assessment (SLERA) to select inorganic Chemicals of Potential Ecological Concern (COPECs) are not acceptable. The use of the 99th percentile of the data set is not an appropriate threshold, based on the information presented in Appendix F. U.S. EPA does not concur with the use upper limit percentiles to establish ambient limits. In general, the Navy should use the 95th percentile of the data set; for ambient concentrations of lead, the Navy should provide further information regarding the locations of samples with the highest concentrations that do not appear to be consistent with the distribution of the remainder of the data set. Please provide tables listing COPECs selected for each site via a comparison of the maximum detected concentration at the site with the 95th percentile of the Tidal Area ambient data set.

Response:

The Navy would like to clarify that the 99th percentile ambient values were not used to select inorganic chemicals of potential concern (COPEC). Instead, more rigorous two-population comparison tests using the Wilcoxon Rank Sum (WRS) test and Quantile test were used to select inorganic COPECs as described in Section 2.1.2 of the revised draft final ERA.

The use of a single-value threshold screening (that is, screening the maximum site concentrations against the 99th or the 95th percentile of ambient concentrations) was considered at the time when the ambient data set was being developed. It became clear, however, that this method results in the increased false-positive rate as the number of samples collected from the site grows (Navy 1999, 2002). The preferred way to identify metals at a site that exceed ambient concentrations is to conduct two-population test comparisons. During a the two-population test comparison, (1) the contamination is not defined on a basis of a single sample, and (2) unlike the single-value screening, the two-population comparison takes into account the full range of

concentrations in both the site and ambient populations. The use of the two-population test comparison is consistent with EPA guidance (EPA 2002) and Navy guidance (2002). Because the process of selecting COPECs for soil and sediment at Naval Weapons Station Seal Beach Detachment (SBD) Concord is based on two-population test comparison method, no tables listing COPECs selected for each site via a comparison of the maximum detected at the site are provided.

The two-population comparison method to test the null hypothesis (Ho) (site concentrations are less than or equal to ambient concentrations) involved two steps: (1) use of the WRS and (2) use of the Quantile test (or Fisher's test for data sets with only few detections). Application of these tests was dependent on data set characteristics and addressed specific limitations associated with the sample size and percentage of detects. Consequently, the Navy believes the use of this statistical approach addressed concerns about sample size and distribution raised during the November 7, 2000, meeting and the earlier technical review team meetings.

For all metals carried forward after the SLERA, the 99th percentile ambient level concentrations were used in the baseline ERA (BERA) to calculate risk associated with ambient metal concentrations where the high dose exceeded the low toxicity reference value (TRV) (HQ greater than 1.0) as discussed in Section 5.3.5.

The ambient level concentrations based on the 99th percentile were also used to calculate risk associated with ambient metal concentrations, compared to risk estimated for other specific receptors in the Tidal Area sites (based on Oak Ridge National Laboratory (ORNL) or effects range-low (ER-L) toxicity benchmarks).

EPA Specific Comment 1

<u>Section 2.1, General Approach to Screening-Level Evaluation, Page 2-1</u>: The report indicates that detected chemicals were compared first with Tidal Area ambient *soil* concentrations, then to toxicological benchmarks. However, page 1-12 indicates that the entire R Area is characterized as a wetland and is considered to contain *sediment*, and the other areas are described as having both upland and wetland portions at each of the sites. The rationale for comparing the ambient data set to both soil and sediment concentrations (i.e., for both wetland and upland portions of each site) has not been clearly presented or discussed. The report should clarify that the sites contain both upland soil and sediment characteristics, and rationale for comparing ambient *soil* concentrations to *sediment* data should be provided.

Additionally, it is indicated that a primary screen against ambient concentrations of inorganic chemicals in the Tidal Area was conducted. However, this is not the case for the evaluation of surface water data; subsequent sections of the report reflect that the screening-level approach does not include comparison of detected chemicals in surface water to ambient levels. Revise the document to clarify that selection of COPECs in surface water is based only on comparison to available criteria presented in Section 2.6.4.

It is also stated that a toxicity-based approach was used to identify site-related chemicals that may pose risk to ecological receptors including mammals. However, the screening approach does not include a conservative screening-level

evaluation of mammal exposure and potential risk at the sites. Mammals are only included in the subsequent Baseline Ecological Risk Assessment (BERA) with the use of the more site specific and less conservative assumptions. Revise the text to clarify that mammals were not included as part of the SLERA, but were evaluated as part of the BERA.

Response: The EPA was involved in all decision-making meetings regarding the development of a methodology to establish an ambient data set for performing the RI studies for the Tidal Area Sites. Although the ambient data set was developed using metal concentrations in soil (PRC 1966), it was used to identify COPECs in sediment and soil from the upland and wetland habitats of the Tidal Area sites.

Surface water at the Tidal Area is under the influence of tidal exchange with Suisun Bay twice a day; no site-specific ambient metal concentrations in surface water are available. Chemicals detected in surface water were screened against available AWQC.

The SLERA did not evaluate potential risks to birds or mammals since screening level criteria for these types of receptors are not available. Risk to these receptors was evaluated in the BERA. The revised RI will include text to clarify these points.

EPA Specific Comment 2

<u>Section 2.1, General Approach to Screening-Level Evaluation, Pages 2-1 through 2-2</u>: The text states that in accordance with Navy policy, a comparison of Tidal Area ambient concentrations to site data was used to identify COPECs. The text also states that the 99th percentile of the ambient data set was selected as the ambient threshold. The use of the 99th percentile of the data set is not an appropriate threshold; based on the information presented in Appendix F. U.S. EPA does not concur with the use upper limit percentiles to establish ambient limits.

U.S. EPA does not appear to have been consulted with regard to the calculation of revised ambient levels; the revised Technical Memorandum for Estimation of Ambient Metal Concentrations in the Tidal Area Soils was not provided in the 1999 RI for Tidal Sites 1,2,9, and 11, Qualitative Risk Assessment Report. Therefore, the ambient concentrations presented in Appendix F of the report have not been previously reviewed. In general, use of the 95th percentile, is acceptable for all of the inorganics listed, except for lead. To support the derivation of an ambient limit for lead, please provide further information regarding the locations of samples with the highest concentrations that do not appear to fall within the distribution of the remainder of the data set. Please provide tables listing COPECs selected for each site by comparing the maximum detected concentration with the 95th percentile of the Tidal Area ambient data set.

Finally, the report should contain a discussion of the uncertainties associated with using a subsurface soil data set for comparison to surface sediment and soil conditions.

Response: Please see response to general comment 3. Additionally, the Navy would like to clarify that for the ERA, the ambient data set was only used to identify COPECs in

surface soils and sediment at the Tidal Area sites. The definitions of "soil" and "sediment" were derived mainly through a wetland delineation, which defined wetland as compared to terrestrial habitat. Overall use of the ambient data set for screening soil and sediment of the Tidal Area sites is, however, considered appropriate. The dynamic nature of the hydrologic regime results in periodic flooding, thus creating an uncertainty in defining a sampling location as soil or sediment in any particular year.

EPA Specific Comment 3

<u>Section 2.1.1, Data Used in the Revised Ecological Risk Assessment, Page 2-3</u>: It is indicated that either the 95th % upper confidence limit or the maximum detected concentration was used as the exposure concentration for each area. Further, the text seems to indicate that an exposure point concentration will be compared to the ambient threshold to determine if a particular analyte is to be retained as a COPEC. However, Section 2.1.2, Statistical Tests Used in Comparing Site with Ambient Concentrations, indicates that statistical methodologies are used to determine which analytes will be retained as COPECs. Revise the report to clearly document which method is being used to determine COPECs.

Response:

Please see response to EPA general comment 3, which clarifies that the Navy used a two-population test comparison to identify COPECs by comparing the Tidal Area sites ambient data set against each of the Tidal Area sites, as described in Section 2.1.2.

The approach used to calculate the exposure point concentrations is described in Section 2.1.1. The exposure point concentration was based on calculating the 95th percentile upper confidence limit of the arithmetic mean (UCL_{95}) or in some cases the maximum value

In the SLERA, the UCL_{95} was calculated for normally or lognormally distributed data using distribution dependent formulae. For data sets with unknown distributions, the was UCL_{95} calculated using the bootstrap method (EPA 2002). The maximum detected concentration was substituted for the UCL_{95} when there were three or fewer detected concentrations or when the calculated UCL_{95} exceeded the maximum detected value in the data set.

This approach to screen for ambient metals and calculate the exposure point concentrations will be clarified in the revised draft final RI.

EPA Specific Comment 4

<u>Section 2.2.1, Site 2: R Area, Pages 2-4 and 2-5</u>: The text indicates that surface water samples collected from 36 locations were analyzed for metals. However, based on Table 1-1 it appears that there were 36 samples collected from 13 surface water sample locations. Revise the text to clarify the number of surface water sample locations.

Response:

Thirty-six samples were collected from 13 locations, as summarized in Table 1-1. The text incorrectly stated 36 locations. The revised draft final RI will include this clarification.

EPA Specific Comment 5

<u>Section 2.7, Bioaccumulating Chemicals, Page 2-12</u>: The text states that chemicals with high potential for bioaccumulation were "screened for risk to birds and mammals when detected in at least 5 percent of the samples at the site". Chemicals known to bioaccumulate should not be eliminated in the screening based on frequency of detection. Revise the screening-level assessment to indicate that a hazard quotient for any bioaccumulating chemical detected will be calculated and its location within the context of the ecosystem will be evaluated to determine if the available data set has adequately characterized potential sources of these chemicals. Further, if the Navy wishes to thoroughly consider chemicals with the high potential for bioaccumulation, these chemicals should be included in the BERA regardless of the results of the SLERA.

Response: None of the bioaccumulating chemicals listed on Table 2-12 was actually excluded from the list of COPECs; each was detected in at least 5 percent of the samples. All of these chemicals for which toxicological benchmarks were available were considered in the BERA. For example, all chemicals with an ER-M were included in calculations of the ER-Mqs. However, risk could only be estimated using food chain modeling for COPEC identified for each site, when there was an avian or mammal TRV for the COPEC.

EPA Specific Comment 6

<u>Table 2-1, Ambient Sediment Screen for Inorganic Chemicals From the R Area Disposal Site</u>: The table presents a series of site concentrations including mean, median, minimum, and maximum, and provides results of a comparison of site concentrations with Tidal Area ambient concentrations. However, the table does not clearly indicate which of the detected concentrations has been used for the comparison to ambient levels, and does not present or reference the actual ambient concentrations that were used as the null hypothesis. Based on corresponding text, it appears that the 95% upper confidence limit is used in the comparison. Revise the table and text to clarify the process and present the specific information used for selecting COPECs. The revisions should also be made for the other three areas as appropriate.

Response: The 99th percentile Tidal Area ambient concentrations are presented in Table F-1 of Appendix F of the ERA. The exposure concentrations for each of the Tidal Area sites were excluded from Tables 2-1 to 2-4 because they were not used to perform the ambient screen for inorganic metals. The ambient screen was performed using the two-population test comparison, as discussed in response to EPA general comment 3. The exposure concentrations were, however, used to calculate HQs based on a comparison to receptor specific toxicity benchmarks beginning in Section 3.0 and in food chain modeling in Section 4.0. For example, Table 3-1 provides the exposure concentrations and ER-L for all COPECs specific to invertebrates in sediment in the R area.

EPA Specific Comment 7

<u>Section 3.0, Screening-Level Exposure Estimate and Risk Calculation, Page 3-1</u>: The text states, "as agreed to at a meeting in November 2000 ... the upper confidence limit (UCL) 95 is considered the reasonable maximum exposure ... which is consistent with the human health risk assessment guidance for

Superfund." To the contrary (as the meeting minutes in Appendix A indicate), this approach was *not* agreed to by all agencies, including U.S. EPA. Several of the agencies stated that depending on sample size and distribution, the UCL 95 would not be appropriate (for example, at the Froid and Taylor Roads site). Further, according to 1997 EPA guidance for conducting ecological risk assessments, "the highest measured or estimated on-site contaminant concentration should be used to estimate exposures ... to ensure that potential ecological threats are not missed."

The use of the 95 UCL as the exposure point concentration in the screening is not conservative. Based on the exposure point concentrations presented in Tables 3-1 through 3-11, it appears that the 95 UCL is substantially lower than the maximum detected concentration for the majority of constituents. The screening should reflect the most conservative assumptions, including a comparison of the maximum detected concentration to appropriate screening benchmarks.

Response: Please see response to specific comment No. 3.

The Navy agrees that the during the November 7, 2000, meeting, EPA and NOAA voiced concern over the potential use of the UCL_{95} as the exposure concentration. The Navy understood that the EPA's and NOAA's concerns regarding the use of UCL_{95} were related to sample size and distribution in the data set (Navy 2000). The Navy believes that the meeting minutes reflect the considerable technical discussion that took place and the Navy's agreement to incorporate new steps into the statistical analysis to address the EPA and NOAA concerns.

The Navy believes that the previously described statistical approach is defensible since it includes statistical analysis to evaluate data sets that have a smaller sample size, a higher percentage of nondetects, and sample distribution normality. Where statistical evaluation proved that use of maximum values were appropriate, the maximum values were incorporated into the screening in accordance with the Navy's proposed approach to address concerns identified by the agencies.

EPA Specific Comment 8

<u>Section 3.0 Screening-Level Exposure Estimate, Pages 3-1 to 3-13</u>: Based on the results of the SLERA, it is not clear which chemicals were carried forward to the BERA. It appears that the purpose of the screening in Section 3.0 was to derive a list of chemicals of concern for benthic invertebrates and aquatic organisms by comparing site data to sediment screening benchmarks and to promulgated water quality criteria. Although these comparisons are presented in Tables 3-1 through 3-11, please provide summary tables listing the chemicals of concern for each site and list the sample location where the highest concentration of this chemical was detected. Additionally, the tables do not appear to include all chemicals selected as COPECs (based on comparison with ambient concentrations). For example, the text states that chemicals with no available toxicological benchmarks are retained as COPECs, but they are not included in Table 3-1 through 3-11, Revise the tables to clearly incorporate all available data for use in selecting chemicals of concern that may be present due to historical site activities.

Response: All inorganic chemicals listed in Table 2-5 and identified as "retained" and all detected organic chemicals were carried forward into step 2. In step 2, all chemicals were further evaluated by comparing site data to sediment, soil, and surface water screening benchmarks and promulgated water quality criteria, when available. Further refinement to develop the COPEC list is performed in Section 4.2. The screening level evaluation of benthic invertebrates and fish associated with the sediment and surface water exposure was reported in Table 4-1 and 4-2. The upland screen for plants resulted in only cadmium as a COPEC. Pickleweed was evaluated qualitatively and thus did not result in a list of COPECs. To make the tables and the document more manageable, the list of chemicals without screening benchmarks was excluded from the summary tables. Chemicals without benchmarks are clearly identified in tables provided in section 2.0.

The Navy prepared a table listing the maximum detected chemical concentrations in sediment and the corresponding sampling location for COPECs with an HQ greater than 1.0. However, the risk posed by the aggregate of all chemicals detected at each sampling station of the Tidal Area sites was evaluated, by calculating the risk priority using the ER-Mq method, as discussed in response to EPA specific comment 1. An evaluation of maximum detected concentrations for chemicals with an HQ greater than 1.0 did not reveal any further information to interpret risk. The ER-Mq method did identify risk priority locations at the Wood Hogger and Froid and Taylor sites. As requested, a table listing the maximum detected sediment concentrations in the Tidal Area sites is provided as Table A-1 of Appendix A in this RTC.

The Navy also considered the request to provide summary tables for maximum detected chemical concentrations in surface water and the corresponding sampling location for COPECs exceeding an HQ greater than 1.0. An approach similar to the ER-Mq method to evaluate the aggregate effect of chemicals detected in surface water is not available. A table listing the maximum detected surface water concentrations in the Tidal Area sites and the corresponding sampling locations is provided as Table A-2 of Appendix A in this RTC.

A table of detected chemicals for each Tidal Area site identified as COPECs but without toxicological benchmarks is provided as Table A-3 of Appendix A in this RTC.

It was not considered necessary to revise Table 3-1 through 3-11 to incorporate additional COPECs because the list is considered comprehensive. The chemical analysis at each of the Tidal Area sites was performed based on suspected chemicals resulting from the operational history at each of the Tidal Area sites, as described in the approved work plan, field sampling plan, and field sampling addendum (PRC 1995a, PRC 199b, and TtEMI 1998a). A list of preliminary COPECs was developed in Section 2.0 as a result of the Tidal Area ambient screen. Consequently, the lists in Tables 2-5 and 2-6 were compiled after a consideration of historical operations. In the refinement step discussed in Section 4.2, the final list of primary COPECs for the ERA was developed.

EPA Specific Comment 9

<u>Section 4.1.5.1, Plants, Risk Questions, Page 4-7</u>: The second risk question, "are exposure concentrations in sediment ... within the range determined to be protective of pickleweed in the Litigation Area" is misleading. No determination has been made regarding the concentrations of chemicals considered *protective* of pickleweed at the Litigation Area. It is recommended that the risk question be revised to ask whether exposure concentrations in sediment "are within the range *determined to be unrelated to adverse effects to populations of pickleweed* at the Litigation Area."

Response: The text should state "that concentrations of chemicals at the Tidal Area sites are within levels considered to be unrelated to adverse effects to populations of pickleweed at the Litigation Area." The revised draft final RI will include this clarification.

EPA Specific Comment 10

<u>Section 4.1.4.2, Benthic Invertebrates and Fishes, Measurement Endpoints, Page 4-8 and Table 4-3, Assessment and Measurement Endpoints</u>: The third bullet on page 4-8 and the text in Table 4-3 list "concentrations of chemicals in clam and amphipod tissue" as a measurement endpoint. However, it does not appear that concentrations of chemicals in amphipod tissue are considered in the exposure estimate for benthic invertebrates. Based on the information provided in the BERA, it appears that concentrations of chemicals in a single sample of amphipod tissue were used only in food chain modeling, whereas the clam tissue was the only invertebrate tissue considered in the exposure estimate for invertebrates.

Similarly, the text on page 4-12 states that the potential toxicity of chemicals was addressed by "measuring chemical concentrations in clam, amphipod, and clam tissue" [sic]. However, measurement of chemicals in amphipod tissue was not used to evaluate toxicity to benthic invertebrates, but solely to estimate potential doses to wildlife receptors. Please clarify which measurement endpoints were used to evaluate risk to benthic invertebrates.

Response: The measurement endpoints listed on page 4-8 and summarized on Table 4-3 are correct. The benthic invertebrate and fish tissue data were collected to calculate doses to bird and mammal receptors; however, some tissues (amphipods and clams) were additionally used to evaluate the level of bioaccumulation by comparing tissue concentration to sediment concentrations by calculating bioaccumulation factors (BAF), as reported in Table 5-13. As explained in Section 5.2.5.2, because of the more recent availability of regional monitoring program data for bivalves, the Navy compared tissue concentrations from Otter Sluice to bivalve tissue concentrations collected at Grizzly Bay. The bivalve and amphipod tissue values are generally within the range of values reported at Grizzly Bay.

Furthermore, the Navy also compared clam tissue concentrations from Otter Sluice to reported values of tissue concentrations associated with effects (Jarvinen and Ankley 1999). Consequently, the amphipod and clam tissue data were further used to evaluate bioaccumulation at the Tidal Area sites, and clam tissue was used to evaluate

toxicity effects because bivalves are considered a more conservative indicator of bioaccumulation potential. The revised draft final RI will include this clarification.

EPA Specific Comment 11

<u>Section 4.2.2, Frequency and Magnitude of Detected Concentrations, Page 4-11</u>: The report states, "the Navy has chosen a conservative approach for the BERA, retaining ... all organic chemicals detected in more than one sample at a site." All organic COPECs were detected in more than one sediment sample, but the text goes on to state that several pesticides detected in only one surface sample were dropped as COPECs. The rationale for developing media-specific COPEC lists is not clear; if the chemical was detected in more than one medium it is possible that there was a release of the chemical at the site, and it should be carried through the BERA.

DDT, dieldrin, endrin, heptachlor, and chlordane were detected more than once in site media and were not eliminated in the screening step (presumably because they were present at concentrations above ambient and toxicological benchmarks). Further, chlordane and DDT were found to be risk drivers (higher than the ER-M) at Froid and Taylor Roads Site. Since they were retained in the risk evaluation for benthic and wildlife receptors, these four chemicals should also be retained as COPECs in surface water.

Response:

The ambient screen was used to develop a COPEC list for inorganic chemicals only. DDT, dieldrin, endrin, heptachlor, and chlordane were detected in surface water samples of the R Area at levels above the AWQC. Chlordane and heptachlor were detected in surface water samples of Otter Sluice above the AWQC, but none of these pesticides was detected in surface water at the Froid and Taylor and Wood Hogger sites. Although these chemicals were identified as primary COPECs in step 2 of the SLERA in Section 3.0, they had a low frequency of detection (3 percent). These pesticides were, therefore, eliminated from further consideration as COPECs in the BERA because of their low frequency of detection. The text in the revised draft final RI will reiterate that the detection limits for these chemicals were typically above the AWQC and will explain the uncertainty associated with their contribution to risk.

COPECs were developed for each medium and receptor group, as discussed in the response to EPA specific comment No. 8. Receptors with potential risks identified in the SLERA were further evaluated in Section 5.0 (birds and mammals were evaluated only in the BERA).

EPA Specific Comment 12

<u>Table 4-3, Assessment and Measurement Endpoints, and Table 4-4, Risk Questions and Testable Hypotheses</u>: The tables list "measurement of chemical residue in foraging fishes for comparison with published effect levels" and "tissue concentrations in composite fish samples ... based on data in Jarvinen and Ankley (1999)" as lines of evidence for risk to fish. However, based on the small number of composited fish samples this comparison is not particularly useful, and it does not appear that this evaluation was actually performed as part of the BERA. Please revise the tables to clearly reflect the lines of evidence used in the BERA.

Response: Fish tissues were not evaluated since the samples consisted of composites of several species of fish; therefore, the testable hypothesis for tissue concentrations should be ignored. The remaining testable hypotheses and lines of evidence are valid.

EPA Specific Comment 13

<u>Section 4.4, Weight-of-Evidence Approach, Page 4-13</u>: The report states that the weight- of-evidence approach is based on the approach used at the nearby Litigation Area. However, the text does not reflect that final agreement among natural resource trustees was not reached concerning the Navy's proposal to weigh lines of evidence in the BERA. As per discussions held on August 8 and August 18, 2000 with the regulatory agencies regarding the weight of evidence approach, the approach is intended as an organizational tool for the more quantitative lines of evidence used in the focused BERA, and will be considered qualitatively. Please revise the text to reflect that this agreement with the agencies.

Response: Methodologies used for the Tidal Area sites were consistent, when appropriate, with those of the Litigation Area, as agreed during the November 7, 2000, meeting (Navy 2000). The weight of evidence (WOE) approach discussed for the Litigation Area was intended to be more quantitative, but final agreement was not reached and instead a more qualitative approached was proposed (TtEMI 2002b). A specific approach to using the WOE was not defined for the Tidal Area sites. The WOE approach used in the Tidal Area sites was more qualitative and relied more on professional judgment to link diverse lines of evidence.

EPA Specific Comment14

<u>Section 5.2.1.1, Sediment Test Using Amphipod, Page 5-5</u>: The summary of toxicity test results concludes that sediments do not demonstrate toxicity to amphipods. However, it is not clear whether sediments used in the test represented the worst-case scenario (i.e., were toxicity tests performed using the most contaminated media from the site?). For example, the text should compare the range of chemical concentrations measured in the seven Otter Sluice sediment samples used in the toxicity tests to the maximum concentrations of chemicals detected in sediment in Otter Sluice and sitewide. Another useful comparison would be the range of ER-M quotients in individual toxicity test samples to the range of ER-M quotients for all Otter Sluice samples. The discussion of amphipod toxicity tests needs to be expanded to indicate whether the amphipod tests evaluated the most contaminated sediments and to support the conclusion that sediment poses little risk to invertebrates.

Additionally, the text states that the agencies agreed that "the amphipod bioassay would suffice as the only bioassay since the Sediment Water Interface (SWI) bioassay failed to yield useable results... the agencies agreed that the measures of bioavailability indicated little risk to invertebrates." However, during the November 2000 meeting, the agencies expressed concern that toxicity tests had not been performed on the most contaminated sediment samples, and that observable effects (delayed hatching) had occurred in the SWI test. The agencies requested that the Navy look closely at the concentrations of all COPECs in the toxicity test samples to determine whether chemistry was high

enough to cause potential effects. Please remove these statements from the text, and provide additional discussion of the toxicity test results in the context of site conditions.

Response: The samples for performing the toxicity test samples were selected to represent Otter Sluice areas adjacent to the Tidal Area sites. Samples were collected at Otter Sluice; locations were selected to determine whether potential contamination from the Tidal Areas had migrated to Otter Sluice, as described in the approved field sampling addendum (TtEMI 1998a). There was no basis for assuming any location would be representative of a worst-case scenario, and because of the hydrodynamics of the sluice, the most reasonable approach was to collect samples along the length of the sluice. The comment implies that Otter Sluice was expected to represent the worst-case scenario; however, the converse is true. Because no primary source of contamination to Otter Sluice was identified in previous investigations, Otter Sluice was expected to be relatively uncontaminated. In fact, Otter Sluice was not identified as a site in the initial investigation. It was added later in the investigation process as an area to be considered. As expected, maximum concentrations of chemicals in samples collected in areas other than Otter Sluice exceed concentrations in Otter Sluice. Amphipod tests were performed using sediment from Otter Sluice because Otter Sluice provides the best habitat in the Tidal Area for benthic invertebrates and represents the most likely exposure pathway to receptors of concern.

During the November 7, 2000, meeting (Navy 2000), the Navy made a comprehensive presentation of the potential factors contributing to the SWI results. The regulatory agencies concluded that although the results of the SWI were inconclusive, the amphipod test was considered adequate.

The amphipod bioassay sediment samples are the same sediment chemistry sampling stations (OSLSL001-OSLSL007) reported in Table 5-9. The mean ER-Mq results for all seven bioassay samples is medium-low priority, whereas the highest mean ER-Mq for any sediment sample collected in Otter Sluice is medium-high, which correspond to sampling stations OSLSL008 and OSLSL009. There is little difference, however, between actual detected chemical constituents reported for these two stations and those reported for station OSLSL006, the next highest ranking priority.

Table 5-4 lists the metal concentrations from the seven sediment samples used to conduct the amphipod bioassays. The range of these metal concentrations and the maximum concentrations from the wetland and aquatic site habitats are summarized in Table A-1 of Appendix A in this RTC. Potential risk to invertebrates and fish associated with metals including mercury was also evaluated by comparing chemicals in tissue of clams collected in Otter Sluice to literature effects levels (Table 5-14) and to regional bivalve tissue concentrations (Table 5-15). Body burdens of mercury in clams from Otter Sluice were below effects levels reported in the literature. Consequently, while there is uncertainty in estimating concentrations of mercury in surface water, mercury was detected in clam body tissue, but the concentrations are below levels known to cause adverse effects.

EPA Specific Comment 15

Section- 5.2.5, Tissue Concentrations in Benthic Invertebrates and Fishes, Page 5-11: The text states that fish were collected from the Froid and Taylor Roads Site and from Otter Sluice. Table 5-12 presents fish tissue concentrations for the Froid and Taylor Roads Site, but it does not appear that there is a table presenting fish tissue concentrations for Otter Sluice. Please provide a table with fish tissue concentrations for Otter Sluice.

Response: Table 5-12 was used to show the extent of bioaccumulation in tissues collected from the site. Both clam and fish tissue were collected at Otter Sluice; however, it was considered more appropriate to evaluate clam tissue since there is a more extensive literature on bivalve bioaccumulation. The complete data set for fish and clam tissue in Otter Sluice is provided in Table A-4 of Appendix A in this RTC. Fish and clam concentrations used in the food chain modeling at Otter Sluice are summarized as Table A-5 of Appendix A in this RTC. These data are provided as a separate table since the raw chemical data required calculations of exposure point concentrations and totals sums of some organic chemical classes.

EPA Specific Comment 16

Section 5.2.5.2, Clams and Fish at Otter Sluice, Page 5-13: Clam body burdens were compared with concentrations in other bivalves in San Francisco Bay. However, the rationale for comparing bivalve tissue data to a single reference site (from the San Francisco Bay Regional Monitoring Program) is unclear. Further it is not clear why Grizzly Bay was selected as the only representative data set from all of the stations in the Suisun Bay area. Please provide a range of concentrations measured in bivalves from Suisun Bay, or further explain why a comparison to this single set of values from Grizzly Bay is considered an appropriate comparison representative of conditions in Suisun Bay.

Response: It was considered appropriate to compare the data set to the reference location closest to the Tidal Area sites; the comparisons were made to Grizzly Bay since it is the closest reference location at which bivalves were monitored and, therefore, most likely to represent the site conditions in Otter Sluice.

EPA Specific Comment 17

Section 5.3.1.3, Piscivorous Birds, Pages 5-16 and 5-17: The discussion included in the table on page 5-17 does not indicate which of the several food items and what percentage for each food item will be assumed for the Great Blue Heron. Revise the table to specify the ingestion assumptions and food items for the Great Blue Heron.

Response: The Great Blue Heron's diet was assumed to be 100 percent fish at the Froid and Taylor Roads site and 100 percent rodents at the Wood Hogger site.

EPA Specific Comment 18

<u>Section 5.3.4.2, Hazard Quotient Approach, Page 5-40</u>: Insufficient justification is provided for the use of Waste Extraction Test (WET) results to adjust doses for bioavailability in the exposure estimate. The text states that a randomly selected set of soil and sediment samples were analyzed using the WET test. Based on Table J-10, it appears that a small number of samples at each site (7 or fewer) were used in WET tests, and therefore it does not appear that the WET adjustments are representative of the possible range of bioavailability at the site. EPA recognizes the difficulty associated with obtaining an accurate estimate of the bioavailability of contaminants. While using WET results may provide one estimate of this, the best estimate for the true bioavailable fraction is a measurement of the contaminant in tissues collected from the site from a wide range of possible soil/sediment or surface water concentrations present at the site.

Although the report does not address whether samples selected for WET tests represent the range of sediment concentrations measured at the site, an extraction evaluation throughout the entire range of concentrations measured in sediment would have been most instructive and useful in determining whether the results are representative of the full range of exposure. Please provide a data summary table comparing the maximum, median, and mean concentrations of the entire sediment/soil data set to those the summary statistics for sediment samples on which the WET tests were performed.

The text states that "the WET-adjusted dose estimates used in the BERA are expected to be conservative," and, "the WET-adjusted doses provide a more realistic assessment" of exposure of wildlife receptors to metals. Due to the small sample size, it is not clear whether the WET results are representative of the site, and therefore it is not clear whether the WET- adjusted doses are "conservative" or "realistic". Please provide a data summary table comparing the maximum, median, and mean concentrations of the entire sediment/soil data set to those the summary statistics for sediment samples on which the WET tests were performed. The report should be revised to discuss the uncertainties associated with the use of these exposure estimates based on the range of detected concentrations for the entire data set for each area.

Response:

The complete data set for the WET analysis is provided in Table D-3 of Appendix D of the revised draft final ERA. A summary table will be provided with the revised draft final Tidal Area RI. While only a limited number of WET tests were performed, it was considered appropriate to use this data set since it offered a more site-specific approach to derive a ratio of bioavailability. The bioavailability factor was applied during the calculation of HQs as a second tier analysis to the food chain modeling for chemicals that exceeded an HQ of 1.0 during the first tier evaluation. The text reflects that the WET test analysis used a more acidic solution for leaching out metals. This was done to derive an estimate of the quantity of metals leached into solution. The second tier WET-adjusted high dose/low (HQ), resulted in only a few additional HQs being less than one and were comparable to HQs derived for the ambient data set. The text reflects that the application of the WET test was considered a more

realistic assessment of the bioavailable fraction of metals. The revised draft final RI will provide additional discussion about the uncertainty associated with using the WET data.

EPA Specific Comment 19

Section 6.1.2.1, Risk Characterization for R Area Sediment, Page 6-4: The risk characterization does not provide sufficient detail in order to identify areas at the site posing potential risk or sources that might have contributed to potential risk. For example, the text states, "only four locations were medium to high priority" [for ER-M quotients], but the text does not describe these locations and their proximity to potential sources. The text on page 6-5 states, "risk posed by mercury in surface water is not easily characterized" and despite the finding that mercury is detected frequently above the Ambient Water Quality Criteria (AWQC), the report concludes that it is not of concern because *sediment* (not surface water) concentrations of mercury in the R Area were below ambient concentrations. The report does not discuss the finding that mercury was a risk driver at other Tidal Area sites, nor does it discuss potential sources and pathways of migration. The report should be revised to provide a more in-depth discussion of potential risk and if the Navy does not believe that action at the Tidal Area is warranted, the frequency and magnitude of risk across the entire Tidal Area should be discussed.

Response:

Landfill disposal activities on the eastern side of the R Area and separate disposal activities along northwestern side of the R Area by Baker Road were considered to be likely sources of contamination to these parts of the R Area. To evaluate these areas, sediment concentrations on the eastern and western sides of the R Area site were evaluated separately. Results of the analysis and data evaluation indicated a slightly higher concentration of contaminants on the western side of the R Area. Four locations resulted in ER-Mq ranks of medium to high priority within the R Area. These included one sample (RADSB017) along the northwestern side, one sample (J04) on the northwest boundary of the landfill, and two samples (RADSBE07 and RADSB020) in the southwest side of the R Area site. There was no evident pattern associated with these and other sampling locations to strongly link them with specific sources in the Tidal Area. Additionally, no strong evidence emerged that any of the locations posed a significant risk. The risk appeared to be attributed to nickel and zinc, and of these, nickel is not considered a meaningful indicator since it also poses potential risk at ambient levels. Mercury was not an apparent risk to invertebrates in the R area given that the exposure point concentration in the R area was 0.24 milligram per kilogram (mg/kg) (Table 3-1), less than the Tidal Area sites ambient mercury concentration of 0.32 mg/kg (Table 2-8). The mercury ER-L and ER-M are 0.15 mg/kg and 0.71 mg/kg, respectively. In addition, the distribution of ER-Mqs across the R Area indicates little risk overall.

Because detection limits for mercury in surface water were often above the AWQC (Section 2.6.4), risk attributed to mercury in surface water is uncertain. While exposure to mercury in sediments at the Wood Hogger was considered as a potential risk to invertebrates, risk associated with mercury or other contaminants in sediment

was not demonstrated through an evaluation based on the ER-Mq or the amphipod bioassay. Furthermore, while mercury is bioaccumulating, it is below effects levels and within the range reported by the regional monitoring data (San Francisco Estuary Institute 1997). Consequently, while there is uncertainty associated with potential risk associated with mercury in surface water, several lines of evidence considered do not indicate the risk in Otter Sluice is significant.

A conceptual site model was developed to evaluate transport pathways and potential migration of site chemicals. The main mechanism of surface transport of chemicals at the Tidal Area sites was described as surface water. Chemicals dissolved in surface water and chemicals present as suspended solids in surface water may be transported within and off the site. Tidal exchange and overland flow of surface runoff are the main routes of potential migration of chemicals from the Tidal Area to Suisun Bay. A discussion of fate and transport of chemicals at the Tidal Area sites will be presented in the revised draft final Tidal Area RI.

COMMENTS BY THE DTSC ON THE TIDAL AREA ERA

The DTSC comments were presented in their letter dated May 20, 2002.

DTSC General Comment 1

The Ecological Risk Assessment is well organized and represents a considerable effort by the Navy. Although many tables with chemicals of potential ecological concern (COPEC) are presented in the document, it was difficult to track which COPECs were kept in the risk assessment and which COPECs were eliminated after each scientific management decision point (SMDP). The document could benefit from an inclusive COPEC table indicating why each COPEC was eliminated for each site, both after the initial screening, and after the COPEC refinement step.

Response:

Thank you. The ERA was organized to assess each of the four Tidal Area sites independently. As part of the SLERA (step 1of EPA's eight-step process), all chemicals detected in soil, sediment, and surface water samples in the Tidal Area sites were screened to develop a primary list of inorganic and organic COPECs for each site being assessed. The inorganic COPECs were selected based on an ambient screen of 17 metals, excluding essential nutrients, as described in Section 2.1. Table 2-5 summarizes inorganic COPECs selected for each the four sites evaluated. Table 2-6 summarizes organic COPECs selected for each the four sites evaluated.

During step 2, toxicity benchmarks for all receptors, except birds and mammals, are used to further refine the primary COPEC list corresponding to each Tidal Area site and associated receptors. A COPEC refinement step was taken as described in Section 4.2.2.

DTSC General Comment 2

The Risk Assessment concludes that none of the Tidal Area Sites pose significant risk to ecological receptors, and that no remedial actions are recommended. HERD disagrees with this overly broad conclusion. Based on the site-specific data, several locations within each of the evaluated areas may warrant some further evaluation for selected remedial actions.

Response: Please response to EPA general comment 1 and EPA specific comment 14.

Certain locations, when considered independently, were associated with potential risks to some receptors, but the risk was not considered significant overall for each site. The overall risk was based on reasonable maximum exposure scenarios, which are based on a relatively conservative set of assumptions. Furthermore, uncertainties associated with the risk were also taken into consideration. As indicated in response to EPA general comment 1, professional judgment was used as a primary method for integrating results of all lines of evidence. Additional discussion regarding uncertainties will be provided in the revised draft final RI.

DTSC Specific Comment 1

<u>Section 2.8, p.2-13</u>: Please explain the statement: "The chemicals for which no valid toxicological benchmarks were available are not considered primary COPECs, and further consideration of these chemicals is limited to the uncertainty discussion (Section 6.0)." A discussion of this issue was not noted in Section 6. Please describe/list which contaminants of potential ecological concern (COPECs) were not carried through in the Baseline Ecological Risk Assessment (BERA) due to lack of a toxicological benchmark.

Response: All chemicals listed in Tables 2-5 and 2-6 were carried forward to step 2 of the SLERA. All available benchmarks used to evaluate risk to receptors groups identified were described and provided in Section 3.0.

Section 2.8 further discussed that experience and logic suggest that chemicals without benchmarks do not typically drive the cleanup decisions. In most cases, the lack of a benchmark results from inadequate exposure and effects data in the literature, as evaluated by the authors of published benchmarks. No site-specific ambient values or toxicity benchmarks exist for many of the chemicals detected in the Tidal Area.

If a chemical was initially listed in Tables 2-5 and 2-6 but it did not have a toxicity benchmark available for the receptor being evaluated, that chemical was not evaluated further during step 2 of the SLERA (Section 3.0). All tables showing the screening process identify chemicals without benchmarks and state that these chemicals are considered COPECs by default. Section 6.5.2 discusses that because screening values were not available for all chemicals detected at the Tidal Area sites, the chemicals are considered COPECs by default and could not be adequately evaluated based on the current literature. In the interest of maintaining the ERA to a manageable volume, information that could be ascertained from earlier sections was not summarized. A summary of COPECs by default, that is chemicals without available toxicity benchmarks, is provided in Table A-3 of Appendix A in this RTC.

As stated in Section 2.8 of the ERA, chemicals without benchmarks are not eliminated in the early stages of the ERA. Chemical for which no valid toxicological benchmarks were available are not considered primary COPECs and do not typically drive cleanup decisions. A discussion about the uncertainty associated with risk associated with COPECs without available toxicity benchmarks will be discussed in the revised draft final RI.

DTSC Specific Comment 2

<u>Table 2-9</u>: No Effects Range-Low (ER-L) or Effect Range-Median (ER-M) exists for selenium. Please identify the source of the selenium numbers presented in the document. It should also be noted that while the original Long and Morgan document (1990) includes ER-L and ER-M values for antimony, the revised and updated ER-L/ER-M document (Long et al., 1996) does not include antimony values.

Response: The ER-Ls and ER-Ms for antimony and selenium are from the following reference:

National Oceanic and Atmospheric Administration (NOAA). 1991. "The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program." Technical Memorandum NOS OMA 52.

DTSC Specific Comment 3

<u>Section 3.1.1, p. 3-2</u>: Please explain why other sediment screening numbers, such as Threshold Effects Levels (TELs) or Adverse Effects Threshold (AETs), were not used/considered in the screening level ecological risk assessment when an ER-L was not available.

Response: The field sampling addendum proposed the use of the ER-Ls as the most acceptable screening benchmarks (TtEMI 1998a). With the exception of bis (2-ethylhexyl)phthalate (TEL 182.16 ug/kg) and gamma-BHC (lindane) (TEL 0.32 ug/kg), no additional TELs are available where ER-Ls are not available. Based on a comparison of exposure point concentrations in sediments, bis (2-ethylhexyl)phthalate exceeded the TEL at the R area (200 ug/kg) and Froid and Taylor (3000 ug/kg), but was not detected at Wood Hogger and Otter Sluice. Lindane exceeded the TEL at Froid and Taylor (0.4 ug/kg), Wood Hogger (1 ug/kg), and Otter Sluice (0.6 ug/kg). Only sediments at Froid and Taylor slightly exceeded the bis (2-ethylhexyl)phthalate probable effect levels (PEL) (2646.51 ug/kg) suggesting potential risk associated with this organic chemical. However, it was only detected in one of eleven samples, so the potential risk is limited. None of the Tidal Area sites exceeded the lindane PEL (99 ug/kg). AETs are receptor-specific values developed for evaluating sediments in Puget Sound under guidance developed by the Washington State Department of Ecology; their application to the Tidal Area sites was not part of the Tidal Area sites approved work plan (PRC 1995a). Other lines of evidence such as the amphipod bioassay in Otter Sluice and the clam tissue data were used as a site-specific approach to assess risk.

DTSC Specific Comment 4

<u>Section 3.1.2, p.3-3</u>: The document states that gamma-BHC (Lindane) was dropped as a COPEC because the detected concentration did not exceed the EPA Ambient Water Quality Criteria (AWQC). The AWQC for gamma-BHC is 0.016 ppb. A review of the R-Area surface water data presented in Appendix P of the 1999 Draft Remedial Investigation showed a detection limit of 0.05 ppb (a value greater than the AWQC), with a J qualified detection at 0.01 ppb. However, Table 3.2 in the document shows that the detection limit and the detected concentration was 0.01 ppb. Please explain this discrepancy.

Response: As presented in Table 3-2, gamma-BHC (lindane) was detected only once in the surface water at the R Area. The detection limit for this sample, which is *not* presented in Table 3-2, is 0.05 µg/L, which is greater than the AWQC of 0.016 µg/L. The concentration of this sample is correctly presented in Table 3-2 as 0.01 µg/L (the nonrounded value is 0.012 µg/L); this concentration is a "J" qualified or estimated value because the detection was measured at a level lower than the accurately quantifiable detection limit. So although this is an estimated value, it is an accepted practice to use the estimated concentration.

DTSC Specific Comment 5

<u>Section 3.1.3, p 3-3</u>: Please explain the rationale for stating that an HQ of "less than 4.0" indicates "potential but limited risk to benthic invertebrates" from inorganic chemicals in sediment. During the screening stage of an ecological risk assessment, an HQ greater than 1 is indicative of a risk. According to both EPA and DTSC guidance, no evaluation of the degree of risk posed by a contaminant is determined at the screening level. A tool to further identify potential risk during the screening level investigation is the Hazard Index (HI). It is recommended that HQs be summed to arrive at an HI for inorganics. The screening level HI for inorganics at the R-Area site is 12.68, which indicates a level of concern.

Also, if the pH of the water in the R-Area was not sampled, it is not appropriate to assume that the pH is neutral, despite the fact that the pH is neutral in Grizzly Bay and Honker Bay. Therefore, based on an assumed pH, it is not appropriate to conclude that aluminum will not be a risk to aquatic resources in the R-Area.

Response: The text should show that the HQ exceeded 1.0 for some chemicals detected at the R Area, indicating potential risk to benthic invertebrates associated with exposure to sediments. Potential risk was attributable to aluminum, mercury, and pesticides. The revised draft final RI will not make inferences regarding the significance of risk to invertebrates based upon the magnitude that the HQ exceeds a value of 1.0.

The benefits of calculating HIs were considered but determined to have little value in assisting to make risk management decisions. An HI cannot be used to rank sampling locations at a site with respect to potential toxicity. They are only an indication of potential toxicity, but the magnitude and type of toxicity are very difficult to determine if at all possible. The implications of HIs are further complicated by uncertainties such as inclusion of nondetects in the calculation as well as factors associated with synergistic or additive toxicity effects.

DTSC Specific Comment 6

<u>Section 4.2.2</u>: The following COPECs were eliminated as contaminants of ecological concern in surface water during the refinement step in the BERA for the R Area: 4,4'-DDT, Dieldrin, Endrin, and Heptachlor. The rationale provided in the text indicates that these contaminants were dropped because of a low frequency of detection. Heptachor was also eliminated as a COPEC in Otter Sluice due to low incidence of detection. Based on Table P-4 in the 1999 Draft Remedial Investigation Report for the Tidal Area Sites, detection limits for 4,4'-DDT, Dieldrin, and Endrin were two orders of magnitude above the AWQC. Detection limits for Heptachor were one order of magnitude above the AWQC.

Please explain why this is an appropriate action given that concentrations determined to protect 95% of aquatic species could not be applied at the screening level based on the quality of data. This seems to be a serious flaw in the refinement of COPECs.

Response: Please see EPA specific comment 11.

DTSC Specific Comment 7

<u>Table 4-4</u>: It does not appear that the questions regarding risk to fish have been resolved through the lines of evidence collected during the ecological risk assessment. The lines of evidence to evaluate adverse effects on survival, reproduction, and growth listed in Table 4-4 are 1) exceedances of AWQC, 2) hatchability of fish embryos, and 3) tissue concentrations of composite fish samples. The results of the hatchability study and the fish tissue concentrations were rejected for reasons mentioned in the text and therefore were not used to evaluate risk to fishes. The only data available to determine risk to fish are the AWQC. All four sites evaluated in the ecological risk assessment exceeded AWQC for aluminum, copper, and mercury. Table 5-11 indicates the extent of exceedance of the AWQC for these contaminants, as well as exceedances of other contaminants in the four sites. These data seem to force a conclusion that fish could be at risk.

Response: Although the field sampling addendum proposed a fish bioassay (TtEMI 1998a), the results of this bioassay was considered inconclusive. Consequently, the Navy agrees that the lines of evidence to assess risk to fish were limited. Because the detection limits for some chemicals analyzed were above the AWQC described in Section 2.6.4 of the revised draft final Tidal Area ERA, there is uncertainty associated with the conclusions based upon the results. Most of the chemicals for which detection limits were high, such as mercury and pesticides, are known to bioaccumulate. Consequently, the risk posed by bioaccumulated chemicals was also evaluated. Clam tissues were evaluated as a surrogate for evaluating invertebrates and fish since bivalves are used as a more conservative indicator to measure bioaccumulation. The clam tissue concentrations were below literature reported effects levels referenced in Table 5-14, and clam tissue concentrations in both north and south Otter Sluice are within the tissue concentrations reported for Grizzly Bay (the location reference for the San Francisco Estuary Institute regional monitoring program) for trace substances referenced in Table 5-15. Amphipod, fish, and clam tissues were collected to represent prey exposed to chemicals in sediment and water, a direct way to evaluate risk to upper trophic levels, ameliorating problems with detection limits in any single medium. As a result of food chain modeling, mercury was not determined to pose a risk, and pesticides were found to pose little to no risk.

DTSC Specific Comment 8

<u>Section 5.2.2, p. 5-8</u>: Please include, or identify the datasets that were used to calculate the HQs for the sediment COPECs for benthic invertebrates found in Tables 5.5.

Response: The exposure concentrations for each chemical at each of the Tidal Area sites were provided in Tables 3-1, 3-5, 3-8, and 3-10. The HQs values were derived for each chemical listed in Table 5-5 by dividing the exposure concentration by the chemical

specific ER-L. The revised draft final RI report will include the full chemical data set used to calculate the exposure concentrations provided in Tables 3-1, 3-5, 3-8, and 3-10.

DTSC Specific Comment 9

<u>Section 5.2.3, p. 5-9, 2nd full paragraph</u>: There is no experimental justification for the statement, "Including chemicals eliminated as COPECs based on the ambient screening (Section 2.0) in the calculation of ER-Mqs likely results in an overestimate of potential risk to benthic invertebrates based on ER-Mqs". In fact, the exact opposite is probably true. By including COPECs that have been eliminated because their individual HQs were less than 1 (meaning the concentrations were less than their respective ER-L values), the calculated ER-Mq, would actually be reduced, and might result in the underestimation of potential risk.

Response:

The statement was only referring to chemicals that had not been detected. Since there is uncertainty about whether a chemical was detected, the Navy believes that including one-half the detection limit for a chemical effectively results in a bias towards calculation of a higher value ER-Mq. The Navy agrees that excluding a detected chemical with an ER-L HQ of less than 1.0 would not be appropriate and would in fact be less conservative. The priority ranking approach using an ER-Mq relies on an empirically derived approach to predict the effects of an aggregate of chemicals, so it is considered appropriate to consider any chemical at any detection limit. There is an uncertainty, which tends to bias the results towards predicting greater risk, when using chemicals that may not have been detected. This point will be clarified in the revised draft final RI.

DTSC Specific Comment 10

<u>Section 5.2.3.2, p. 5-10</u>: The discussion in this section and in Sections 5.2.3.3 and 5.2.3.4, indicate that exceedances of ER-Ms are unimportant because they were based on substituting one-half the detection limit for non-detected data. In some instances, half the detection limit was greater than the ER-M value for that contaminant. Please explain how the risk posed by contaminants was evaluated when the detection limits are greater than twice the guideline values.

Response:

In a few cases, half the detection limit was greater than the ER-M value. Consequently, there is uncertainty associated with predicting risk for chemicals where the nondetected value was above the ER-M because the risk associated with these chemicals may be underestimated. The overall risk may also be overestimated because actual chemical concentrations could easily be less than those assumed when substituting a value of one-half of the detection limits for nondetected chemicals.

As stated in the response to EPA general comment 1, the ability to predict risk using the ER-Mq method has associated uncertainties. Consequently, other tools such as bioassay testing are recommended to verify potential risks.

As discussed in response to EPA specific comment 11, the risk posed by sediments to invertebrates in Otter Sluice was evaluated by both the amphipod bioassay and by calculating an ER-Mq priority. None of these lines of evidence identified any significant risks.

A revised discussion of uncertainty associated with these nondetects will be provided in the revised draft final RI.

DTSC Specific Comment 11

Section 5.2.5, p. 5-11: The text indicates that fish tissues were collected in Otter Sluice. These data are not presented or evaluated in the document. Please present these data.

Response:

Fish tissue collected in Otter Sluice was used to estimate risk to piscivorous birds in the dose estimate for the Great Blue Heron. As stated in Section 5.2.5, page 5-12, fish tissues were not evaluated for direct effects because the samples consisted of composites of several species of fish. Table A-4 of Appendix A in this RTC presents all the raw data for the fish and clam tissue collected at Otter Sluice. The fish tissue chemical concentrations collected in Otter Sluice and used in the food chain modeling are summarized in Table A-5 of Appendix A in this RTC.

DTSC Specific Comment 12

Section 5.3.2.2, p 5-23: Please see Appendix 1 for a detailed discussion of this section.

Response:

The Navy acknowledges the error in Table J-7. "Eutherian" values were used in the calculation of the river otter's ingestion rate, not "all mammal" values. Eutherian values were selected for the gray fox and the river otter parameters to be consistent with the Litigation Area ERA, which also used eutherian values for these receptors.

The Navy has considered the comments regarding the application of the Nagy and others (1999) body weight values to calculate a 95 percent confidence interval for the metabolic rates. To be consistent with the Litigation Area ERA, the Navy has used averages for all receptor parameters, including body weights. The ingestion rates used in the food chain modeling for the gray fox and river otter resulted in values between the upper and lower confidence intervals reported in the example calculations provided by the DTSC in Appendix 1 (included as Appendix C of this RTC).

The Navy agrees that the rationale to calculate the dose assuming a total ingestion rate of 100 prey plus the additional contribution based on the incidental sediment ingestion as described in Appendix C of this RTC is a justifiable alternative to the approach used in the food chain modeling for the Tidal Area sites. The Navy would support revising the dose calculation methodology related to the percent ingestion of prey and soil in future ecological risk assessment documents. Table A-6 of Appendix A in this RTC provides a summary of the HQ comparisons based on the ingestion rates actually used in the food chain modeling and HQs recalculated using the ingestion rate percentage recommended by the DTSC. The risk is increased slightly with the increase in prey ingestion rate, but no additional chemicals contribute to the risk and no additional receptors are at risk.

DTSC Specific Comment 13

Section 5.3.3, p 5-13: The ingestion rates in all the food web models are miscalculated. The FMR calculated from Nagy is the amount of energy an organism requires from a maintenance diet. Since no energy is obtained from incidental soil/sediment ingestion, the calculated FMR is the required amount from prey ingestion. When this value is converted to dry weight of prey it constitutes the total dry weight of prey required for a maintenance diet. Soil/sediment ingestion is over and above this amount. In the case of the black rail, the total ingestion rate of prey is 0.00578 kg/day. If soil ingestion represents 18% of the total ingestion rate, then the 0.00578 kg/day represents 82% of the total ingestion rate of 0.00705 kg/day (0.00578 divided by 82%) and the soil/sediment ingestion rate is 0.00127 kg/day (0.00705-0.00578 or 0.00705 times 18%).

Response: Please see DTSC general comment 12.

DTSC Specific Comment 14

Section 5.3.4.1, p. 5-38: While smaller animals with higher metabolic rates may breakdown and eliminate contaminants more quickly per gram of body weight, they will also be taking up more contaminants. If the contaminants are bioaccumulative, then the smaller receptors have the potential of accumulating contaminants more rapidly. This should be acknowledged in the discussion.

Response: Please see DTSC general comment 12. The uncertainty associated with estimating bioaccumulative risk in smaller animals will be discussed in the revised draft final RI.

DTSC Specific Comment 15

Section 6.6, p 6-15, 16: The conclusions in the ecological risk assessment document state that no remedial actions are recommended for the Tidal Area Sites despite the fact that specific areas within the sites do indicate risk associated with exposure to site related contaminants. For the Froid and Taylor site, data (Table 5-13) indicate that PCBs and certain pesticides at location FTSTI105 may pose a risk to aquatic receptors. Section 6.6 identifies FTSSL102 as the only area in the Froid and Taylor site that poses a risk to benthic invertebrates. Please discuss why FTSTI105 was not included as an area posing a risk to aquatic receptors. In addition, only one location in Otter Sluice is considered to be a potential risk to benthic invertebrates. Based on site-specific tissue residue data (Table 5-15), concentrations of lead, mercury, selenium, and zinc in clam tissue exposed to Otter Sluice sediments exceed regional bivalve tissue concentrations for Grizzly Bay. Bioaccumulation factors for Otter Sluice also indicate mercury, selenium, alpha-BHC, gamma-BHC, and heptachlor may be a problem. There was no explanation in the text of the document discussing the very high clam BAF for gamma-BHC (Table 5-13) at OSLSL004. Residue data from fish tissue collected in Otter Sluice were not available for review.

Response: Please see EPA general comment 1. A sediment sample was not available for station FTST1105. Only amphipods were collected at this station to derive a tissue-based dose estimate used in modeling risk to the Black-necked stilt. Consequently, this station was not used to evaluate risk to invertebrates based on the ER-Ls or the ER-Mqs. Station FTSSL102 was the only sediment sample station that, upon evaluation

using the ER-Mq, showed potential risk to invertebrates.

Gamma-BHC was detected in clam tissue (7.79 mg/kg dry wet) in South Otter Sluice. There were no available reference data from Grizzly Bay for this pesticide; therefore its significance could not be directly evaluated. In general, however, chemical constitutes were below the reference values reported for Grizzly Bay. Furthermore, the risk to upper trophic levels consuming clams from Otter Sluice was found to pose little or no risk.

As stated in Section 5.2.5 (page 5-12), fish tissues were not evaluated for direct effects because the samples consisted of composites of several species of fish.

COMMENTS BY THE RWQCB ON THE TIDAL AREA ERA

The RWQCB comments were presented in their letter dated April 12, 2002.

RWQCB ERA General Comment 1

The contamination assessment of the hydrologic system at the Tidal Area Sites 2, 9, and 11 needs to be improved in this report. This work is based on earlier studies such as the 1998 TtEMI report entitled: "Technical Memorandum Confirmation Groundwater Sampling." Board Staff has recently forwarded (April 3rd, 2002) significant comments for consideration by the U.S. Navy on this earlier report.

Response: The revised draft final ERA is a secondary document, prepared in support of the RI, which is a primary document according to the Naval Weapons Station SBD Concord Federal Facilities Agreement. Contaminant concentrations in surface and groundwater will be discussed in the revised draft final RI and will consider the RWQCB's April 3, 2002 comments on the Technical Memorandum Confirmation Groundwater Sampling (TtEMI 1998b).

RWQCB ERA General Comment 2

Board Staff recommends quantitatively discussing the following: site specific hydrologic budget, contaminant concentration magnitude found in surface and groundwater, seasonal and tidal effects upon the hydrologic cycle for each site, contamination relationships found between the tidal area landfill and the R area. Finally, maps with known water quality exceedances are missing from the report.

Response: The work plan developed to date for the Tidal Area sites has not identified the need to estimate a site-specific hydrologic budget for the ERA or the RI (PRC 1995a). Consequently, the Navy has not collected sufficient data to present a quantitative hydrologic budget for the Tidal Area as a whole or any site-specific location.

The revised draft final ERA is a secondary document, prepared in support of the RI, which is a primary document according to the Naval Weapons Station SBD Concord Federal Facilities Agreement. Contaminant concentrations in surface and groundwater will be discussed in the revised draft final RI.

Seasonal and tidal effects on the Tidal Area sites are discussed throughout the ERA report. Within the introductory chapter of the ERA, tide and seasonal effects are discussed in the following sections:

Section	Title
1.3.5.3	Site Hydrogeologic Setting
1.4.2	Upland Habitat
1.4.3	Aquatic Habitat
1.5.1	Site 2: R Area
1.5.2	Site 9: Froid and Taylor Roads
1.5.3	Site 11: Wood Hogger

Chemical contaminant relationships between the Tidal Area landfill and the R Area were discussed in section 3.1 and compared in Table 3-3 of the ERA to address concerns about the role of the Tidal Area Landfill as a source of contamination. See also response to EPA Specific Comment 19.

RWQCB ERA General Comment 3

Please indicate why the water quality data for both surface and groundwater were not presented in this report. It is also necessary to justify why general water quality parameters such as: pH, dissolved oxygen, oxygen reduction potential, turbidity, alkalinity, total dissolved solids, major cations and anions were not analyzed and reported for these matrices.

Response:

TtEMI submitted a work plan describing the draft final qualitative ecological assessment (QEA) work plan (PRC 1995a) and the field sampling addendum (TtEMI 1998a) as Appendix B of the revised draft final ERA for the Tidal Area Sites 2, 9, and 11. The work plan described work proposed for the Tidal Area sites and identified analyses for the water samples. The work plan was reviewed, commented on, and approved by the regulatory agencies including the RWQCB. General water quality parameters such as oxygen reduction potential, alkalinity, total dissolved solids, and major cations and anions were not included in the approved sampling plan (PRC 1995b). Other water quality measurements, including turbidity, pH, and dissolved oxygen were measured in the field, and water quality data for these analyses will be presented for surface water and groundwater in the revised draft final RI. Although the nature and extent of contamination are not discussed in the ERA, the ERA does present screening criteria and maximum concentrations detected. The water quality screening criteria for surface water is presented on Table 2-11. Screening results for surface water in each Tidal Area site and Otter Sluice (including maximum surface water concentrations) are presented on Tables 3-2, 3-6, 3-9, and 3-11.

RWQCB ERA General Comment 4

The addition of maps outlining the results of the risk assessments and contamination extent would improve the report. For example, Figures 22-43 found in the 2001 TtEMI report entitled: "Five Year Periodic Review Assessment Litigation Area" were useful to Board Staff review.

Response:

The revised draft final RI will consider additional graphical displays to support the risk assessment findings, such as the Wood Hogger site. (See response to EPA specific comment 1).

RWQCB ERA General Comment 5

The quantitative and qualitative risks evaluation to wetland and terrestrial plants need better substantiation from tables and maps. The analysis of the soil's pickleweed bioaccumulation factor indicating that Chemicals of Potential Ecological Concern (COPECs) are not being accumulated in pickleweed need an accompanying datatable. The qualitative evaluation of pickleweed bare spots would benefit from a mapping exercise. This map could be linked to edaphic characteristics supporting the absence of correlation between chemical concentration and plant cover.

Response: Pickleweed tissue was collected to model risk to receptors. Collocated pickleweed tissue and sediment samples were not collected; therefore, a "mapping" to correlate chemical contamination with plant cover is not possible. Because of the absence of suitable toxicity benchmarks, a qualitative evaluation of pickleweed was developed, as recommended in the June 26, 2000, technical review team meeting (Navy, transmittal letter August 11, 2000) (TtEMI 2000b). Given the available data, the best approach was a qualitative comparison with the Litigation Area sites.

RWQCB ERA General Comment 6

The report does not synthesize the findings of the Ecological Risk Assessment report. The U.S. Navy needs to define how the added evaluated risks generated by anthropogenic contamination could be remediated and monitored. The report's qualitative approach needs to be improved with datatables and accompanying maps.

Response: The purpose of Section 6.0 is to provide a risk characterization of all the assessment endpoints at each site. Remedial alternatives including monitoring would be developed and evaluated as part a feasibility study under the Installation Restoration program; consequently, it was not the intent to provide this type of information in the ERA.

RWQCB ERA Specific Comment 1

<u>Section 1.3.5.3, Site Hydrogeologic Setting, p 1-9</u>: It is stated in the report: "Groundwater does not discharge to Suisun Bay through subsurface flow or groundwater to surface water interaction." However, Section 4.2 p. 24 of the 1998 TtEMI report entitled "Technical Memorandum Confirmation Groundwater Sampling" states that "groundwater does not appear to discharge to Suisun bay via subsurface flow or groundwater/surface water interaction, although limited groundwater/surface water interaction occurs along a narrow strip adjacent to Otter Sluice." Please resolve this discrepancy.

Response: The statement in Section 1.3.5.3 is true in a general sense because there is no significant amount of flow toward Otter Sluice during low tides. The description in Section 4.2 is also accurate as explained in the following paragraph. Section 1 of the revised draft final RI will be expanded to clarify this issue.

Groundwater generally flows away from Otter Sluice, as indicated by the consistently higher groundwater elevations from wells near Otter Sluice relative to the lower groundwater elevations measured within the R Area. Except for a narrow zone immediately adjacent to Otter Sluice, groundwater through the R Disposal Area flows toward the center of the R Disposal Area.

Although groundwater generally flows away from Otter Sluice, Otter Sluice is subject to tidal fluctuations, and some wells close to Otter Sluice are influenced by these tidal fluctuations. When the groundwater level adjacent to Otter Sluice is higher than the water level in Otter Sluice, there will be a temporary reversal of groundwater flow toward Otter Sluice. Because a tidal cycle lasts approximately 12.5 hours, the duration of temporary groundwater flow reversals in the area immediately adjacent to Otter Sluice caused by low tides is a few hours at most. The amount of groundwater flow toward Otter Sluice and the width of the zone of influence are functions of the hydrologic properties of the soils adjacent to Otter Sluice.

RWQCB ERA Specific Comment 2

<u>Section 1.5.1.2, Site Description and Operational History, p 1-13</u>: This section needs to mention that the Tidal Area is located on a site originally occupied by the Pacific Coast Building Company.

Response: The Pacific Coast Shipbuilding Company was mentioned in Section 1.3.3, page 1-6.

RWQCB ERA Specific Comment 3

<u>Section 1.5.3, Site 11: Wood Hogger, p 1-15</u>: It is unclear to Board Staff why: "the soil properties and criteria may not be valid indicators of current hydric and non hydric conditions in these filled areas."

Response: The sentence should state "these soil properties would be valid indicators of current hydric and nonhydric conditions in these filled areas." In fact, the properties would be particularly valid indicators since the fill has been in place for over 50 years; however, these hydric conditions are not necessarily complete indicators of the presence of wetlands. Any reference to the above-mentioned soil properties in the revised draft final RI will clarify this issue.

RWQCB ERA Specific Comment 4

<u>Section 2.1.1, Data Used in the Revised Ecological Risk Assessment, p 2-2</u>: A presentation on why the Microtox® and Cytochrome P450 assays yielded inconclusive results needs to be made in this section. Was this determination made due to the analytical results variability or poor agreement with the other data collection methods?

Response: The Microtox® and Cytochrome P450 data were not used because of the inherent variability and limited ability to predict contamination. These methods were originally used to assist in predicting whether contamination was present. Since this was confirmed by actual contaminant analysis conducted at the same time, the subsequent phases of investigation focused on actual chemical analysis since they provided a more quantitative approach to conduct the risk assessment.

RWQCB ERA Specific Comment 5

<u>Section 2.2.1, Site 2: R Area, p 2-4</u>: The chosen horizon depth of 0 to 0.5 feet below ground surface (bgs) needs to be clarified. Was this depth derived out of contaminant distribution data taken from previous studies?

Response: The selection of a surface sample (soil or sediment) to support characterization of ecological risk was proposed in Section 6.0, Field Sampling and Analysis, of the draft final QEA work plan (PRC 1995a) and in Section 2.0, Sample Locations and Analysis, of the field sampling addendum (TtEMI 1998a). This depth was based on reasonable expectations of exposure of receptors at the site to chemicals in surface soil or sediment. Sediment at the site is anoxic a few inches below ground surface. Burrowing animals were not the focus of the risk assessment.

RWQCB ERA Specific Comment 6

<u>Section 2.3, Fate and Transport Pathways, p 2-7</u>: Please indicate why groundwater was not mentioned as a transport mechanism in the studied areas. The 1998 TtEMI report mentioned above, acknowledges the stratigraphic complexity of the studied sites. More specifically the presence of sand lenses, the fill materials heterogeneity and the underlying estuarine sand aquifer might provide groundwater transport pathways.

Response: The exposure pathway for groundwater was evaluated as part of the conceptual site model developed and discussed in Section 4.0. As stated in the response to general comment 3, however, groundwater is not an exposure pathway for ecological receptors in the Tidal Area sites and, therefore, was not discussed further. Groundwater will be addressed in the revised draft final RI.

RWQCB ERA Specific Comment 7

<u>Section 2.6.4, Toxicological Benchmarks for Aquatic Organisms in Surface Waters, p 2-11</u>: It is unclear to Board Staff how the National and California Ambient Water Quality Criterias (AWQCs) dissolved concentrations were converted to total recoverable concentrations. A table specifying the conversion factors and the process would be helpful. Board Staff does not encourage this type of calculation. Properly collected surface water quality data is a preferred approach.

Response: Because surface water concentrations were not filtered, they reflect the total recoverable concentrations. As reported in Section 2.6.4, EPA amended the regulations to convert many of the metals criteria, which were previously reported based on total recoverable concentrations, to dissolved concentrations. TtEMI prepared Table 2-11 in the revised draft final Tidal Area ERA to demonstrate the range of AWQC available from three regulatory sources and justify the selection of the most appropriate AWQC toxicity benchmark for surface water. The conversion of recoverable to dissolved concentrations is dependent on salinity and water hardness (i.e. calcium carbonate), therefore the table summaries the actual AWQC values selected, as discussed in Section 2.6.4.

RWQCB ERA Specific Comment 8 **<u>Table 2-6, Summary of Organic Chemicals Detected in Sediment and Soil</u>: Concentrations values and statistical parameters such as mean, median, standard deviation are missing from this table.**

Response: The values for mean and median were not reported for sediment since they are actually not a direct application for these values. While the standard deviation was calculated, the UCL_{95} was reported instead since it was used as the exposure concentration.

RWQCB ERA Specific Comment 9 **<u>Table 2-11, Chronic Ambient Water Quality Criteria</u>: Please include the equations and coefficients used to derive the Criteria Continuous Concentrations (CCCs).**

Response: Please see response to specific comment 7.

RWQCB ERA Specific Comment 10 **<u>Section 3.0, Screening-Level Exposure Estimate and Risk Calculation</u>: An indication why hazard indices summing site specific hazard quotients is lacking in this section. Hazard indices were not computed for ecological receptors applied to this study.**

Response: Please see response to DTSC specific comment 5.

RWQCB ERA Specific Comment 11 **<u>Section 4.0, Tables 4-1 & 4-2, Summary of Primary Chemicals of Potential Ecological Concern</u>: Concentrations values and statistical parameters such as mean, median, standard deviation are missing from these tables**

Response: Table 2-5 provides an initial list of COPECs. The list was later refined to derive a primary COPEC list provided in Tables 4-1 and 4-2, as discussed in Section 4.1. The statistical parameters for the mean, median, minimum, and maximum were provided for sediment samples in the ambient screen, Tables 2-1 to 2-4. The standard deviation was calculated but not reported (or used) since the UCL_{95} was calculated (unless the maximum value was used) and reported for all chemicals detected.

RWQCB ERA Specific Comment 12 **<u>Section 5.0, Table 5-1, Comparison of R Area with Litigation Area Sediment Concentration</u>: Concentrations values and statistical parameters such as mean, median, standard deviation are missing from this table.**

Response: Table 2-1 provides the mean, median, minimum, and maximum value along with the UCL_{95} instead of the standard deviation, as explained in RWQCB ERA specific comment 11.

RWQCB ERA Specific Comment 13

<u>Section 5.0, Table 5-6, Hazard Quotient and Mean ER-Mq for Chemicals in Sediment from the R Area Site</u>: Please indicate why the mean ER-Mq (Effects-Range Median Quotient) was computed using the non detected contaminants. I t is also unclear what the ER-Mq bolded shaded value represents. The Navy needs to indicate why hazard quotients were not calculated using the Effects Range Low (ER-L). An additional table ranking sites ER-Lq/ Mq could be used to determine site specific risks.

Response: The ER-L is used for screening, as described in Section 2.0. In the BERA, the mean ER-Mq was calculated using the ER-M values, as described in the response to EPA General Comment No. 1. The mean ER-Mq is based on using the sume of the ER-M quotients to derive a priority value; it is not valid to use the ER-L value to calculate an ER-Mq value.

RWQCB ERA Specific Comment 14

<u>Appendix C, Sample Collection Methods</u>: A section describing the analytical methodologies applied to each contaminant analyzed needs to be integrated in this appendix. For example, it is unclear if total mercury was sampled and analyzed separately from the other metals in both sediments and water. Please include a Compact Disc (CD) of all data collected, for all media sampled in these ERA studies.

Response: Mercury was not analyzed separately. An electronic copy of the data collected will be provided with the revised draft final Tidal Area RI.

RWQCB ERA Specific Comment 15

<u>Appendix E, Figure E-1 Attachment 3, Concord NWS Qualitative Ecological Assessment</u>: Board Staff recommends improving this map for readability, easy access (smaller format) and linking the habitat type with plant communities, hydrological units.

Response: This map was prepared as part of a wetland delineation effort. Reducing the size of the map would compromise the resolution.

RWQCB ERA Specific Comment 16

<u>Appendix F, Section 4.1 Data Set Preparation, p F-5</u>: It is unclear to Board Staff how the inferred elevated metal concentrations found in the uppermost soil horizon in the study area are linked with airborne deposition or tidal transport. Please substantiate these statements with scientific data. For example, the highest Effects Range-Median Quotient (ERMq) for total mercury was found at WHSSB022 in the southwestern area of Site 11. It would be fortuitous for mercury to be transported by tidal fluxes more than half a mile from the Bay and specifically deposited at this location.

Response: Please see response to EPA specific comment 1 in regard to the interpretation of the results for station WHSSB022.

RWQCB ERA Editorial Comment 1

Section 2.0, Table 2-8, Comparison of Terrestrial Plant Benchmarks with Tidal Area Concentrations: Please indicate the detection limit (DL) in parentheses for Selenium and Silver.

Response: The detection limits are provided in the following table:

		Detection Limit (µg/L)	
Analyte	**Detected/Analyzed**	**Min**	**Max**
Selenium	2/61	0.74	5.3
Silver	0/61	0.13	0.93

RWQCB ERA Editorial Comment 2

Section, 3.0, Table 3-3, Comparison of the Western and Eastern Sides of the R Area Disposal Site: Indicate the matrix sampled in this study.

Response: The matrix sample is sediment.

RWQCB ERA Editorial Comment 3

Section 5.0, Figure 5-1, ER-Mq Priority Results for Sediments at Wetlands and Aquatic Habitat: Site RADSB011 was not found on the map but is computed Table 5-6. Please resolve this discrepancy.

Response: Sampling station RADSB011 can be found on Figure 5-1 in the northwestern region of the R Area near the "S" in "SITE 2".

COMMENTS BY THE RWQCB ON THE CONFIRMATION GROUNDWATER SAMPLING

The RWQCB reviewed the report entitled, "Technical Memorandum, Confirmation Groundwater Sampling in the Tidal Area Sites, Naval Weapons Station Concord (CGS)," dated March 19, 1998. RWQCB staff that originally received the report did not issue comments on the documents. The Navy received comments from the RWQCB in their letter dated April 3, 2002. The RWQCB comments regarding the CGS and Navy responses to the comments are presented in the following text.

RWQCB CGS General Comment 1

Groundwater discharge to the Bay represents an important pathway for pollutant transport. Groundwater in the tidal area sites includes freshwater originating from precipitation on land and re-circulating Bay water associated with salt-water intrusion along the shoreline. The Navy recognizes that the heterogeneous lithology exerts an influence on monitoring wells tidal responses. For example, RDW-4 located about 60 feet from Otter Sluice does not exhibit a tidal response and that reversals of flow direction caused by tidal fluctuations may cause groundwater flows toward Otter Sluice. Furthermore, historical aerial photographs of the tidal area sites and the manmade sluice show that artificial filling may have created possible preferential groundwater flow paths near the surface. Hence, the Navy needs to scientifically demonstrate why they believe groundwater "does not appear to discharge to Suisun Bay".

Response: Groundwater flow at any site is dictated by the hydraulic gradient that is present. Potentiometric surfaces presented in Figures 11, 12, and 13 present hydraulic gradient information. The potentiometric surface maps are plotted using direct groundwater measurements from the wells. As illustrated by the potentiometric surfaces, the groundwater potentiometric surface slopes toward the center of the R Area and away from both Suisun Bay and the R Area during both the wet and dry seasons. Temporary flow reversals may be caused by tidal fluctuations along a narrow zone adjacent to Otter Sluice. The flow reversals are of short duration (several hours) as a result of tidal action and, therefore, cannot cause contaminant transport from the R Area to Otter Sluice except in a narrow zone immediately adjacent to Otter Sluice.

Possible preferential flow pathways were investigated by advancing borings with a drill rig in the former manmade sluice and with a hand auger in the former Slough in the R Area, as described in Sections 3.2 and 3.3 of the CGS (TtEMI 1998b). As discussed in this section, although portions of the slough were filled with coarse materials, the water table is below the base of the coarse materials; therefore, the filled slough cannot act as a preferential flow pathway. Soil boring logs presented in Appendix C show that although some portions of the manmade sluice were filled with coarse materials, and a thin (0.5-foot) peat zone is present in some areas, the coarse-grained fill material is typically unsaturated. Both the coarse-grained fill material and the peat are discontinuous; therefore, they do not form a continuous preferential flow pathway to Suisun Bay or Otter Sluice.

RWQCB CGS General Comment 2 **The presence of an extensive estuarine sand unit below the entire tidal area functioning as an aquifer is an interesting finding of this report. The Navy needs to refine their analysis of this estuarine sand unit and more specifically how the sequence of silt and clay is "expected" to effectively isolate it.**

Response: Available information indicates that 40 to 60 feet of alluvial silt and clay and 10 to 15 feet of Bay Mud overlie the estuarine sand. The alluvial silt and clay that separate shallow groundwater from the estuarine sand is expected to form an aquiclude between the shallow water bearing materials and the underlying sands. Detailed evaluation of the estuarine sand unit has not been conducted to date and is not considered necessary because shallow groundwater in the Tidal Area is hydraulically isolated from the sand unit by 50 to 85 feet of low-permeability geologic materials.

RWQCB CGS General Comment 3 **It is unclear to Board Staff why the borings 1-9 aimed at locating a man made drainage channel built in 1939 were not evenly spaced through the mapped structure. Furthermore historical research is recommended to define the purpose, outline and abandonment of this channel found east and south of Site 1 and the R disposal site. As the Navy recognizes the subsurface is characterized by silty clays and linear bodies of sandy fill material in that area.**

Response: The former location of the channel was determined by reviewing aerial photographs from the late 1940s to the mid-1990s. The soil borings were advanced in an accessible area where the aerial photographs showed presence of the former channel. A more even spacing was not possible because of a curved roadway that runs through the area. Borings advanced in two locations in this channel (boring locations B1 through B-8 and B-9) show that the channel does not contain a continuous zone of saturated coarse-grained materials and is blocked in some or all locations by clay or silty clay with low hydraulic conductivity.

RWQCB CGS General Comment 4

Please clarify why the piezometers were not screened to specific lithologic units to provide better hydrogeologic and contaminant characterization. This is specifically important for sand lenses found below the disposal sites. Board Staff is also interested to understand why the Navy has drilled soil borings through the tidal area landfill but is not currently planning to install piezometers through the waste mass.

Response: Section 3.3 of the CGS states, "Screened intervals for the piezometers were selected to intersect specific lithologic intervals such as sand units" (TtEMI 1998b). The Piezometer logs in Appendix C identify the specific lithologic units in which the wells were screened. For example, see the log for piezometer PZ3. Piezometer PZ3 is screened from a depth of 11 feet to a depth of 21 feet. Although the lithologic units within that range include silty clays, they also include a thin sand seam at 12 feet and a layer of silty sand from 18 to 21 feet. The well screen was intentionally not extended to higher elevations where sands were also found because the purpose of these piezometers was to investigate groundwater flow characteristics below the shallowest groundwater level. Further study of the potential impacts to ground water from Site 1 (Tidal Area Landfill) is a topic that will be pursued separately by the Navy.

RWQCB CGS General Comment 5

Board Staff is interested to find out why the Navy sampled only surface water for stable isotopes and Total Dissolved Solids. Furthermore, Board Staff is interested to understand why the only surface water stable isotopes samples were taken from Otter Sluice. To obtain a more accurate description of surface water isotopic signature, samples taken from the sites and local meteoric precipitation are strongly recommended

Response: Both surface water and groundwater were sampled for stable isotopes and total dissolved solids (TDS). Surface water has already been sampled and analyzed for other constituents, and analytical results for other constituents are presented the RI report (TtEMI 1999). This study focused on evaluating interactions between groundwater and surface water in Otter Sluice. The study was conducted in accordance with the approved work plan (TtEMI 1997c). Stable isotopic variations in meteoric water are well established, and the worldwide meteoric water line presented on Figure 22 is taken from Mazor (1987). Local meteoric precipitation isotopic concentrations for the San Francisco Bay Area are also readily available from literature sources.

RWQCB CGS General Comment 6

The Navy needs to clarify the temporal length of the potentiometric dataset defining wet/dry seasons radial groundwater flow in the R disposal area. The Navy acknowledges that during the wet season groundwater flow could be interpreted to flow to the west toward Otter Sluice. However the wet season potentiometric surface map has been contoured to indicate eastward direction in that area. Please scientifically indicate why the net flow is "probably to the east".

Response:

The temporal length of the potentiometric data set is discussed in Section 3.4; it encompassed three water level measurement events on June 11, 1997; October 3, 1997; and January 29, 1998.

The Navy does not acknowledge that that groundwater flow could be interpreted to the west towards Otter Sluice during the wet season. Instead, the Navy acknowledges that during the wet season, groundwater flow could be interpreted as flowing to the west towards Otter Sluice *in a small area in the southwest corner of the R Area*. In general, groundwater flows away from Otter Sluice. Groundwater flows away from Otter Sluice in all but a small area in the southwest corner of the R Area, as illustrated in Figures 11, 12, and 13. This is indicated by the consistently higher groundwater elevations from wells near Otter Sluice relative to the lower groundwater elevations measured within the R Area. Flow towards Otter Slough in the small area in the southwest corner of the R Area was measured only once during three measurement events and may well have been a spurious measurement. Although the groundwater generally flows away from Otter Sluice, Otter Sluice is subject to tidal fluctuations, and some wells close to Otter Sluice are influenced by these tidal fluctuations. When the groundwater level adjacent to Otter Sluice is higher than the water level in Otter Sluice, there will be groundwater flow toward Otter Sluice. The amount of groundwater flow toward Otter Sluice and the width of the zone of influence is a function of the hydrologic properties of the soils adjacent to Otter Sluice.

During these low tide events, there is no reversal of the general flow condition toward the center of the R Area because the wells on the periphery do not exhibit drops in water level to an elevation lower than those in the center of the R Area. Groundwater flow towards Otter Sluice is a condition that is very local to the channel. Although the width of the zone of influence varies, it is relatively narrow. Some wells located between 50 and 80 feet distant from Otter Sluice show tidal influence, while others as close as 60 feet do not. Note that wells showing tidal influence do not necessarily have reversals of flow direction.

RWQCB CGS General Comment 7

The calculation of hydraulic conductivity for the site monitoring wells needs to be refined to integrate the yield values for silty sand and peat lenses encountered in the individual borings. It is also unclear if isotropy was assumed for this assessment. The Navy needs to clarify if the values found p 27 and 28 are vertical or horizontal components of conductivities. Board Staff recommends the computation of transmissivity values as well.

Response: The hydraulic conductivity information in the CGS (TtEMI 1998b) is based upon rising head permeability tests conducted by International Technology Corporation (IT) in 1992 (IT 1992). The values presented on page 27 and 28 are based on the Method of Hvorslev, which is a mathematic solution to water level recovery for a homogeneous isotropic medium (Freeze and Cherry 1979). In this case, horizontal and vertical conductivity are assumed identical. AQTESOLV software allows assessment of water level recovery data using multiple interpretation techniques. The Navy acknowledges that other refinements are possible with additional field-testing, but these tests will allow only refinement of the general conclusion that the near-surface materials at the site have low hydraulic conductivity. It is the Navy's opinion that the approximate hydraulic conductivity values in the CGS are sufficient to demonstrate that the site comprises materials with low conductivities that tend to limit the movement of groundwater.

RWQCB CGS General Comment 8

In sediments all the pores are interconnected as the Navy acknowledges. Therefore effective porosity is identical to porosity and could have been computed with the following formula: $N = 100\ [1- \rho_b / \rho_d]$ where n is the porosity, ρ_d the bulk density of the aquifer matrix, and ρ_d is the particle density of the aquifer material. This computation would yield an improved assessment of porosity and ultimately hydraulic conductivity at the sites.

Response: The Navy used a general conservative assumption to evaluate groundwater flow velocities. The refinement suggested by RWQCB would cause lower groundwater flow velocities because the total porosity in the denominator of the seepage velocity equation would be significantly larger than the effective velocity. For silty clays with a total porosity of approximately 0.5 (Stevens and others 1998) and an effective porosity of approximately 0.06 (Todd 1980), the requested modification would result in a decrease in estimated groundwater flow velocity of almost an order of magnitude. Although the Navy generally chooses to use conservative assumptions when evaluating groundwater flow, the estimated flow velocities may be modified if requested.

RWQCB CGS General Comment 9

The Navy needs to determine what might be the potential sources of radionuclides in the surveyed sites. From this assessment the appropriate radionuclides should have been sampled. For example, the Navy needs to illustrate to Board Staff how ^{252}Cf could be found a source of ^{60}Co in the area sites. Furthermore, ^{60}Co has a half-life of 5.27 years and might not be an appropriate candidate to determine the presence of radionuclides in the sites studied in this report

Response: In reviewing the groundwater data from the 1990/1991 quarterly groundwater sampling, the Navy noticed that cobalt was consistently detected at concentrations of up to 133 milligrams per liter (mg/L). Because such concentrations of cobalt are unusual, and because some isotopes of cobalt are radioactive (such as cobalt-60), additional testing was suggested to determine whether the cobalt present at the Wood Hogger site included radioactive isotopes.

Groundwater samples were analyzed using gamma spectroscopy techniques (EPA test method 901.1). The method employed a library of naturally occurring and manmade radiological nuclides, however, cobalt-60 was the only isotope specifically requested for evaluation to determine whether the result was nondetected. The isotope was not detected in any of the 12 water samples analyzed at a detection limit of 5 picocuries per liter. The report concluded that cobalt in groundwater does not appear to be caused by nuclear-related activities.

With the exception of one sample, the laboratory did not list or report other nondetected isotopes. The laboratory did, however, list all detected isotopes. These detected isotopes included potassium-40, thallium-208, lead-212, lead-214, radium-224, radium-226, cesium-137, bismuth-211, xenon-131M, cerium-141, uranium-235, and tellurium-123m, krypton-85, strontium-85, molybdenum-99, and technetium-99. Krypton-85 was reported as not detected because it was detected at a concentration less than the background reading for the day in that sample (TtEMI 2003).

As explained in the CGS (TtEMI 1998b), most radionuclides detected at low concentrations in both the samples and the method blank sample was not considered significant. All other detected isotopes are specifically discussed in the text of the CGS.

RWQCB CGS Specific Comment 1

Section 2.6.3, Low Flow Rate Sampling, p 11: Appendix B entitled Historical Groundwater Analytical Data is missing from the report. Board Staff is interested to review both groundwater datasets for filtered and unfiltered samples.

Response: The requested appendix information from the 1998 report may have been omitted by the Navy's contractor or misplaced by the RWQCB's earlier reviewers. A replacement appendix was provided to the RWQCB on May 6, 2003.

RWQCB CGS Specific Comment 2

Section 4.2, Site Hydrogeologic Setting, p 25: Please inform Board Staff how it was determined that phreatophytic pumping (evapotranspiration) is the probable cause of closed depressions in the water table in the center of the R area. A precise topographic map for the studied areas would be a helpful addition to this report.

Response: There are limited methods by which groundwater can exit a closed depression. These include evapotranspiration from wetland plants (phreatophytic pumping), removal of surface water by pumping, removal of groundwater by pumping, or downward drainage of groundwater down to a deeper aquifer. The tidal area is underlain by about 50 to 80 feet of relatively impervious Bay Mud that is unlikely to allow significant drainage to an underlying aquifer. The groundwater level in any such aquifer would have to be depressed more than 3 feet below sea level to allow downward vertical drainage from the R Area since near surface water levels within the R Area are more than 3 feet below sea level (Figure 12). There are no pumping wells in the tidal area, and surface water is not pumped from the depressed area. There are no other possible explanations other than evapotranspiration. Significant evapotranspiration occurs at the site, especially during the summer due to the

prevalent warm weather conditions and wind conditions at the site.

The Tidal Area RI (TtEMI 1999) and the CGS (TtEMI 1998b) both include cross sections that illustrate site elevations. In response to this comment, the Navy has sent the RWQCB, EPA, and DTSC relatively small-scale topographic maps of the Tidal and Inland Areas for their general reference on Naval Weapons Station SBD Concord projects.

RWQCB CGS Specific Comment 3

Section 4.2, Site Hydrogeologic Setting, p 26: The Navy needs to clarify why the vertical hydraulic gradient found in the nested piezometers TLW4/ PZ 6 east of the tidal area was directed toward the ground surface. The Navy needs to present why nested piezometers were not installed in the R area. It is also unclear why PZ-5 water level did not stabilize after well development.

Response:

The vertical hydraulic gradient in the TLW-4/PZ-6 well pair is a reflection of the observation that the water level in the deeper well was higher at the time of measurement than the water level in the shallower well at the same location. As shown on Figures 8 and 9, the screened interval for PZ-6 intersects a sand lens that the shallower well does not intersect. The deeper sand lens is under confined conditions, and groundwater in this sand lens is apparently slightly pressurized. Reasons for the elevated groundwater levels in the deeper sand lens could include evapotranspiration of the shallowest groundwater, lateral recharge to the deeper lens from an area with higher elevation, or seasonal effects. IT installed monitoring wells in the R Area in 1992. Nested wells were not installed at that time for unknown reasons. Nested piezometers were not proposed as part of the agency-approved CGS work plan (TtEMI 1997c) in the R Area, so they were not installed. As a result, nested wells are unnecessary to further evaluate hydrological conditions in the R Area.

Piezometer PZ-5 is screened in a thick (greater than 10-foot) sequence of stiff silty clay. Piezometer PZ-5 was installed on September 29, 1997, and was developed by surging and pumping on October 3, 1997. The formation surrounding the well screen has very low permeability, and the well was dewatered completely during development. When water levels were measured almost 2 weeks later (October 15, 1997), water levels in PZ-5 had still not recovered to their predevelopment equilibrium level. The slow recovery of the water level in this well attests to the very low permeability of the material in which the well is screened.

RWQCB CGS Specific Comment 4

Section 5.1, Inorganics, p 33: Please provide to Board Staff the statistical analysis showing that the 1990-1991 sampling and the more recent confirmation sampling data, "appear to be accurate and representative".

Response: One objective of the sampling was to evaluate whether the concentrations detected in the samples were affected by the techniques used to collect the samples. The 1990 and 1991 samples were collected using more traditional purge and sample techniques. The samples collected in 1997 were collected using state-of-the-art low flow-rate sampling techniques, as outlined in the CGS work plan (TtEMI 1997c). Comparison of analytical results collected using the two techniques showed that the sampling technique used previously did not introduce artifacts into the analytical results. Statistical analysis was not performed. The statement was based upon review of the all of the data and professional judgment.

RWQCB CGS Specific Comment 5 **Section 5.1, Inorganics, p 34: Please provide a quantification of the highest metal concentrations found in the center of the R area.**

Response: The highest metal concentrations detected in the R Area during the confirmation sampling (and their respective piezometer sample locations) are presented below:

Aluminum	807 µg/L	(RDW-3)
Antimony	8.2 µg/L	(RDW-1)
Arsenic	83.5 µg/L	(TLW-2)
Barium	1,010 µg/L	(RDW-5)
Beryllium	1.2J µg/L	(RDW-1, -2, TLW-4)
Chromium	53.4 µg/L	(RDW-4)
Cobalt	16.1J µg/L	(RDW-7)
Copper	8.9J µg/L	(TLW-4)
Manganese	16,000 µg/L	(RDW-7)
Mercury	0.2J µg/L	(TLW-5)
Molybdenum	118 µg/L	(TLW-3, -4)
Nickel	292 µg/L	(TLW-5 Dup.)
Selenium	4.4J µg/L	(RDW-7)
Silver	2.1J µg/L	(RDW-3)
Thallium	2J µg/L	(RDW-4)
Vanadium	115 µg/L	(RDW-1)
Zinc	68 µg/L	(RDW-1 Dup.)

These results assume that the tidal landfill wells that surround the west side of the landfill are considered as part of the R Area. The results of all confirmation samples are presented in Table 3 of the CGS (TtEMI 1998b).

RWQCB CGS Specific Comment 6

Section 5.3, Stable Isotopes, p 37: Quite an amount of variability was found for the oxygen and hydrogen isotopic signature of sites groundwater. Therefore, the statement that "groundwater was similar to that of surface water" needs to be supported with statistical analysis. It is also important for the Navy to recognize in addition to evaporative processes that mixing of groundwater with Bay waters may produce less negative isotopic values for hydrogen and oxygen. The Navy can look at covariance between chloride/salinity concentrations and ^{18}O values to determine if evaporation is the dominant process of isotopic enrichment.

Response:

The range of variation of oxygen and hydrogen isotopes for surface water was about half of the observed variation for groundwater. This variance may be explained by the fact that only two samples were collected during a single tidal cycle, and seasonal variations or even intermediate tidal period variations (spring tides, neap tides) are not accounted for in the surface water data set. Four available surface water samples do not support a statistical analysis. The referenced statement was simply a general observation that both groundwater and surface water exhibit significant variability, but that average values are roughly equal, suggesting a common source. Both the surface water and the groundwater isotopic concentrations plot to the right of meteoric water line, suggesting that evaporative processes are at work. Although chloride/salinity concentrations are not available for the suggested covariant analysis, the TDS map presented in Figure 16 shows hyper saline TDS values of 65,600 mg/L (more than twice the TDS concentration of sea water), providing further evidence for evaporative processes. Isotopic values, the potentiometric surface, and observed TDS values support the concept that evaporative processes are an important factor in the tidal area.

RWQCB CGS Specific Comment 7

Section 5.4, Radionuclides, p 38: Please quantify in the text the concentration and radiation emitting values of the radionuclides found in groundwater at the studied sites.

Response:

As explained in response to RWQCB general comment 9, cobalt-60 was the only radionuclide under investigation at the site because of previous detections of elemental cobalt in groundwater at the site. The concentration of cobalt-60 was therefore specifically discussed. Several other constituent concentrations were considered to be low as a result of their detections in the method blank sample. Only potassium-40 and radium-224 were specifically discussed in the text of the report because review of those isotopes concentrations and distributions suggested they were potentially indicative of contamination at the site.

There were 17 isotopes detected during the investigation. The Navy chose to display the analytical results in tabular form (Please see Table 8) because the results (and error measures) are most easily presented and understood in this form. The Navy considers that review of each result in the text of the report is unnecessarily cumbersome. Please see response to RWQCB general comment 9 for more information regarding the rationale for discussion of individual isotopes in the text of the CGS.

RWQCB CGS Specific Comment 8

Section 5.4, Radionuclides, p 38: indicate which and at what concentrations were fallout-related isotopes detected at the R and tidal area landfill.

Response: Fallout related isotopes (cerium-141 and cesium-137) are listed on page 39 of the CGS (TtEMI 1998b). The concentrations and error measurements are listed on Table 8.

RWQCB CGS Specific Comment 9

Appendix C, Soil Boring and Piezometer Lithologic Logs: This appendix is not complete. It does not include the logs of all piezometers and borings mapped on figures 3 and 4.

Response: Only the soil borings and piezometers drilled for the 1997 confirmation groundwater sampling event are presented in this appendix. The Tidal Area RI includes boring logs for all other borings (TtEMI 1999). The revised draft final RI will include boring logs from both studies.

RWQCB CGS Editorial Comment 1

Section 4.2, Site Hydrogeologic Setting, p 26: Please add scientific units to the vertical hydraulic gradient table.

Response: Groundwater gradients are unitless because they are measured in feet per feet or meters per meter, and the units cancel out.

RWQCB CGS Editorial Comment 2

Section 5.3, Stable Isotopes, p 36: Please modify the last sentence of the third paragraph to read: "Isotopic values that plot to the right of the meteoric line might signify water has been partially evaporated, because ^{1}H and ^{16}O are preferentially lost during evaporation, and the remaining water is enriched in ^{2}H and ^{18}O. Other factors such as temperature, elevation, distance from the origin of the evaporated meteoric water, geothermal exchange, rain event intensity, decomposition of organic matter might influence hydrogen and oxygen fractionation in water."

Response: The intent of the report was to discuss the local variations in isotopic composition. Board staff correctly points out factors that can cause local, regional, and temporal variations. Because the report is not scheduled for reissue, the suggested text modifications will not be made; however, please note that the potential variations mentioned would not have influenced the conclusions and recommendations of the report.

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APPENDIX A

FIGURE AND TABLES FOR THE RESPONSES TO COMMENTS

Figure A-1

This detailed station map has been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

TABLE A-1
MAXIMUM DETECTED SEDIMENT CONCENTRATIONS IN TIDAL AREA SITES AND RANGE OF SEDIMENT CONCENTRATIONS USED IN AMPHIPOD BIOASSAYS AT OTTER SLUICE

Chemical	Range of Sediment Concentrations from Samples used in Amphipod Bioassays[a] (mg/kg)	R Area Wetland Maximim Sediment Concentration (mg/kg)	Froid and Taylor Wetland Maximum Detected Sediment Concentration (mg/kg)	Wood Hogger Wetland Maximum Detected Sediment Concentration (mg/kg)	Otter Sluice Maximum Detected Sediment Concentration (mg/kg)	ER-M values (mg/kg)
Aluminum	15300 - 18700	33,700	37,500	42,700	35,200	NA
Antimony	1.1 - 1.8	7.1	2.2	7.1	9.3	25
Arsenic	6.3 - 14	47.2	23.2	27.1	25.9	70
Barium	53.2 - 71	7,710	234	353	157	NA
Beryllium	0.11 - 0.29	0.57	0.35	0.84	0.94	NA
Cadmium	0.69 - 1.9	0.83	1.9	20.8	1.9	9.6
Chromium	50.6 - 55.0	319	106	122	95.5	370
Cobalt	11.6 - 19.5	31.5	20.6	39.3	25.1	NA
Copper	40.1 - 56.8	272	92	607	101	270
Iron	26,300 - 34,900	135,000	47,100	73,300	58,700	NA
Lead	16.3 - 34.1	300	515	598	89.5	218
Manganese	251 - 607	2,090	3,530	1,270	607	NA
Mercury	0.13 - 0.29	0.92	0.49	18.5	1.6	0.71
Molybdenum	0.22 - 0.83	53.7	4.3	5.6	3.5	NA
Nickel	55.5 - 66.3	146	90.9	123	112	51.6
Selenium	0.74 - 1.5	1.3	1.5	3.5	1.5	1.4
Silver	0.24 - 0.6	0.72	0.63	4.4	0.6	3.7
Thallium	1.5 - 2.8	2.4	3.8	2.4	2.8	NA
Vanadium	52.1 - 64.1	130	113	139	119	NA
Zinc	89.4 - 166	959	436	3010	285	410
1,1'-Biphenyl	--	--	0.009	--	--	NA
1-Methylphenanthrene	--	0.04	0.03	--	--	NA
2,4-Dimethylphenol	--	0.02	0.01	--	--	NA
2,6-Dimethylnaphthalene	--	0.1	0.04	0.04	0.01	NA
2-Methylnaphthalene	--	0.04	0.05	--	--	0.67
4-Methylphenol	--	0.7	0.3	--	0.2	NA
Acenaphthene	--	0.03	--	--	--	0.5
Acenaphthylene	--	--	0.03	--	--	0.64
Anthracene	--	0.1	0.04	--	0.02	1.1

TABLE A-1 (Continued)
MAXIMUM DETECTED SEDIMENT CONCENTRATIONS IN TIDAL AREA SITES AND RANGE OF SEDIMENT CONCENTRATIONS USED IN AMPHIPOD BIOASSAYS AT OTTER SLUICE

Chemical	Range of Sediment Concentrations from Samples used in Amphipod Bioassays[a] (mg/kg)	R Area Wetland Maximim Sediment Concentration (mg/kg)	Froid and Taylor Wetland Maximum Detected Sediment Concentration (mg/kg)	Wood Hogger Wetland Maximum Detected Sediment Concentration (mg/kg)	Otter Sluice Maximum Detected Sediment Concentration (mg/kg)	ER-M values (mg/kg)
Benzo(a)anthracene	--	0.4	0.09	0.02	0.1	1.6
Benzo(a)pyrene	--	0.3	0.1	0.3	0.1	1.6
Benzo(b)fluoranthene	--	0.4	0.2	0.3	0.1	NA
Benzo(e)pyrene	--	0.2	0.3	0.2	0.1	NA
Benzo(g,h,i)perylene	--	0.2	0.2	0.2	0.1	NA
Benzo(k)fluoranthene	--	0.3	0.1	0.3	0.1	NA
Benzoic acid	--	0.9	0.5	1	--	NA
Bis(2-	--	0.2	3	--	--	NA
Carbazole	--	0.04	0.02	--	--	NA
Chrysene	0 - 0.07	0.4	0.2	0.4	0.1	2.8
Dibenzo(a,h)anthracene	--	0.09	--	--	--	0.26
Dibenzofuran	--	--	0.007	--	--	NA
Dibenzothiophene	--	0.02	--	--	--	NA
Diethylphthalate	--	0.2	--	--	--	NA
Fluoranthene	0.072 - 0.12	1	0.2	0.4	0.2	5.1
Fluorene	--	0.03	0.006	--	--	0.54
Indeno(1,2,3-cd)pyrene	--	0.2	0.1	0.02	0.08	NA
Isophorone	--	0.04	--	--	--	NA
Naphthalene	--	0.2	0.01	--	--	NA
Pentachlorophenol	--	--	0.05	--	--	NA
Perylene	--	0.1	0.2	--	0.2	NA
Phenanthrene	0 - 0.048	0.7	--	0.02	0.06	1.5
Phenol	--	--	--	--	--	NA
Pyrene	--	0.7	--	0.5	0.4	2.6
Total LMW PAHs[e]	0.072 - 0.25	4.05	1.7	0.27	3.05	3.16
Total HMW PAHs[e]	0 - 0.048	4.83	5.23	7.86	3.75	9.6
Total PAHs[e]	0.072 - 0.29	8.87	10.1	19.4	24.2	44.792
2,4'-DDD	--	0.007	0.007	0.0004	0.0007	NA

TABLE A-1 (Continued)
MAXIMUM DETECTED SEDIMENT CONCENTRATIONS IN TIDAL AREA SITES AND RANGE OF SEDIMENT CONCENTRATIONS USED IN AMPHIPOD BIOASSAYS AT OTTER SLUICE

Chemical	Range of Sediment Concentrations from Samples used in Amphipod Bioassays[a] (mg/kg)	R Area Wetland Maximim Sediment Concentration (mg/kg)	Froid and Taylor Wetland Maximum Detected Sediment Concentration (mg/kg)	Wood Hogger Wetland Maximum Detected Sediment Concentration (mg/kg)	Otter Sluice Maximum Detected Sediment Concentration (mg/kg)	ER-M values (mg/kg)
2,4'-DDE	--	0.001	0.0006	0.0002	--	NA
2,4'-DDT	--	0.005	0.003	--	0.0003	NA
4,4'-DDD	0.00004 - 0.0008	0.03	0.01	0.002	0.002	NA
4,4'-DDE	0.001 - 0.002	0.009	0.007	0.002	0.002	0.027
4,4'-DDT	--	0.03	0.02	0.0006	0.0004	NA
Total DDTs	0.0007 - 0.003	0.07	0.04	0.006	0.006	0.0461
Aldrin	--	0.0008	0.0004	--	--	NA
alpha-BHC	--	--	0.0007	--	0.0005	NA
alpha-Chlordane	0.00003 - 0.0007	0.003	0.01	0.001	0.001	NA
Dieldrin	--	0.002	0.0008	--	--	0.008
gamma-BHC (Lindane)	0 - 0.0006	0.0009	0.0004	0.001	0.0006	NA
gamma-Chlordane	0 - 0.0007	--	0.01	--	0.0007	NA
Heptachlor	--	0.0004	--	0.0007	0.002	NA
Heptachlor epoxide	--	0.001	--	--	--	NA
Hexachlorobenzene	0 - 0.0004	0.002	0.0005	--	0.0004	NA
Methoxychlor	--	--	--	--	0.005	NA
Mirex	--	0.001	--	--	--	NA
Technical chlordane	--	--	--	--	--	NA
trans-Nonachlor	0.0005 - 0.0006	0.002	0.002	0.0009	0.0009	NA
Total Chlordanes	0.0003 - 0.001	0.006	0.03	0.002	0.004	0.006
Total PCBs	0.001 - 0.004	0.03	0.02	0.02	0.03	0.18
TPH-motor-oil range	--	--	23,000	--	--	NA
1,2,3,4,6,7,8,9-OCDD	0 - 0.0008	--	--	0.009	0.0008	NA
1,2,3,4,6,7,8,9-OCDF	--	--	--	0.0005	--	NA
1,2,3,4,6,7,8-HPCDD	--	--	--	0.002	--	NA
1,2,3,4,6,7,8-HPCDF	--	--	--	0.0002	--	NA
Total HPCDD	0.038 - 0.041		--	0.006	0.04	NA

TABLE A-1 (Continued)
MAXIMUM DETECTED SEDIMENT CONCENTRATIONS IN TIDAL AREA SITES AND RANGE OF SEDIMENT CONCENTRATIONS USED IN AMPHIPOD BIOASSAYS AT OTTER SLUICE

Chemical	Range of Sediment Concentrations from Samples used in Amphipod Bioassays[a] (mg/kg)	R Area Wetland Maximim Sediment Concentration (mg/kg)	Froid and Taylor Wetland Maximum Detected Sediment Concentration (mg/kg)	Wood Hogger Wetland Maximum Detected Sediment Concentration (mg/kg)	Otter Sluice Maximum Detected Sediment Concentration (mg/kg)	ER-M values (mg/kg)
Total HXCDD	0 - 0.01		--	0.0008	0.001	NA
Total TCDD	0.008 - 0.01		--	0.01	0.02	NA

Notes:

a Sediment samples OSLSL001, OSLSL002, OSLSL003, OSLSL004, OSLSL005, OSLSL006, OSLSL007 were used in the amphipod bioassay.

ER-M Effects range-median
mg/kg Millogram per kilogram
NA Not available
-- Not detected or analyzed for in the sediment samples.

TABLE A-2
LOCATION OF MAXIMUM SURFACE WATER CONCENTRATIONS FOR CHEMICALS EXCEEDING THE AMBIENT WATER QUALITY CRITERIA

Chemical[a]	Sample Location of Maximum Detected Concentration	Maximum Detected Concentration (µg/L)	AWQC
R Area Wetland			
Aluminum	RADSW005	37,700	87
Copper	RADSW005	82	3.7
Mercury	RADSW005	0.66	0.025
Nickel	RADSW010	211	8.3
Zinc	RADSW005	346	85.6
4,4'-DDT	RADSW004	0.03	0.001
Dieldrin	RADSW004	0.03	0.0019
Endrin	RADSW004	0.03	0.0023
Heptachlor	RADSW004	0.01	0.0036
Heptachlor Epoxide	RADSW008	0.04	0.0036
Froid and Taylor Roads W			
Aluminum	FTSSW001	1610	87
Arsenic	FTSSW001	275	36
Copper	FTSSW001	13.4	3.7
Mercury	FTSSW002	0.17	0.025
Nickel	FTSSW001	44.7	8.3
Silver	FTSSL102	0.3	0.005
Zinc	FTSSW002	95.2	85.6
Wood Hogger Wetland			
Aluminum	WHSSW004	2100	87
Copper	WHSSW005	13.7	3.7
Mercury	WHSSW005	0.2	0.025
Zinc	WHSSW005	329	85.6
Otter Sluice			
Aluminum	RADSW002	1450	87
Copper	RADSW003	9.5	3.7
Mercury	WHSSW002	0.24	0.025
alpha-Chlordane	RADSW002	0.042	0.004
Heptachlor	RADSW002	0.11	0.0036

Notes:

AWQC Ambient water quality criteria
µg/L Micrograms per liter

TABLE A-3(a)

DETECTED CHEMICALS FOR WHICH NO AMBIENT WATER QUALITY CRITERIA WERE AVAILABLE FOR THE SURFACE WATER SCREENING

Chemical[a]	R Area Wetland[b]	Froid and Taylor Roads Wetland[c]	Wood Hogger Wetland[d]	Otter Sluice[e]
Antimony	No AWQC available	No AWQC available	No AWQC available	--
Barium	No AWQC available	No AWQC available	No AWQC available	No AWQC available
Cobalt	No AWQC available	No AWQC available	No AWQC available	No AWQC available
Iron	No AWQC available	No AWQC available	--	No AWQC available
Manganese	No AWQC available	No AWQC available	No AWQC available	No AWQC available
Molybdenum	No AWQC available	No AWQC available	No AWQC available	No AWQC available
Thallium	No AWQC available	No AWQC available	No AWQC available	No AWQC available
Vanadium	No AWQC available	No AWQC available	No AWQC available	No AWQC available
4-Methylphenol	--	No AWQC available	--	--
alpha-BHC	No AWQC available	--	--	--
beta-BHC	No AWQC available	--	--	--
Bis(2-ethylhexyl)phthalate	--	--	--	No AWQC available
Carbon Disulfide	--	No AWQC available	--	--
Chloromethane	--	--	--	No AWQC available
Diesel-Range Organics	--	No AWQC available	--	--
Motor Oil Range Organics	--	No AWQC available	--	--
Phenol	--	No AWQC available	--	--
Xylene	--	--	No AWQC available	--

Notes:

a Congeners which were included in the calculation of totals are not listed in this table.

b See Table 3-2 of the ERA for complete surface water screening at the R Area Wetland.

c See Table 3-6 of the ERA for complete surface water screening at the Froid and Taylor Roads Wetland.

d See Table 3-9 of the ERA for complete surface water screening at the Wood Hogger Wetland.

e See Table 3-11 of the ERA for complete surface water screening at Otter Sluice.

AWQC Ambient Water Quality Criteria

-- Either AWQC was available or the chemical was not included in the surface water screen at this site.

TABLE A-3(b)

DETECTED CHEMICALS FOR WHICH NO EFFECTS RANGE-LOW VALUES WERE AVAILABLE FOR THE BENTHIC INVERTEBRATE SCREENING

Chemical[a]	R Area Wetland[b]	Froid and Taylor Roads Wetland[c]	Wood Hogger Wetland[d]	Otter Sluice[e]
Aluminum	No ER-L available	--	No ER-L available	No ER-L available
Barium	No ER-L available	No ER-L available	No ER-L available	No ER-L available
Beryllium	No ER-L available	--	No ER-L available	No ER-L available
Cobalt	No ER-L available	--	No ER-L available	No ER-L available
Iron	No ER-L available	--	No ER-L available	No ER-L available
Manganese	No ER-L available	--	No ER-L available	No ER-L available
Thallium	--	--	--	No ER-L available
Vanadium	No ER-L available	--	No ER-L available	No ER-L available
1,2,3,4,6,7,8,9-0CDD	--	--	No ER-L available	No ER-L available
1,2,3,4,6,7,8,9-0CDF	--	--	No ER-L available	--
1-1'-Biphenyl	--	No ER-L available	--	--
2,4-Dimethylphenol	No ER-L available	No ER-L available	--	--
4-Methylphenol	No ER-L available	No ER-L available	--	No ER-L available
Aldrin	No ER-L available	No ER-L available	--	--
alpha-BHC	--	No ER-L available	--	No ER-L available
Benzoic acid	No ER-L available	No ER-L available	No ER-L available	--
Bis(2-ethylhexyl)phthalate	No ER-L available	No ER-L available	--	--
Carbazole	No ER-L available	No ER-L available	--	--
Dibenzofuran	--	No ER-L available	--	--
Diethylphthalate	No ER-L available	--	--	--
gamma-BHC (Lindane)	No ER-L available	No ER-L available	No ER-L available	No ER-L available
Isophorone	No ER-L available	--	--	--
Methoxychlor	--	--	--	No ER-L available
Mirex	No ER-L available	--		--

TABLE A-3(b) (Continued)

DETECTED CHEMICALS FOR WHICH NO EFFECTS RANGE-LOW VALUES WERE AVAILABLE FOR THE BENTHIC INVERTEBRATE SCREENING

Chemical[a]	R Area Wetland[b]	Froid and Taylor Roads Wetland[c]	Wood Hogger Wetland[d]	Otter Sluice[e]
Total HPCDD	--	--	No ER-L available	No ER-L available
Total HPCDF	--	--	No ER-L available	--
Total HXCDD	--	--	--	No ER-L available
Total TCDD	--	--	No ER-L available	--
TPH-mr	--	No ER-L available	--	--
trans-Nonachlor	--	--	--	No ER-L available

Notes:

a Congeners which were included in the calculation of totals are not listed in this table.

b See Table 3-1 of the ERA for complete benthic invertebrate screening at the R Area Wetland.

c See Table 3-5 of the ERA for complete benthic invertebrate screening at the Froid and Taylor Roads Wetland.

d See Table 3-8 of the ERA for complete benthic invertebrate screening at the Wood Hogger Wetland.

e See Table 3-10 of the ERA for complete benthic invertebrate screening at Otter Sluice.

ER-L Effects range-low

-- Either an ER-L was available or the chemical was not included in the benthic invertebrate screening at this site.

TABLE A-3(c)
DETECTED CHEMICALS OF POTENTIAL CONCERN WITH NO TOXICITY REFERENCE VALUES AVAILABLE FOR THE FOOD CHAIN MODELING OF AVIANS

Site	Chemical														
	Aluminum	Antimony	Beryllium	Chromium	Cobalt	Iron	Silver	Thallium	Vanadium	Aldrin	Alpha BHC	Dieldrin	Heptachlor	Mirex	Methoxychlor
R Area Wetland[a]	NT	NT	NT	--	NT	NT	NT	--	NT	NT	NT	NT	NT	NT	--
Froid and Taylor Roads Wetland[b]	--	--	--	--	--	--	NT	--	--	NT	NT	NT	--	--	--
Wood Hogger Wetland[c]	NT	NT	NT	--	NT	NT	--	--	NT	--	--	--	NT	--	--
Wood Hogger Upland and Wetland[d]	NT	NT	NT	--	NT	NT	NT	--	NT	NT	--	NT	NT	NT	--
North Otter Sluice[e]	--	--	NT	--	--	--	NT	NT	--	--	--	--	--	--	--
Otter Sluice[f]	NT	NT	NT	--	NT	NT	NT	NT	NT	--	NT	--	NT	--	NT

Notes:

a See Table J-11 of the ERA for the R Area Wetlands food chain modeling table and Section 5.3 for food chain modeling discussion.
b See Table J-12 of the ERA for the Froid and Taylor Roads Wetland food chain modeling table and Section 5.3 for food chain modeling discussion.
c See Table J-13 of the ERA for the Wood Hogger Wetland food chain modeling table and Section 5.3 for food chain modeling discussion.
d See Table J-14 of the ERA for the Wood Hogger Upland and Wetland food chain modeling table and Section 5.3 for food chain modeling discussion.
e See Table J-15 of the ERA for the North Otter Sluice food chain modeling table and Section 5.3 for food chain modeling discussion.
f See Table J-16 of the ERA for the Otter Sluice food chain modeling table and Section 5.3 for food chain modeling discussion.

ERA Ecological risk assessment
NA Not applicable as this receptor group was not modeled at this location
NT No high TRV available
TRV Toxicity reference value
-- Either a TRV was available or the chemical was not included in the food chain modeling at this site.

TABLE A-3(d)
DETECTED CHEMICALS OF POTENTIAL CONCERN WITH NO TOXICITY REFERENCE VALUES AVAILABLE FOR THE FOOD CHAIN MODELING OF MAMMALS

Site	Chemical														
	Aluminum	**Antimony**	**Beryllium**	**Chromium**	**Cobalt**	**Iron**	**Silver**	**Thallium**	**Vanadium**	**Aldrin**	**Alpha BHC**	**Dieldrin**	**Heptachlor**	**Mirex**	**Methoxychlor**
R Area Wetland[a]	--	--	NT	NT	--	NT	NT	--	--	--	--	--	--	NT	--
Froid and Taylor Roads Wetland[b]	--	--	--	--	--	--	NA	--	--	NA	NA	NA	--	--	--
Wood Hogger Wetland[c]	--	--	NT	--	--	NT	--	--	--	--	--	--	--	--	--
Wood Hogger Upland and Wetland[d]	--	--	NT	--	--	NT	NT	--	--	--	--	--	--	NT	--
North Otter Sluice[e]	--	--	NA	--	--	--	NA	NA	--	--	--	--	--	--	--
Otter Sluice[f]	--	--	NT	NT	--	NT	NT	--	--	--	NT	--	--	--	--

Notes:

a See Table J-11 of the ERA for the R Area Wetlands food chain modeling table and Section 5.3 for food chain modeling discussion.
b See Table J-12 of the ERA for the Froid and Taylor Roads Wetland food chain modeling table and Section 5.3 for food chain modeling discussion.
c See Table J-13 of the ERA for the Wood Hogger Wetland food chain modeling table and Section 5.3 for food chain modeling discussion.
d See Table J-14 of the ERA for the Wood Hogger Upland and Wetland food chain modeling table and Section 5.3 for food chain modeling discussion.
e See Table J-15 of the ERA for the North Otter Sluice food chain modeling table and Section 5.3 for food chain modeling discussion.
f See Table J-16 of the ERA for the Otter Sluice food chain modeling table and Section 5.3 for food chain modeling discussion.

ERA Ecological risk assessment
NA Not applicable as this receptor group was not modeled at this location
NT No high TRV available
TRV Toxicity reference value
-- Either a TRV was available or the chemical was not included in the food chain modeling at this site.

Table A-4

Otter Sluice

Tissue Analytical Results

Point ID	OSLSL002	OSLSL002	OSLSL004	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007
Sample ID	2170SLTI019	2170SLTI024	2170SLTI020	2170SLTI025	2170SLTI021	2170SLTI026	2170SLTI022	2170SLTI027	2170SLTI023	2170SLTI028
Matrix	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE
Sample Date	06/24/1998	06/24/1998	06/24/1998	06/24/1998	06/22/1998	06/25/1998	06/22/1998	06/25/1998	06/22/1998	06/23/1998
Low Level Pesticides (in µg/wipe)										
2,4'-DDD	2 UJ	0.7 J	1 U	0.7 J	1 UJ	1 UJ	1 U	1 U	1 UJ	0.6 J
2,4'-DDE	1 U	0.6 U	0.6 U	0.6 UJ	0.6 UJ	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 U
2,4'-DDT	0.8 U	0.4 U	0.4 U	0.4 UJ	0.4 UJ	0.4 U	0.6 J	0.4 UJ	0.4 U	0.4 U
4,4'-DDD	3	2	2 U	1 J	2 J	1 UJ	2	1 UJ	1 UJ	1 UJ
4,4'-DDE	13	5 J	8	5 J	7 J	3 J	6 J	5 UJ	6	5 UJ
4,4'-DDT	0.7 U	1 UJ	0.4 U	0.6 J	0.4 UJ	0.4 U	0.4 UJ	0.8 UJ	0.4 U	0.4 U
ALDRIN	0.5 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ALPHA-BHC	1 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
ALPHA-CHLORDANE	2 U	1	2 U	1	1 U	0.7	0.7 UJ	0.7 U	0.8 U	0.7 U
BETA-BHC	0.5 U	0.3 U	0.3 U	0.3 U	0.3 UJ	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
CIS-NONACHLOR	6 U	3 U	3 UJ	3 U	3 UJ	3 U	3 UJ	3 U	3 UJ	3 U
DELTA-BHC	0.6 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R
DIELDRIN	0.5 U	0.3 U	2	0.8	1 J	0.3 U	1	0.3 U	1 J	0.3 UJ
ENDOSULFAN I	0.4 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ENDOSULFAN II	3 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U
ENDOSULFAN SULFATE	0.5 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ
ENDRIN	0.4 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.2 U	0.2 U
ENDRIN ALDEHYDE	0.4 UJ	0.2 UJ	0.3 J	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.4 J	0.2 UJ
ENDRIN KETONE	0.7 U	0.3 U	0.3 U	0.3 U	0.3 UJ	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
GAMMA-BHC (LINDANE)	0.4 U	0.2 U	0.2 U	0.6 J	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
GAMMA-CHLORDANE	0.8 U	0.3 J	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
HEPTACHLOR	0.6 U	0.3 U	0.3 U	0.3 U	0.3 UJ	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
HEPTACHLOR EPOXIDE	0.4 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEXACHLOROBENZENE	0.7 U	0.4 U	0.4 U	1 UJ	2 UJ	0.4 U	0.4 UJ	0.4 U	0.7	0.4 U
METHOXYCHLOR	2 J	2 J	2	1 J	1 J	0.7 UJ	1 J	3 J	1 U	2
MIREX	0.7 U	0.4 U	0.4 U	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
OXYCHLORDANE	0.8 UJ	0.4 U	0.4 UJ	0.4 U	0.4 UJ	0.4 U	0.4 J	0.4 U	0.4 UJ	0.4 U
PCB-101 (2,2',3,5,5')	5 UJ	2 U	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	2 UJ	2 U
PCB-105 (2,3,3',4,4')	1 U	0.5 U	0.8	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-114 (2,3,4,4',5)	0.8 U	0.4 U	0.4 U	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
PCB-118 (2,3',4,4',5)	3 UJ	1 J	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 UJ
PCB-123 (2',3,4,4',5)	2 U	0.8 U	0.8 U	0.8 U	0.8 UJ	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
PCB-126 (3,3',4,4',5)	1 U	0.6 U	0.6 U	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
PCB-128 (2,2',3,3',4,4')	0.7 U	0.4 U	0.4 U	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
PCB-138 (2,2',3,4,4',5')	3 J	2 J	3 J	2 J	3 UJ	3 UJ	2 J	3 UJ	3 U	3 UJ
PCB-153 (2,2',4,4',5,5')	5 UJ	3	3	3	2 J	2 J	2 J	2 J	3 UJ	3 UJ
PCB-156 (2,3,3',4,4',5)	0.4 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PCB-157 (2,3,3',4,4',5')	0.8 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ
PCB-167 (2,3',4,4',5,5')	2 U	0.9 UJ	0.9 UJ	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 UJ	0.9 UJ
PCB-169 (3,3',4,4',5,5')	0.5 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table A-4

Otter Sluice

Tissue Analytical Results

Point ID	OSLSL002	OSLSL002	OSLSL004	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007
Sample ID	217OSLTI019	217OSLTI024	217OSLTI020	217OSLTI025	217OSLTI021	217OSLTI026	217OSLTI022	217OSLTI027	217OSLTI023	217OSLTI028
Matrix	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE
Sample Date	06/24/1998	06/24/1998	06/24/1998	06/24/1998	06/22/1998	06/25/1998	06/22/1998	06/25/1998	06/22/1998	06/23/1998
Low Level Pesticides (in µg/wipe)										
PCB-170 (2,2',3,3',4,4',5)	2 U	0.8 U	0.8 UJ	0.8 U	0.8 UJ	0.8 U	0.8 UJ	0.8 U	0.8 UJ	0.8 U
PCB-18 (2,2',5)	2 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
PCB-180 (2,2',3,4,4',5,5')	1	0.5 J	1	0.5 J	0.3 J	0.4 J	0.7	0.6 U	0.6	0.5 J
PCB-187 (2,2',3,4',5,5',6)	1 J	0.5 J	0.9 J	0.5 J	1 UJ	1 UJ	0.5 J	1 U	0.7 J	1 U
PCB-189 (2,3,3',4,4',5,5')	0.5 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PCB-195 (2,2',3,3',4,4',5,6)	0.5 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PCB-206 (2,2',3,3',4,4',5,5',6	0.6 U	0.3 U	0.3 U	0.3 U	0.3 UJ	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
PCB-209 (2,2',3,3',4,4',5,5',6	1 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-28 (2,4,4')	0.5 U	0.2 U	0.2 U	0.3	0.2 UJ	0.2 U	0.2 UJ	0.2 U	0.4 U	0.2 U
PCB-44 (2,2',3,5')	2 U	0.8 U	0.4 J	0.8 U	0.8 UJ	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
PCB-52 (2,2',5,5')	0.9 U	0.4 U	0.4 U	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
PCB-66 (2,3',4,4')	1 U	0.6 U	0.6 U	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 UJ	0.6 U
PCB-77 (3,3',4,4')	0.9 UJ	0.4 UJ	0.4 U	0.4 U	0.4 UJ	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U
PCB-8 (2,4')	1 U	0.7 U	0.7 U	0.7 UJ	0.7 UJ	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
TOXAPHENE	200 U	100 U	100 U	100 U	100 UJ	100 U	99 U	100 U	100 U	100 U
TRANS-NONACHLOR	4 J	0.8	3 J	0.7 UJ	2 J	0.6 J	2	0.7 U	2 J	0.7 UJ
TOTAL BHCS	U	U	U	0.6	U	U	U	U	U	U
TOTAL CHLORDANES	U	1	U	1	U	0.7	U	U	U	U
TOTAL DDTS	16	8	8	7	9	3	9	U	6	0.6
TOTAL PCBS	10	14	18	13	5	5	10	4	3	1
CLP Metals (in µg/wipe)										
ALUMINUM	20.3	138	20.8	147	14.2	43.4	53.8	109	26.6	73.4
ANTIMONY	0.18 U	0.17 U	0.17 U	0.17 U	0.25 J	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U
ARSENIC	0.24 U	0.61	0.22 U	0.62	0.24 U	0.45 J	0.24 U	0.52	0.25 U	0.32 J
BARIUM	2.0 J	2.1 J	2.3 J	2.2 J	2.3 J	1.6 J	4.0 J	1.8 J	3.4 J	2.0 J
BERYLLIUM	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
CADMIUM	0.020 U	0.10 J	0.020 U	0.11 J	0.020 U	0.090 J	0.020 U	0.080 J	0.020 U	0.090 J
CALCIUM	6,680	1,740	4,630	891	8,350	573	6,190	720	9,140	997
CHROMIUM	0.17 J	0.50	0.14 J	0.51	0.17 J	0.19 J	0.26 J	0.38 J	0.21 J	0.29 J
COBALT	0.11 U	0.16 J	0.10 U	0.18 J	0.11 U	0.14 J	0.11 U	0.15 J	0.11 U	0.13 J
COPPER	1.2 J	5.0	0.77 J	5.0	2.2	4.0	1.1 J	4.4	1.9	4.4
IRON	43.3	270	36.7	275	38.2	150	82.6	239	57.8	176
LEAD	0.14 U	0.66	0.13 U	0.20	0.14 U	0.14 U	0.14 U	0.21	0.14 U	0.23
MAGNESIUM	197 J	161 J	177 J	166 J	237 J	114 J	225 J	132 J	202 J	131 J
MANGANESE	3.5	5.1	1.7	4.3	5.9	2.5	7.1	4.3	14.2	5.6
MERCURY	0.070	0.040	0.040	0.030	0.10	0.030	0.040	0.030	0.030	0.040
MOLYBDENUM	0.10 U	0.12 J	0.10 U	0.17 J	0.10 U	0.15 J	0.10 U	0.10 U	0.10 U	0.14 J
NICKEL	0.15 U	0.48 J	0.14 U	0.55 J	0.15 U	0.36 J	0.15 U	0.42 J	0.15 U	0.33 J
POTASSIUM	648	368	748	353	872	311	987	309	522	317
SELENIUM	0.49	0.58	0.52	0.49	0.46	0.43	0.35	0.51	0.37	0.49

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

06/25/02

Table A-4

Otter Sluice

Tissue Analytical Results

Point ID	OSLSL002	OSLSL002	OSLSL004	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007
Sample ID	2170SLTI019	2170SLTI024	2170SLTI020	2170SLTI025	2170SLTI021	2170SLTI026	2170SLTI022	2170SLTI027	2170SLTI023	2170SLTI028
Matrix	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE
Sample Date	06/24/1998	06/24/1998	06/24/1998	06/24/1998	06/22/1998	06/25/1998	06/22/1998	06/25/1998	06/22/1998	06/23/1998
CLP Metals (in µg/wipe)										
SILVER	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U
SODIUM	280 UJ	263 UJ	242 UJ	264 UJ	326 UJ	283 UJ	389	281 UJ	261 UJ	281 UJ
THALLIUM	0.31 U	0.29 U	0.29 U	0.29 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
VANADIUM	0.30 J	0.49 J	0.20 J	0.46 J	0.17 U	0.29 J	0.29 J	0.39 J	0.19 J	0.27 J
ZINC	20.4	16.4	12.1	15.8	25.6	17.7	24.6	14.3	26.4	15.9
Dioxin (in µg/wipe)										
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	0.003 J	0.02 J	0.006	0.01
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	0.0003 U	0.002 J	0.0005 J(EM)	0.001 J
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	0.0007 J	0.003 J(EM)	0.002 J	0.003
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	0.0001 U	0.001 J	0.0002 J	0.0006 J(EM)
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	0.0001 U	0.0004 U	0.0001 U	0.0002 U
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	0.0001 U	0.0004 U	0.00008 U	0.0002 U
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	0.00006 U	0.0002 U	0.0001 J(EM)	0.0001 U
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	0.0001 U	0.0003 U	0.0003 J	0.0002 U
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	0.00006 U	0.0002 U	0.00004 U	0.00009 U
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	0.0001 U	0.0003 U	0.00007 U	0.0002 U
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	0.00008 U	0.0002 U	0.00006 U	0.0001 U
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	0.00006 U	0.0002 U	0.0003 J	0.0001 U
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	0.00004 U	0.0002 U	0.0001 J	0.00007 U
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	0.00007 U	0.0002 U	0.00006 U	0.0001 U
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	0.00004 U	0.0002 U	0.0002 J	0.00008 U
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	0.0001 J	0.0002 U	0.0001 J	0.00007 U
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	0.0002 J	0.0001 U	0.0003 J(EM)	0.0003 J
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	0.001 EMPC	0.006 J(EM)	0.002	0.005
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	0.0001 U	0.004	0.0007	0.002 EMPC
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	0.0001 U	0.0003 U	0.0003	0.002 EMPC
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	0.00007 U	0.002	0.0005 EMPC	0.002
TOTAL PECDD	NA	NA	NA	NA	NA	NA	0.00006 U	0.0002 U	0.0003	0.0001 U
TOTAL PECDF	NA	NA	NA	NA	NA	NA	0.00004 U	0.0002 U	0.0005 EMPC	0.001 EMPC
TOTAL TCDD	NA	NA	NA	NA	NA	NA	0.0001	0.0002 U	0.0001	0.0001 EMPC
TOTAL TCDF	NA	NA	NA	NA	NA	NA	0.0002	0.0001 U	0.0003 EMPC	0.003 EMPC

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

06/25/02

TABLE A-5
FISH AND CLAM TISSUE CONCENTRATIONS USED IN FOOD CHAIN MODELING (HIGH DOSE VALUES[a]) AT OTTER SLUICE[b]

Chemical	Fish Tissue (mg/kg)	Clam Tissue (mg/kg)
Aluminum	167.81	798.78
Antimony	**1.00**	0.5
Arsenic	0.50	3.46
Beryllium	0.040	0.06
Cadmium	0.040	0.58
Chromium	0.94	2.8
Cobalt	0.22	0.95
Copper	8.00	27.63
Iron	279.99	1531.83
Lead	0.28	2.71
Manganese	44.22	30.46
Mercury	0.33	0.2
Selenium	2.04	3.06
Silver	0.28	0.19
Thallium	0.62	0.086
Vanadium	1.19	2.63
Zinc	109.80	95.48
Alpha-BHC	0.004	0.0014
gamma-BHC (Lindane)	0.0008	**0.0033**
Heptachlor	0.0012	0.00083
Methoxychlor	0.0078	0.015
Total Chlordanes	0.023	0.015
Total PCBs	0.13	0.12
Total Dioxins[c]	0.0000025	0.0000022

Notes:

Shaded values indicate the chemical was not detected in any of the tissue samples; the concentration listed is based on half-detection limits only.

Bold values indicate the maximum concentration was used.

a High dose values consist of UCL_{95} concentrations or when chemical was detected in three or fewer samples, the maximum concentration.

b Concentrations based on the tissue sampling locations at Otter Sluice.

c Maximum toxicity equivalent values were used for the high dose (values in this table represent mammal TEQ). See Table J-9 in Appendix J of the ERA for calculation methods.

TABLE A-6
COMPARISION OF INGESTION RATE METHOD RESULTS AND THE RESULTING HAZARD QUOTIENTS

Receptor	**Prey Ingestion Rate used in Tidal Area FCM** (soil percentage subtracted) (kg/day)	**Alternate Prey Ingestion Rate** (prior to soil percentage subtraction) (kg/day)	**HQ Difference**
Gray Fox	0.17	0.18	No change in number of HQ exceedences
River Otter	0.18	0.18	None
Salt Marsh Harvest Mouse	0.0026	0.0026	None
Norther Harrier	0.037	0.037	None
Great Blue Heron	0.13	0.13	None
Black-necked Stilt	0.024	0.026	No change in number of HQ exceedences
California Black Rail	0.0047	0.0058	No change in number of HQ exceedences

Notes:

FCM Food chain modeling
HQ Hazard quotient
kg/day Kilogram per day

APPENDIX B

AGENCY COMMENTS ON THE DRAFT FINAL ECOLOGICAL RISK ASSESSMENT

AGENCY COMMENTS ON
DRAFT FINAL QUALITATIVE ECOLOGICAL RISK ASSESSMENT, TIDAL AREA SITES 1, 2, 9, AND 11 NAVAL WEAPONS STATION CONCORD, SEAL BEACH DETACHMENT, CONCORD, CALIFORNIA

This document presents the comments from the U.S. Environmental Protection Agency (EPA), Region 9; State of California Department of Toxic Substances Control (DTSC), and the State of California Department of Fish and Game (CDFG) on the qualitative ecological risk assessment portion of the "Draft Final Remedial Investigation Report, Tidal Area Sites 1, 2, 9, and 11, Naval Weapons Station, Seal Beach Detachment, Concord, California," dated August 6, 1999. The comments addressed in the following text were received from EPA and DTSC on November 4, 1999; and from CDFG on January 26, 2000.

EPA GENERAL COMMENTS

EPA General Comment 1

The title of the document, as well as Section 1, denote that this is a qualitative ecological risk assessment. Both the approach and the quantity of data appear to be adequate to support a qualitative screening effort. However, it appears that screening-level results were used to support conclusions that would only be appropriate as the result of a more extensive baseline risk assessment. For example, the results of tissue analyses are used to make definitive statements and conclusions regarding the level of risk, rather than to indicate an observation of bioaccumulation for certain compounds, and the Microtox test results are statistically evaluated to provide a quantitative estimate of exposure, rather than used as a screening tool. The objectives of this assessment are not clear since screening level data appear to have been collected and are presented for each area, but then are evaluated and discussed in terms of a Tidal Area-wide baseline risk assessment. Overall, the manner in which the data have been collected and evaluated are not adequate to support definitive conclusions regarding the level of risk as presented in the Report. However, it appears that there are sufficient data to *qualitatively estimate* the potential for exposures and the potential for adverse effects to occur within each of the individual areas. Since the results of the risk screening were inappropriately used to draw conclusions regarding the overall risk in the Tidal Areas, please revise the Report to clarify the objectives and limitations for each of the data sources within the sample strategy and within the assessment and measurement endpoint sections as appropriate.

EPA General Comment 2

The report is formatted to present the risk characterization as a series of independent summaries of results for each of the receptor groups that were evaluated, for example, Section 10 (Risk to Plants), Section 11 (Risk to Soil Biota), and Section 13 (Risk to Fish). These individual sections present useful information, however, the lines of evidence are not organized or discussed in a manner which allows for an evaluation of the overall risk characterization for the ecosystem associated with each of the areas. Therefore, the Report does not effectively evaluate whether each of the specific areas poses an unacceptable risk to ecological receptors associated with the respective area. In addition, the report discusses risks in terms of the specific exposures and behaviors of a selected receptor of concern, which may not be representative of the other receptors within the functional feeding group which it was selected to represent. The risk characterization and all lines of evidence should be presented by area in order to support whether the contamination measured in each specific area may be posing unacceptable exposures. The exposures are not

EPA General Comment 2 (Continued)

discussed in terms of the known contaminant sources at each area; therefore, it is difficult to ascertain whether the COPCs are present due to Site releases. This information is necessary in order to support remedial decisions for each area. It should be noted that there are multiple exceedances of benchmarks for each receptor group for many COPECs in each area; however, there is not discussion regarding the potential for additive effects. While an evaluation of adverse effects from multiple exposures is not necessarily required within the ecological risk assessment process, a discussion of potential additive effects would improve the risk characterization, especially since the Tidal Area sites consist of sensitive habitat and support numerous special status species.

EPA General Comment 3

The ambient concentrations and the screening process used for the determination of COPECs is not adequately described in the appropriate section of the report (Section 5, Methods of Screening Contaminants). For example, it appears that San Francisco Bay Regional Inorganic values were used for the initial screening. However, although the San Francisco Bay Regional Organic values are also referenced within this section, the use of these values within the screening process is not discussed. It appears that the organic concentrations are used in each of the receptor-specific risk characterization sections to eliminate COPECs from further consideration if they are present at San Francisco Bay Regional ambient concentrations. This second screening level process is questionable, since the organic COPECs are eliminated from further consideration without discussing the presence or attribution of these compounds to individual source areas. The Report should be revised to include clarification regarding i) the use of the San Francisco Bay Regional Organic values in the screening process and ii) the elimination of COPECs from further consideration (in the individual source area risk characterization) if the COPEC concentration is lower than San Francisco Bay Regional ambient concentrations.

EPA General Comment 4

The screening level assessment indicates that COPECs in surface water and sediment are determined through a comparison with San Francisco Bay Regional ambient concentrations for both inorganic and organic chemicals and measured ambient concentrations (from 2-10 feet bgs in the Tidal Area for inorganics). The Navy acknowledges that these ambient concentrations may differ from true background concentrations, which are defined as levels of naturally occurring, non-anthropogenic chemicals (Section 5.1.1, Ambient Chemical Concentrations). However, the screening process includes comparison of contaminant levels on the basis of their exceedances of ambient, not background, concentrations. This approach will not be effective for evaluating whether any releases from the Tidal Areas contributed to regional ambient concentrations.

EPA General Comment 5

It appears that the screening was not conducted using the most conservative methods. The notes to Table P-1, Comparison of Detection Limits to Screening Values, states that the "ambient" level for inorganics utilized in the screening is designated as the *higher* value of regional or measured Tidal Area ambient values (determined from samples collected at 2-10 feet bgs). This would imply that the *less* conservative ambient level was used at the screening level of this risk assessment, because only inorganic analytes which exceed these ambient levels are

EPA General Comment 5 (Continued)

evaluated further in the report. This has not been discussed within Section 5.0. Further, ambient soil/sediment samples are described as "fines." However, in Section 11 it is indicated that 132 samples were analyzed for grain size and some areas were described as "sands." The Report should be revised to include a discussion regarding the representativeness of ambient samples when compared to each of the Tidal Areas (i.e., it appears that in some cases, the use of fines would be considered representative or conservative, while for other sites it may not).

EPA General Comment 6

The screening tables do not include detection limits and do not list all of the contaminants that were analyzed and eliminated from further consideration. For example, no ordnance compounds are included on any of the tables to indicate that they were appropriately assessed. The Report must be revised to include ordnance compounds in the initial screening and provide an explanation for eliminating the compounds from the list of COPECs. While this information may be found in an appendix or in another section of the Report, it is difficult to interpret the overall screening results, especially since some of the COPEC detection limits were reported above their corresponding ecological benchmarks. Therefore, Section 5.0 should be revised to include a discussion of the method, a discussion of the initial screening process in relationship to detection limits, and the rationale for eliminating chemicals from further consideration.

EPA General Comment 7

This assessment does not include an examination of chronic exposures which establish a direct correlation between contaminant levels and measureable ecological effects. The lines of evidence used in the risk characterization include Microtox and Cytochrome P450 screening, amphipod and topsmelt embryo bioassays, and tissue residue data. However, none of these data sources have sufficient data points to support the definitive conclusions presented in the risk characterization sections of the Report. For instance, Microtox and Cytochrome tests have very limited utility, and topsmelt assays (conducted only on samples from Otter Sluice) were unsuccessful. Tissue residue levels are the only quantitative measure of exposure, and this data is heavily relied upon in the risk characterization. However, these data indicate only whether exposure to certain chemicals which bioaccumulate has occurred, and do not provide evidence of toxicological effects to fish. Therefore, the Report should be revised to acknowledge that a limited amount of data was used to draw conclusions in the risk characterization, and that the lines of evidence lack an evaluation of chromic exposures which could establish a direct correlation between contaminant levels and measurable ecological effects.

EPA General Comment 8

Microtox and Cytochrome P450 assays are used as lines of evidence to address measurement endpoints in the risk assessment. These techniques are most useful for screening purposes as non-quantitative indicators for the general presence of contaminants. The results of these assays should be interpreted throughout the document as screening-level results, not as contributors to the overall line of evidence used in the risk characterization. In response to previous RWQCB Comments (Appendix U) on Microtox, the Navy agreed that Microtox and Cytochrome were only screening tools. However, they are listed as "measurement

EPA General Comment 8 (Continued)

endpoints" in the problem formulation section of the Report. Furthermore, multiple correlation analyses were performed on these screening-level data. The purpose of these correlations is unclear and the results of the statistical analyses are not accompanied with clear interpretations. In response to previous comments, the Navy acknowledges that the bioassay data is of limited utility: "Neither Microtox nor Cytochrome P450 provided data suitable for making risk management decisions. The Microtox bioassay was used as a general indicator of contamination, not as a sample-specific screening tool" (response to RWQCB Specific Comment #2). Therefore, statistical analysis of these data and use of the assay as a measurement endpoint does not constitute acceptable data analysis in the risk assessment. The Report should be revised to clarify the measurement endpoints in the risk assessment and to discuss the utility of Microtox and Cytochrome P450 assay results.

EPA General Comment 9

The introduction to the risk characterization states that in contrast to food chain modeling, "the tissue residue data are a more accurate reflection of…exposure to bioavailable site contaminants." While tissue residue data are useful for assessing bioavailable COPECs, adverse effects may occur even though COPECs were not found in tissues. In addition, there is an extremely limited amount of tissue data, and it appears that the manner in which tissue samples were composited (multiple species per sample) prior to analysis would introduce a high degree of uncertainty to tissue residue levels. For instance, rodent tissue from two different species (and genera) were composited into a single sample for the Wood Hogger site (Table 4-6). Similarly, tissues from up to four species (and genera) of fish were also composited into single samples within the Froid and Taylor Road site and within the Otter Sluice site (Table 4-5). The compositing methods are not standard methods and the use of these data within the exposure assessment is questionable. The Report should be revised to include i) an evaluation of the results in terms of species-specific percent lipid content and ii) a discussion regarding the representativeness of the tissue samples. The usefulness of these results as presented in the Report is considered limited and, therefore, the Report should be revised to indicate this limitation and the data should be given less weight.

EPA General Comment 10

Tables in Appendix T (Tables from Attachment T6 were verified in this example) have several measurements for risk calculations rounded to one significant digit (i.e., ingestion rate of prey, ingestion from prey, ingestion rate of soil, ingestion from soil, and body weights). It appears that the doses are estimated from these rounded measurement values and then compared with the TRV values. Verification of exposure calculations indicates that the dose values obtained using 'non-rounded' values differed greatly from those using rounded values, sometimes resulting in hazard quotients above one, when those using rounded values did not. In order to provide conservative risk estimates, revise the Report to include all significant digits in the risk assessment calculations. Please refer to Specific Comments for Appendix T.

EPA General Comment 11

Avian and mammalian receptors listed in Section 14 and described in the Risk Characterization do not represent all feeding guilds shown in the Conceptual Site Model (Figure 7-2). All of the selected receptors of concern are carnivores or herbivores; no omnivores such as the mallard or topsmelt are considered as receptors. In addition, it appears that a significant portion of the Tidal Area Sites are comprised of wetlands and are designated as such on Exhibit 1. However, amphibians and reptiles, which may play an important ecological role in these habitats, are not discussed in the document. Please revise the Report to clarify the rationale for selecting receptors of concern.

EPA General Comment 12

Benthic invertebrates and fish are listed as receptor groups in Table 7-2, and are listed as assessment endpoints in Table 7-1. However, there is no Hazard Index calculated for these groups in the Risk Characterization (Section 12). Therefore, the risk assessment neglects to assess all complete exposure routes, and fails to meet the stated assessment/measurement goals. The Report should be revised to evaluate exposures to aquatic receptors by calculating a Hazard Index using toxicity reference values or other benchmarks from the literature.

EPA SPECIFIC COMMENTS

EPA Specific Comment 1

Page ES-1, Executive Summary, Objectives: The Report states: "The objective of the QEA described in this report was to *identify risk to ecological receptors* resulting from chemicals released during site activities at the Tidal Area." The statement appears to contradict the title of the document, "Qualitative Ecological Risk Assessment" and is not supported by the methods and data presented in this report. Please revise the objectives to indicate that the qualitative assessment *"estimates the potential for risk"* to ecological receptors.

EPA Specific Comment 2

Page 4-1, Section 4.0, Sampling Strategy and Analysis: This section presents the general objective, approach, and sampling methods that were performed in 1995 and in 1998. However, the objectives, rationale, and sampling strategy are not discussed specifically for each site. While this information is presented in other sections of the Report, the rationale for the selection of analytes based on the potential sources in each area is not consistently presented. It is therefore difficult to determine whether the limited locations sampled during 1998 are adequate to meet the stated objectives (i.e., to resolve the nature and extent of potential migration pathways and associated potential ecological exposures for each area). Please revise the sampling strategy section to provide a brief discussion of the known or expected sources and a discussion as to how the limited samples are considered representative for each media type by area.

EPA Specific Comment 3

Page 4-5, Section 4.1.3, Bioassays: The text states that "these bioassays measure exposure to certain groups of organic constituents and are further described in Section 8.0." However, Section 8.0, Bioassay and Tissue Residue Results, does not include a discussion of the "certain groups of organic constituents" that would be specifically addressed by these tests or how the organic compounds are related to the

EPA Specific Comment 3 (Continued)

nature and extent of contamination for each of the areas. The Microtox test can be used as a general screening tool to determine if additional chemical sampling is warranted, but not to assess toxicity to ecological receptors. Section 8.0 and Appendix R provide a correlation analysis of site-wide spatial variability between data sets, but the actual COPEC concentrations in co-located soil/sediment samples are not compared with the results of the Microtox test. The Report should be revised to include a presentation of the specific objectives of the Microtox analyses and a discussion regarding how the results of these tests were intended to be used. It is recommended that the results be used to discuss the nature and extent of contamination related to ecological receptors in each of the specific source areas.

EPA Specific Comment 4

Page 4-5, Section 4.1.3, Bioassays: The text indicates that Microtox bioassays were conducted on a total of 49 surface soil samples with reference to Exhibit 3. Exhibit 3 does not present the locations where the soil samples for the bioassays were collected, instead, these locations are presented on Exhibit 4. Furthermore, upon review of Exhibit 4, Bioassay and Tissue Collection Locations, it appears that the Microtox bioassays were conducted on soil samples collected at 45 locations, but the exhibit does not indicate that surface soil samples were co-located at all of the locations shown. Please revise the Report to resolve the discrepancy.

EPA Specific Comment 5

Page 4-9, Section 4.2.3.2, Invertebrate and Fish Tissue and Table 4-5: The last paragraph states that an attempt was made to collect adequate tissue of all the same fish, but for some locations, mixed-species composites were collected. Table 4-5, Species Composition of Fish Tissue Composite Samples, indicates that mixed species composites samples were collected at all but one of the sites. Therefore, the validity of the fish tissue results is questionable. Fish tissue residues are evaluated both as a measurement endpoint for exposure of fish to contaminants, and as a food source for avian and mammalian receptors. For food-chain exposure estimates, a composite sample consisting of multiple prey species may be appropriate for estimating ingestion doses to these receptors; however, in an evaluation of fish exposure in which tissue residue data is included as a measurement endpoint, a composite sample does not provide an appropriate estimate of exposure for any given fish receptor.

In addition, the EPA Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories (Section 1: Fish Sampling and Analysis) states, "Individual organisms used in composite samples must be of the same species because of the significant species-specific bioaccumulation potential. Under no circumstances should individuals from different species be used in a composite sample" (page 6-10). The guidance also states, "the movement of estuarine and marine species from one niche to another…may change their exposure to a contaminated site" (page 6-7). Thus, tissue residue data from composite samples presented in the Report, wherein two to four species of fish from different genera were analyzed as one sample, are not acceptable as a line of evidence in the report. It is not clear whether these data can be used to document the potential for bioaccumulation. At a minimum, the data should be discussed in terms of the percent lipid content of each

EPA Specific Comment 5 (Continued)

species and the results should be qualified in the text. Similarly, different species were composited in rodent tissues samples, and these results may also be confounded. The Report should be revised to address the utility of tissue residue data as a measurement endpoint for fish receptors in contrast to the utility of the data as an estimate of bioavailable doses to avian and mammalian predators.

EPA Specific Comment 6

Table 4-1, Number of Chemistry Sample Locations by Site and Matrix: The table presents the number of sample locations for each area for 1995 and 1998. The information presented in the table conflicts with information presented in the text and on Exhibit 3, Soil/Sediment and Surface Water Locations, and does not correspond to information in Section 4. For example, the table indicates that surface water samples were collected at 13 locations in the "R Area" in 1995, but the text on Page 4-5, Section 4.1.2.1, 1995 Surface Water Sampling Methods, indicates that surface water samples were collected at 17 locations. The Report should be revised to discuss or specifically reference the manner in which the data have been grouped for use in the ecological exposure assessment.

EPA Specific Comment 7

Page 4-4, Section 4, 1995 Soil and Sediment Investigation: The use of waste extraction tests (WET) to estimate the bioavailability of inorganic contaminants is not appropriately documented. There is no discussion of the applicability of the tests to estuarine sediments, in contrast to its conventional use on waste materials. For example, the text states that the WET-DI test provides a lower estimate of the bioavailable fraction of metals. However, it is not clear whether the DI extraction would represent the availability of inorganics over the range of salinity expected to be present at this site. Furthermore, it is not clear whether the acid test would mobilize inorganic contaminants in their bioavailable form, thereby simulating the higher estimate for the availability of metals in the sample. Please revise the Report to include a discussion of the utility of the WET test in the ecological risk assessment.

EPA Specific Comment 8

Page 4-4, Section 4, 1995 Soil and Sediment Investigation: In Table 6-22, it appears that higher concentrations were detected for several constituents in the WET-DI samples than for the same elements in the WET-ACID samples, including molybdenum, selenium, and silver. This does not reflect the original intent of the method, since the WET-DI was expected to represent the lower end of possible bioavailability, and WET-ACID the higher end. Please revise the section on bioavailability and food chain modeling to include a discussion of these uncertainties and explain how data from the WET tests were used in exposure estimates.

EPA Specific Comment 9

Page 5-5, Section 5.0, Methods of Screening Contaminants: The screening method initially considers all chemicals detected in soil, sediment, and surface water to identify COPECs on a site-specific basis. It is also indicated that the COPECs were then further evaluated to identify COECs for various groups of receptors. However, it appears that the Navy did not follow the EPA Guidance (1997) in the screening process to consider known COPECs in the receptor selection process. The 1997 EPA Guidance states that receptor selection should be based on a consideration of COPECs and their mechanisms of toxicity to

EPA Specific Comment 9 (Continued)

different groups of organisms and, subsequently, a consideration of likely categories of receptors which are part of potential exposure pathways.

It appears that the screening does not identify and evaluate COECs strictly according to the sources and potential contaminants present at each site. Instead of evaluating COPECs in a manner which would be protective of the entire ecosystem, contaminants are evaluated on the basis of whether they pose a threat to specific receptors. While subsequent sections of the Report intermittently address potential risk within each area, the potential impact of COECs within each of the areas is not discussed. The rational for this screening method is not clear. It is recommended that the ecological risk assessment be conducted on a site-specific basis in order to support remedial decision making related to each area. The current method does not result in a specific assessment with regard to the potential for unacceptable exposures at each unit and is not useful in determining whether the no action alternative is appropriate for each site. The Report should be revised to include the rationale for COEC selection and a justification for not following EPA Guidance in the site-specific receptor selection process.

EPA Specific Comment 10

Page 5-1, Section 5-1, Identification of Chemicals of Potential Ecological Concern: The document indicates that site-specific surface soil/sediment screening was conducted by comparing the maximum detected concentration to several ambient concentrations and NOAA ER-L values. It is indicated that if the maximum exceeds both ambient and toxicity-based values it was retained. Though the screening process includes a comparison with regional "ambient" concentrations for the elimination of organic COPECs, the document does not indicate why eliminating organic compounds during the screening is justified. The screening process may not be conservative with respect to higher trophic level species since it may eliminate chemicals that bioaccumulate. It is not clear whether the screening process would prematurely eliminate a COPEC. The text should be revised to indicate that the screening process has been agreed to by the relevant stakeholders and how the process is considered conservative (also see General Comment 4).

EPA Specific Comment 11

Page 5-1, Section 5-1, Identification of Chemicals of Potential Ecological Concern: The results of the initial screening process have not been adequately documented. For example, previous sections indicate that explosives were analyzed, but they are not listed on any of the referenced screening tables. Further, the initial screening tables do not present the rationale for eliminating a chemical from further consideration; all chemicals that should have been analyzed according to the text are not included on the tables, and the detection limits for those chemicals that are not detected are not listed. The results of the initial screening process should be documented in a table that presents the total number of samples for all analytes, frequency of detection (in lieu of frequency of non-detection), minimum and maximum detected concentration, the range of sample quantitation limits, the ambient concentrations used in the screening and a final column to indicate whether the chemical was retained or eliminated (with rationale for any eliminated COPECs). To provide adequate documentation of the screening process, please revise the

EPA Specific Comment 11 (Continued)

Report to include the abovementioned table.

EPA Specific Comment 12

Page 5-3, Section 5.1.1.2, San Francisco Bay Ambient (RWQCB 1998): The Report indicates that the RWQCB conducted a statistical analysis of ambient concentrations of chemicals in subtidal sediments of San Francisco Bay and recommended that the ambient level threshold be set at the 85th percentile for sediment described as 100 percent fines. It is not clear whether the sediments for all areas are considered 100 percent fines. The text should be revised to indicate that the sediment/soil composition was considered and that this composition appropriately represents all areas of this site.

EPA Specific Comment 13

Page 5-3, Section 5.1.1.2, San Francisco Bay Ambient (RWQCB 1998): The Report states that the RWQCB ambient concentrations are available for 10 inorganic chemicals and PAH, PCBs, and selected chlorinated pesticides, and presents these concentrations on Table 5-1. However, the Report does not explain how the ambient organic chemical concentrations are used in the screening process. For example, it may not be appropriate to eliminate COPECs that were below the RWQCB ambient concentrations, but were detected in the sources or were expected based on historical sources. The use of the organic values in the initial screening process appear to be discussed in other subsections. For clarity and completeness, please reference the sections of the Report where the use of organic values in the initial screening process is discussed and clarify how the ambient organic chemical concentrations are used in the screening process (see also General Comment 3).

EPA Specific Comment 14

Page 5-4, Section 5.1.2.1, Sediment Guidance Values: The document indicates that the ER-Ls are used in the initial screening process. It is indicated that concentrations below the ER-L represent levels at which direct adverse biological effects to invertebrates are rarely observed. It is not clear that the ER-L would adequately address chronic exposures or the potential risk related to upper trophic level species. Therefore, please revise the Report to i) retain chemicals that are known to bioaccumulate (i.e., K_{ow} greater than 4.0) in the screening process, and ii) provide justification for eliminating any COPEC that may be related to source-area migration. In addition, since the Report did not use available and applicable USEPA Ecotox Theresholds (EPA 540/F-95/038, 1996), please provide the rationale for not using the USEPA Ecotox Thresholds.

EPA Specific Comment 15

Page 5-5, Section 5.1.2.2, Surface Water: It is indicated that the Ambient Water Quality Criteria (AWQC) which were used in the surface water screening process are presented as dissolved concentrations, therefore, AWQC were converted to total recoverable concentrations using conversion factors provided by EPA. The document cites EPA 1997 and EPA 1998, however, neither of the citations appear in the reference section and the conversion factors used to develop the screening benchmarks have not been specifically listed. For completeness and to facilitate the review process, specific conversion factors should be provided in the Report

EPA Specific Comment 15 (Continued)

and the appropriate references included in the reference section.

EPA Specific Comment 16

Page 5-5, Section 5.1.2.2, Surface Water: The Report indicates that some of the AWQC are hardness dependent. An assumed hardness of 100 mg/L $CaCO_3$ was used in the evaluation since no site-specific hardness data were available. Please provide an indication as to whether this assumption is considered conservative relative to the expected site conditions.

EPA Specific Comment 17

Page 5-6, Section 5.2.3, Screening Process for Soil and Sediments (Birds and Mammals): The text indicates that the TRVs and the use of the hazard quotient (HQ) were described in detail in the technical memorandum and references "EFA WEST 1998." The derivation of the TRVs is not provided and it is not clear whether the memorandum was presented and accepted by the other stakeholders. While the report states that the TRVs are used in the food chain calculations in Appendix T, the actual derivation and references for the TRVs are not discussed. For completeness and to facilitate the evaluation process, please include the memorandum as an appendix to the QEA.

EPA Specific Comment 18

Page 5-7, Section 5.3, Evaluation of Detection Limits: The Report indicates that a comparison of detection limits to available screening values can be found in Appendix P. The Report also indicates that it was not always possible to achieve detection limits below the associated benchmarks and that this issue is discussed in the identification of COPECs and COECs in Section 6.0 through 14.0. However, several of the tables do not include an assessment or denotation of those COPECs that exceeded their benchmark. In order to avoid potential misconceptions, please present the range of sample quantitation limits on the screening tables.

EPA Specific Comment 19

Appendix P, Table P-1, Detection Limits for Soil and Sediment Analysis: Throughout the risk characterization, the text states, "PAHs were not considered COPECs if all individual PAHs were below detection limits of the low detection limit analytical method." However, the report does not provide a comparison of the low detection limits to available benchmarks. Please, include a comparison of detection limits presented in Appendix P to conservative ecological benchmarks in the appropriate sections of the Report.

EPA Specific Comment 20

Appendix P, Table P-1, Detection Limits for Soil and Sediment Analysis: The table lists three columns for detection limits, "Detection Limit Median," "Minimum Detection Limit," and "Maximum Detection Limit." It is unclear whether these are the individual sample quantitation limits or the method detection limits. Please, revise the Report to provide this clarification.

EPA Specific Comment 21

Page 7-11, Section 7.6.1.2, Protection of Populations of Soil Biota and Terrestrial Invertebrates: The text states that exposure of soil biota and terrestrial invertebrates will be evaluated via "Microtox and Cytochrome P450 that provide a

EPA Specific Comment 21 (Continued)

measure of exposure to selected groups of organic chemicals." These techniques are most useful for screening purposes as non-quantitative indicators for the general presence of contaminants. Since results from these tests are known to be unreliable and of poor reproducibility, they would not be considered useful in providing a "measure" of exposure. Typically, these tests are conducted to aid in selecting locations for sampling. Please revise the Report to clarify the intent of performing Microtox and Cytochrome P450 tests. The use of these tests results as "measurement" endpoints is not recommended.

EPA Specific Comment 22

Page 7-11 Section 7.6.1.2, Protection of Populations of Soil Biota and Terrestrial Invertebrates: Previous EPA comments (Appendix U, Comments 6, 38, and 44) discussed the interpretation of Microtox and Cytochrome P450 results. The comment included a request that specific criteria for each test be provided to allow the reader to interpret test results. The Navy's response to EPA comments indicates that the Draft-Final RI Report would include a survey of literature on the appropriate use of these two bioassays in Ecological Risk Assessments. However, the Report contains only one reference as to the utility of Microtox as compared to whole organism bioassays (pg. 8-1), and no further interpretation is offered for the Microtox and Cytochrome data presented in Table 8-10 through 8-12. In addition, the reference provided (found on Page R-17) for Microtox testing, Montgomery and others, 1994, is incomplete. For completeness, please revise the Report to include the complete reference, a clear explanation of the Microtox results and an acknowledgment of the limited utility of these bioassays.

EPA Specific Comment 23

Table 7-1, Assessment and Measurement Endpoints and Rationale for their Selection: One of the assessment endpoints is listed as "protection of individual salt marsh harvest mice" (Table 7-1). Other endpoints include protection of carnivorous mammals, piscivorous birds, shorebirds, and raptors. However, protection of the overall feeding guild which includes the salt marsh harvest mouse (primary consumers, or herbivorous mammals) should also be listed as an assessment endpoint. It is also noted that protection of sensitive wetland species (i.e., amphibians) has not been discussed or included within the assessment endpoints. To provide a complete assessment, please revise the Report to include these receptors in the assessment endpoints or provide the rationale for their exclusion.

EPA Specific Comment 24

Page 8-2, Section 8.1.2, Discussion of Microtox Results: The first paragraph states that "Qualitative comparison of these reduced data sets suggested that soil samples collected for the ecological risk assessment could be considered a representative subset of the data collected for the RI." However, the Report does not specifically discuss the chemical concentration ranges with summary statistics, nor does the Report provide a quantitative comparison of the Microtox response ranges with the RI results. In order to document that the samples are representative of the RI results, the Report should provide summary statistics for the Microtox data (organic and inorganic) and the data should be quantitatively compared to the concentration ranges observed in the RI.

EPA Specific Comment 25

Page 8-2, Section 8.1.2, Discussion of Microtox Results: The second paragraph indicates that correlation analysis was performed on the results of the Microtox and Cytochrome P450 tests and the concentration of organic/inorganic constituents in the site soils. However, the Report does not provide sufficient justification for using correlation analyses to evaluate the relationship between assay results and chemicals of concern. In addition, the Report should provide plots of the Microtox values (and Cytochrome P450 values) and the sampling data in order to visually inspect the data prior to analysis. For example, there is no indication that the samples with the highest chemical concentrations also exhibit the highest biological activity. To provide a comprehensive discussion of the correlation analysis, please revise the Report to include a clear definition of the Microtox value, its relationship to the control and justification for the use of percentages in any statistical analysis.

EPA Specific Comment 26

Page 8-2, Section 8.1.2, Discussion of Microtox Results: The second paragraph indicates that all Microtox results were combined from the various Tidal Areas and states that parametric and nonparametric statistics indicated no significant differences in Microtox results among the various Tidal Areas. However, this analysis does not indicate how the applicability of assay results may vary between individual sites. For example, Tidal Areas may have similar biological activity, but may have significantly different PCB concentrations. Thus, PCBs may be related to biological activity in one Tidal Area, yet unrelated to biological activity in another Tidal Area. Therefore, the analysis of Microtox results should be revised to address individual area exposures and any analysis of biological activity should be revised to examine relationships between biological activity and concentrations of organic and inorganic constituents observed at each area.

EPA Specific Comment 27

Pages 8-7 and 8-8, Section 8.3.2, Results of Amphipod Bioassay: The text states that the results of the bioassay do not indicate toxicity as survival rates were well above regional control tolerance limits. The text goes on to say "no correlation analyses were performed between amphipod test results and sediment chemistry due to the small sample size…" If data is sufficient to definitively state that the bioassay does not indicate toxicity, it is not clear how the data are insufficient to compare the test results with sediment chemistry data. Please revise the Report to clarify the adequacy of the data.

EPA Specific Comment 28

Page 10-1, Section 10, Risk To Plants: The text indicates that the assessment endpoint is protection of populations of upland and wetland plants from adverse effects on growth, survival, and reproduction. However, the supporting text discusses the exceedances of benchmarks for individual COPECs and the results of tissue analysis for COPECs in pickleweed. The text does not indicate how the results associated with pickleweed relate to the overall assessment endpoints for upland, special status, or other wetland plants. For clarity, please revise the Report to indicate how the results associated with pickleweed relate to the overall assessment endpoints for upland, special status, or other wetland plants.

EPA Specific Comment 29

Page 10-1, Section 10, Risk To Plants: There is no discussion of the potential for bioaccumulation as indicated by the WET results. Page 11-4 indicates that the WET results indicates risks to plants via rhizosphere exposure. For completeness and to address the potential for bioaccumulation, please revise the Report to discuss the WET results.

EPA Specific Comment 30

Page 10-1, Section 10, Risk To Plants: The text contains comparisons of onsite tissue concentrations to general minimum requirements for growth (report by the Florida Agricultural Information Retrieval System ([FAIRS]). If the tissue concentrations is below that reported by the FAIRS, the text states "therefore, the plants in the Tidal Area may be subject to copper nutrient deficiency" and thus, eliminate the inorganic element as a COPEC. While the reported nutrient requirements are informative, the site-specific variables may affect contaminant uptake and, as noted in the Report, some metals may mimic other metals and reduce or inhibit plant uptake or translocation of other metals. Therefore, it is not evident that conclusions regarding "nutrient deficiencies" can be supported, especially if the element is a COPECs associated with area sources or if compound concentrations are above ER-M benchmarks. In addition, the discussion does not indicate specific information regarding the age or parts of the plants that were sampled and it is not evident that the limited sample size and location is representative of each of the areas. Since it is difficult to assess the overall impact of the multiple benchmark exceedances and bioaccumulation for each area and the correlation of these results with the Microtox and other toxicity exposure assessments, please revise the Report to i) include a discussion of the COPECs with regard to area-specific sources and overall ecosystem impacts for each area, and ii) include a discussion of ecosystem impacts for each area (please see General Comment No. 2).

EPA Specific Comment 31

Page 11-2, Section 11, Risk To Soil Biota and Terrestrial Invertebrates: PAHs were not considered COPECs if all individual PAHs were below detection limits of the low detection limit analytical method. However, the available information does not support the rationale for eliminating PAHs from further consideration. Therefore, please revise the Report to include a discussion of whether the low PAHs detection limits were adequate to evaluate the corresponding benchmarks and whether it is expected that PAHs are a problem at the site.

EPA Specific Comment 32

Page 11-2, Section 11, Risk To Soil Biota and Terrestrial Invertebrates: The text indicates that there were no screening values for some pesticides, SVOCs, VOCs, explosives, diesel, gasoline, and motor oil. However, these compounds are not discussed any further in the risk characterization. To provide a complete assessment of the above-mentioned compounds, please revise the risk characterization to present a qualitative discussion regarding the nature and extent of the compounds that do not have screening values.

EPA Specific Comment 33

Page 11-5, Section 11.2.3, Solid-Phase and Organic-Extraction Microtox: The text presents a general discussion of the tidal-wide results for the Microtox assay and states that "little exposure and risk appears likely to be expressed at any of the Tidal Area sites." The discussion of results is too general to support the conclusion that is presented. For example, the discussion does not indicate the types of compounds that would be assessed by the Microtox results. It has already been established that Microtox is of limited utility in risk assessment except as a screening tool. Therefore, the Report should be revised to include a discussion of the Microtox results with regard to why the sampling locations are considered representative of potential worst case exposures, how co-located chemical data correlate to the assay results, and specifically how the locations sampled and assay results support the conclusion that exposures have been adequately assessed based on expected site-specific sources and contaminants. For clarity, please discuss this information separately for each area.

EPA Specific Comment 34

Page 11-5, Section 11.2.4, Cytochrome P450: The text presents a limited and general discussion of the tidal-wide results for the Cytochrome P450 results. The Report indicates that there were statically significant differences between the Wood Hogger, R Area Disposal, and the Froid and Taylor Roads Sites. The text further states that, "the induction of Cytochrome P450 does not, in itself, indicate toxicity, but indicates that chemicals that have been linked to adverse effects in a variety of organisms that are active in the soil." The text does not present any information as to how this conclusion is to be interpreted with regard to COECs or the relevance of the results to specific Tidal Areas. It appears the objective of the test has been misunderstood or misused. The results from this type of analyses should be used to identify areas that may indicate unacceptable exposures and used to determine if the area has been adequately characterized. The Report should be revised to provide a discussion of the results in the context of each area using all supporting chemical, physical, and area-specific data to assess whether enough data are available to determine if there is a risk.

EPA Specific Comment 35

Page 13-3, Section 13.2, Chemical Exposure Based on Tissue Residue Data: The text indicates that tissue residue results were compared to data from the Regional Monitoring Program (RMP) and that COPECs are eliminated based on this comparison. It is not appropriate to eliminate COPECs based on a comparison of tissue data since tissue residue data provide a measure of species-specific bioaccumulation, not toxicity. Table 13-1 indicates that the RMP fish species included rockfish, striped bass, sturgeon, and halibut. It is not appropriate to compare tissue data without a comparison of lipid percent or other differences between Tidal Area and RMP species. Please revise the Report to include the specific characteristics of the fish used in both data sets and a comparison of bioaccumulation in these different species in order for the comparison to be considered valid. In addition, the Report should be revised to provide specific characteristics (age, weight, sex, etc.) of fish that were sampled at the Tidal Area sites in order to document that the fish were of the appropriate size and age to be considered representative of potential bioaccumulation at the sites.

EPA Specific Comment 36

Page 13-3, Section 13.2, Chemical Exposure Based on Tissue Residue Data: On-site tissue concentrations were compared to tissue levels associated with toxicological effects in the literature as compiled by Jarvinen and Ankley (1999). Table 13-2 provides this comparison and lists the tissue type and endpoint effect. It is not clear whether the listed body burden concentrations are directly comparable to the fish tissue collected for the Tidal Areas, since the toxicity data in Jarvinen and Ankley (1999) are listed for different tissue types and different species. In some cases, the tissue values are compared to onsite concentrations and used as an explanation for eliminating a compound from further evaluation. However, it is not appropriate to use the literature concentrations with endpoints other than the No Observable Effects Concentrations (NOEC). Therefore, the Report should be revised to include a discussion of the ecotoxicological values from the references and the relevance for use of these values in a comparison.

EPA Specific Comment 37

Page 13-4, Section 13.3.2, Potential Toxicological Effects of COPECs on Fish: Effects of contaminants on fish were evaluated by comparing surface water samples to AWQCs. The text states, "AWQCs are derived from studies of direct lethal or sublethal effects to fish exposed to surface water…but do not specifically address bioaccumulation, and are therefore not appropriate for evaluating chemicals that bioaccumulate." However, the text goes on to state, "Since AWQCs are appropriate measure of potential direct toxicity to fishes, COPECs that did not exceed AWQC were not considered COECs and are not evaluated further." PCBs and dioxins, which are known to bioaccumulate, are not carried further in the study because they don't exceed AWQCs. Since bioaccumulation was not addressed in the evaluation, the Report should be revised to address how bioaccumulation of these contaminants was investigated before they were eliminated as COPECs.

EPA Specific Comment 38

Page 13-5, Section 13.3.2.1, Potential Effects of Inorganic COPECs on Fish: COPECs are further evaluated (and COECs are determined) in terms of spatial and temporal degree of benchmark exceedance, presence of a site-specific source, and corroborating evidence of bioavailability and toxicity. These terms are considered appropriate for establishment of COECs; however, a comprehensive assessment of each of these terms is not provided for each of the COPECs. For example, none of the COPEC descriptions provide an indication as to the associated level of contamination in corresponding sediment samples. Therefore, spatial and temporal degree of exceedance is not adequately assessed for any COPEC. Fish tissue residues results appear to have been considered as a significant weight of evidence for establishing exposures. However, the fish tissue data are limited and may not be considered an appropriate measurement endpoint due to inappropriate composite sampling methods. In order to assess whether COECs were appropriately selected, please revise the Report to clarify this information.

EPA Specific Comment 39

Page 13-11, Section 13.4, Risk Characterization and Section 5.0, Methods of Screening Contaminants: The Report on page 13-11 states that "Highly dynamic surface water exchange with Suisun Bay brings nutrients, plankton, and the chemical mixture characteristic of the bay during that limited window of time

EPA Specific Comment 39 (Continued)

twice each day," but it is further indicated that Otter Sluice is not considered a source of chemicals with adverse effects on fish or a source of chemicals relative to other fish in Suisun Bay and its environs. However, the data presented in the Report are considered qualitative and it is not apparent how contamination from Otter Sluice is prevented from migrating to Suisun Bay, considering the highly dynamic surface water exchange in the area. It is noted that the Suisun Bay influence on Otter Sluice was not discussed with regard to surface water sampling strategy. Therefore, the Report should be revised to discuss in the sampling strategy section (Section 5.0) whether the Otter Sluice sampling was conducted during high tides or may have been impacted by the mixing that may occur during high tides.

EPA Specific Comment 40

Page 14-6, Section 14.2.2.1, Concentrations of Chemicals in Prey and Sediment or Soil: The text states that "to further refine the risk assessment, doses were calculated using the 95th percent UCL for sediment and soil when risk was indicated using the maximum concentration." Tables in Attachment T present the calculations for the 95th percent UCL. However, these risk assessment refinement methods are not discussed in any of the risk characterization sections. Instead, the characterization only discusses the HQ_2 and HQ_4 using the maximum concentrations. To assist risk management decisions, please revise the Report to include a discussion of the results from the use of the 95th percent UCL risk calculations.

EPA Specific Comment 41

Section 14.2, Exposure Assessment: Food Chain Analysis and Appendix T, Food Chain Modeling Calculation for Risk to Birds and Mammals: Tables in Appendix T have several measurements for risk calculations rounded to one significant digit (i.e., ingestion rate of prey, ingestion from prey, ingestion rate of soil, ingestion from soil, and body weights). It appears that the doses are estimated from these rounded measurement values and then compared with the TRV values. However, when dose values were obtained using non-rounded values, the values differed greatly from those using rounded values, sometimes resulting in hazard quotients above one when those using rounded values did not. Therefore, please revise the Report to provide conservative risk estimates by including all significant digits in the risk assessment calculations.

EPA Specific Comment 42

Sections 14.4.1, 14.4.2, and 14.4.4, Potential Risks to Representative Receptors from Chemical Exposures in the Landfill Terrestrial Unit, R Area Terrestrial, and Froid and Taylor Terrestrial Unit (respectively): Prey (house mice and pickleweed) tissue residue concentrations from selected Tidal Area sites were used in food-chain modeling for each habitat unit as appropriate. In a habitat unit where prey tissue concentrations were not collected, maximum tissue concentrations collected from the R Area Disposal Site were used in the modeling. Since using the maximum tissue concentrations collected from the R Area Disposal Site is not necessarily representative of the habitat unit being evaluated, please revise the Report to address the uncertainty associated with this evaluation in the uncertainty section.

EPA Specific Comment 43

Sections 14.4.1, 14.4.2, and 14.4.4, Potential Risks to Representative Receptors from Chemical Exposures in the Landfill Terrestrial Unit, R Area Terrestrial, and Froid and Taylor Terrestrial Unit (respectively): Tissue residue data of the house mouse were collected in lieu of tissue residue data from the salt marsh harvest mouse because the salt marsh harvest mouse is a special status species. However, the lipid content of tissues sometimes differ significantly between different genera of mammals and this may affect the availability of organic chemicals in the tissue to predators. Therefore, please revise the Report to address the uncertainty associated with this risk evaluation in the uncertainty section.

EPA MINOR COMMENTS

EPA Minor Comment 1

Table 8-10, Summary of Microtox Results: Footnotes are denoted by the letters "a, b, c, d, e," but are listed in the footnotes as "1, 2, 3, 4, 5." Please revise the Report to correct the discrepancy between the table and subsequent footnotes.

EPA Minor Comment 2

Table 13-2, Tissue Residue in Fish: On this table, the footnote "b" is referenced for both the third column (Body Burden wet weight) and the last column (Concentration in Fish Tissue for Concord Area). This is confusing, since the footnote discusses the Otter Sluice samples and does not appear to have anything to do with the literature values presented in the third column. Please revise the Report to clarify the discrepancy.

EPA Minor Comment 3

Reference Section: The reference section does not use appropriate or complete reference citations. It is recommended that the Report be revised to provide complete references. A review of several of the citations made in the text indicates that either the incorrect reference has been cited or a secondary reference has been used. For example, the last sentence on Page 5-4 and continued on the top of Page 5-5, indicates discusses the National Toxics Rule and cites EPA, 1992. The only EPA, 1992, within the Reference section is "A Framework for Ecological Risk Assessment," which does not include a notation or reference to the National Toxics Rule. Please revise the Report to provide primary references and to verify and correct the citations used throughout the document as needed.

AGENCY COMMENTS ON
DRAFT FINAL QUALITATIVE ECOLOGICAL RISK ASSESSMENT, TIDAL AREA SITES 1, 2, 9, and 11
NAVAL WEAPONS STATION CONCORD, SEAL BEACH DETACHMENT, CONCORD, CALIFORNIA

DTSC GENERAL COMMENTS

DTSC General Comment 1

The Navy has entitled the document a "qualitative" ecological assessment, but an opus of over 1,000 pages employing hundreds of hazard quotients (HQ) is, in fact, a quantitative ecological risk assessment. Therefore, we have reviewed it as such. In our comments on the draft document, we noted that the Navy had all the data they needed to complete a Phase I Ecological Risk Assessment according to DTSC guidance (DTSC, 1996) except for characterization and bioassays of sediment in Otter Sluice. The Navy has collected and presented the needed data, but the document presented is not acceptable as a Phase I Ecological Risk Assessment.

DTSC General Comment 2

We encountered three principal deficiencies. First, the Navy eliminated some detected chemicals of potential ecological concern (COPEC) by screening against various criteria. DTSC does not allow this practice, because it leads to underestimation of risk. Second, the Navy has compared multiple estimates of chemical intake by receptors to multiple toxicity-based benchmarks, eliminating more COPEC in the process. For such comparisons, DTSC guidance specifically identifies an HQ composed of an average intake compared to an approved toxicity reference value. The Navy's process erroneously eliminates detected chemicals as COPEC and underestimates risk. Third, DTSC guidance specifically requires that HQs be summed across chemicals and media for each receptor to estimate the hazard Index (HI). If necessary, this may be followed by summation according to mode of action. The Navy did not do this, thus, they have underestimated risks to non-human receptors.

DTSC General Comment 3

After resolving the comments in this memorandum, we recommend that the Navy proceed to Phase II Validation Study for all Tidal Area Sites, but not before a work plan is approved by DTSC.

DTSC SPECIFIC COMMENTS

DTSC Specific Comment 1

Screening COPEC, Sec. 5.1, pp. 5-1 ff. and Figures: DTSC disapproves of shortening the list of detected chemicals by screening against selected toxicity criteria. We do approve of screening sites for further assessment. Once a site is selected for assessment, COPEC should include all detected organic chemicals and all inorganic chemicals present in excess of ambient concentrations. We know of no site in California where DTSC has approved the practice of eliminating COPEC by screening against selected toxicity criteria. We objected vigorously to the Navy's use of this practice in the draft qualitative ecological assessment submitted in 1997. Furthermore, we reject the Navy's response to our comments on this subject, which appear in Appendix U. In our published guidance on this subject ("Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities, Part A: Overview," DTSC, 1996), Section 4.5 on page 26 is clear and specific on this subject.

DTSC Specific Comment 1 (Continued)

subject.

An example is useful to show why screening COPEC is unwise. The Navy states on page 5-2 that Effects Range-Low are used to screen COPEC for both aquatic and terrestrial invertebrates. However, ER-Ls are based on toxic responses of marine invertebrates. Thus while using ER-Ls as toxicity criteria might be protective for marine invertebrates, they are simply uninformative about toxicity to other trophic levels. Also, ER-Ls provide no information on potential bioaccumulation. Lastly, spreadsheet software is widely available; therefore, including all detected chemicals imposes no appreciable burden on either Navy or regulators.

DTSC Specific Comment 2

Screening criteria, Figures 5-1 to 5-3, Figure 5-1 requires two corrections. First, the ER-L has no relationship to phytotoxicity, so "plants" should be removed from the title. Second, the flow chart should contain only the first diamond on the left, with tow outcome circles, "COPEC" and "not a COPEC." Figures 5-2 and 5-3 suggest that a large number of toxicity-based criteria are available. Therefore, HQ and HI can be constructed for all detected chemicals and receptors. Screening to eliminate COPEC is therefore unnecessary, and possibly even misleading. This is the approach to ecological risk assessment recommended in the guidance from DTSC referred to above.

DTSC Specific Comment 3

"Promulgated Values," Sec. 5.1.2, p. 5-3: Regulations are promulgated. Other recommended values are simply published. Regulations can be legally enforced. Recommended values are just that – recommended. Please correct this text.

DTSC Specific Comment 4

Iron, Sec. 6.1.1, p 6-3: Iron may be routinely eliminated as a chemical of concern in human health assessment, because it is not only an essential nutrient but it is also non-toxic except at extremely high exposures. For an ecological risk assessment, iron may not be dismissed so quickly, because iron can have significant toxicity to aquatic receptors. We commented on this in the draft document, and we reject the Navy's response to our earlier comment.

DTSC Specific Comment 5

Tables 6-1 through 6-14 and Summary Table on p. 6-29: The table on page 6-29 summarizes the Navy's decisions on identifying inorganic COPEC at the various units. We cannot follow how information from Tables 6-1 through 6-14 arrived in Table 6-29, because these tables have no column indicating whether an analyte is selected as a COPEC and what the basis for that decision was. We will approve eliminating an inorganic COPEC only if its concentrations fall within the range of the Tidal Area ambient concentration.

DTSC Specific Comment 6

Inorganic COPEC in Surface Water, Sec. 6.1.3.20, p. 6-52: The summary table does not make clear whether a chemical was eliminated as a COPEC based on comparison to ambient values or comparison to toxicity screening criteria. Please clarify. We will accept elimination only based on a comparison to ambient values.

DTSC Specific Comment 7

Organic COPEC, Sec. 6.2.3, pp, 6-86 ff: All detected organic chemicals are COPEC. No screening is acceptable for eliminating organic COPEC. If the Navy chooses to characterize risk by comparison to ambient levels, they may quantify risk at the sites of interest and compare these to appropriate reference areas.

DTSC Specific Comment 8

Outliers, Sec. 6.3.2.2, p. 6-90 and Appendix Q: We do not see how this analysis adds anything to plotting the spatial distribution of concentrations and/or comparison to Tidal Area ambient levels. Introduction of any consideration of ER-L or Effects Range – Median is specious.

DTSC Specific Comment 9

Conceptual Site Model, Sec. 7, Figs. 7-1 to 7-4 and Tables 7-1 to 7-2: This is an excellent presentation.

DTSC Specific Comment 10

Topsmelt Bioassay, Sec. 8.4.2, p. 8-3: Text states, "Reference toxicant results were consistent with previous trials." Table 8-3 shows controls but no "reference toxicant data." To which data does this statement refer? Please clarify.

DTSC Specific Comment 11

"Confounding Factors," Sec. 8.4.3, p. 8-11 and Table 8-4: In Table 8-3, we note significant evidence of toxicity at 5 of 7 sites tested with the topsmelt bioassay. We fault the Navy for not following these results with an effort to correlate toxicity to concentrations of chemicals in the sediments tested. Instead, the Navy chose to examine factors that might or might not have confounded the bioassays. We find no merit in this analysis. We find even less merit in the text on page 8-12, wherein the Navy brings in results from nearby bases.

We interpret the results in Table 8-3 to show that some sediments in Otter Sluice are toxic to topsmelt larvae. The Navy has presented no credible information to contradict this conclusion. It appears to us that the Navy simply dismisses the data on toxicity form the topsmelt bioassays.

DTSC Specific Comment 12

Tissue Residue Data, Tables 8-5A through 8-9B: Data on residues of chemicals in plant and animal tissues have limited value (other than for food chain modeling), unless they are juxtaposed with residue data from an appropriate reference area. We are unable to determine if the residue data in the report are higher or lower than residues in tissues from plants and animals from a relatively undisturbed site.

DTSC Specific Comment 13

ER-Ls and Plants, Sec. 10.1, p. 10-2: The Navy makes the following statement in Section 10.1:

> "ER-Ls were used as a screening value in the absence of promulgated criteria for plants, but since ER-Ls are based on toxicity to fish and aquatic invertebrates, concentrations that exceed the ER-L do not necessarily indicate a risk to plants."

DTSC Specific Comment 13 (Continued)

L do not necessarily indicate a risk to plants."

The Navy's logic here is egregiously poor. In fact, one cannot infer either the presence or absence of risk, because the toxicity criterion is misapplied. This underscores the pitfalls of attempting to screen detected chemicals for COPEC. We reject the selections of COPEC for plants and terrestrial invertebrates shown in Tables 10-1 through 10-6.

DTSC Specific Comment 14

Comparison of Soil Concentrations with Benchmarks for Plants, Sec. 10.3.1, pp. 10-5 ff, and Tables 10-7 through 10-10: Although we believe too many detected chemicals were eliminated as COPEC, it is useful to examine the comparisons in Table 10-7. These tables are extremely cluttered and hard to read. Please decrease the number of columns by showing, for each COPEC, the soil concentration and the preferred benchmark concentrations. Please footnote each benchmark to show its source, e.g., Oak Ridge National Laboratory (ORNL), CA Department of Fish & Game, etc. Footnote "d" to each of these tables indicates that detected chemicals without toxicological benchmarks are not considered. Eliminating such chemicals from the risk assessment is not acceptable. The Navy should meet with risk assessors from the regulatory agencies and decide how to deal with chemicals for which no toxicity-based benchmarks are published. In addition, we are not familiar with Preliminary Remediation Goals (PRGs) from the California Department of Fish & Game (CDFG). Please provide these values for us, with appropriate documentation, so we can determine their acceptability in any portion of the assessment.

DTSC Specific Comment 15

Risk Assessment vs. Risk Management, Sec10.3.3.1, pp. 10-9ff: Throughout this section, the Navy presents risk management decisions in the guise of eliminating COPEC for various reasons. This document is a risk assessment. Its purpose is to estimate the type of harm detected chemicals might cause and the probability of such harm to specific receptors. Decisions on whether to remediate cannot be made properly if the presence of chemicals and risks is simply never brought to the attention of the risk manager. This entire section must be re-written with all references to risk management removed.

DTSC Specific Comment 16

Summary of Selection of COPEC for Plants, Table 10-12: We disagree with many statements in this section. Nearly every metal listed was found at concentrations greater than the ambient distribution, some by as much as 100-fold (Ba). Yet the Navy goes through a series of convoluted, self-serving rationalizations to remove all metals except Cd and Zn as COPEC for plants. DTSC believes the ability of plants to accumulate organic chemicals via root uptake is a debatable issue, scientifically. We certainly do not believe that this uncertainty justifies eliminating all organic chemicals as COPEC for plants.

DTSC Specific Comment 17

ER-Ls and Terrestrial Invertebrates, Sec. 11.1, p. 11-2: Comments 13-16 above apply equally well to this section. ER-Ls are derived from toxic effects on marine or estuarine organisms. They have no use in estimating risk for terrestrial invertebrates. We reject the Navy's selection of COPEC for this group of receptors.

DTSC Specific Comment 18

Aquatic Invertebrates, Sec. 12: We agree with the Navy's approach outlined on page 12-1. For reasons similar to those stated above for other receptors, we reject the Navy's selection of COPEC. We agree that the sediment bioassays using *Eohaustorius estuaries* indicate minimal or no toxicity in sediments of Otter Sluice. Tissue residues in clams (Table 12-7) suggest bioaccumulation of Pb, Hg, Se, and DDT congeners. We do not agree with the Navy's conclusions and recommendations, because COPEC were erroneously eliminated and HQs were not summed across chemicals for indicator species.

DTSC Specific Comment 19

Risk Assessment for Fish, Sec. 13, pp. 13-1ff: See Comment 1 above. Examining the ratio of an exposure concentration to an Ambient Water Quality Criterion is a useful method of developing HQs for fish receptors. It may not be used to eliminate COPEC, because additive effects across chemicals will be underestimated. Chemicals detected in fish tissue may be used to estimate doses in food-chain modeling, but failure to detect a residue is not a basis for eliminating a chemical as a COPEC for fish. The Navy makes no mention in this chapter of bioassays in a fish species, topsmelt, that showed toxicity. It is difficult not to be cynical when rationalizations are presented as data and data are omitted. The risk assessment for fish is wholly unacceptable.

DTSC Specific Comment 20

Surface Water Pathway for Mammals and Birds, Sec. 14.9, p. 14-1: We disagree with the Navy's statement that surface water will add negligible amounts to total exposures to COPEC for mammals and birds. The Navy has erroneously eliminated so many COPEC from so many media that no statement of this nature can be supported. The Navy should assess risks for mammals and birds via surface water using all organic chemicals detected and all inorganic chemicals detected at greater than ambient conditions.

DTSC Specific Comment 21

"High" and "Low" Body Weights, Ingestion Rates, etc., Sec. 14.2.1, p. 14-5: Estimates of high and low doses are of no value. The Navy should use only estimates of reasonable maximum exposures (RME). In general, we favor using average values for body weight. For site utilization factors, the Navy should either 1.0 or their proposed "high": value. For sediment soil or ingestion, and average value is adequate. See "EcoNOTE2" at the HERD website, http://cwo.com/~herd1.eco.htm for specific guidance on this subject.

DTSC Specific Comment 22

Polycyclic Aromatic Hydrocarbons (PAH), Sec. 14.2.1, p. 14-8: If the "low detection limit" method used was USEPA method 8310, please state this. DTSC recommends its use whenever PAH are identified as COPEC.

DTSC Specific Comment 23

Great Blue Heron, Sec. 14.2.2.5, p. 14-11: Rodents are listed as part of the diet for this bird and tissue residue data are available from rodents collected at the site. Why hasn't the Navy used data from mice in estimating the dose of contaminants for the heron?

DTSC Specific Comment 24

HQ for Mammals and Birds, Sec. 14.3.2, p. 14-17, and Fig. 5-4: The Navy's approach, using as many as five separate HQ for each combination of chemical, medium, and receptor is unnecessarily convoluted. On the flow chart shown in Figure 5-4, the Navy should ignore all comparisons except the two termed HQ_4. If the RME is less than the TRV-Low, then one can expect little or no risk. If, on the other hand, $Hq_4 > 1.0$, the Navy should examine HQ_5, which is the ratio of the RME to TRV-High. If $HQ_5 > 1.0$, one should conclude a risk is present. If the RME lies between TRV-Low and TRV-High (i.e., $HQ_4 > 1.0$ and $HQ_5 < 1.0$), then interpretation is not clear. In such cases, the Navy should proceed to a Phase II Validation Study, in which the estimate of dose can be further refined with field measurements and/or tissue residues. We reject altogether the Navy's method of eliminating COPEC when HQ is less than 1.0. HQs should be added across chemicals and media for each receptor to estimate the HI.

DTSC Specific Comment 25

Grouping of Pesticides, Sec. 14.4, p. 14-19: Heptachlor and heptachlor epoxide have similar chemical properties and similar toxicity (at least in rodents). Therefore, the Navy should sum concentrations of heptachlor and heptachlor epoxide in estimating dose via food chain modeling and that use the TRVs for heptachlor in characterizing risks to both birds and mammals. Lindane and γ-BHC are both synonyms for γ-Hexachlorocyclohexane. Therefore, lindane and BHCs may be considered to have similar chemical properties and similar toxicity to both birds and mammals. Therefore the Navy should sum concentrations of lindane with other BHCs to estimate doses and they should use the TRVs for lindane to characterize risks for this class in both birds and mammals.

DTSC Specific Comment 26

Bioavailability of Lead, Sec. 14.4.1.1, pp. 14-21 ff: We note the high HQs for lead (HQ_4) for the northern harrier and gray fox. Although the Navy did not calculate HQ_4 for lead for the salt marsh harvest mouse, we presume it would be similarly elevated (e.g., >100). We agree with the Navy that interpreting differences between HQ_4 and HQ_5 should include considerations of bioavailability, because TRV-Low and TRV-High for lead are based on the toxic effects of lead acetate. Lead at the Tidal Area Sites is almost certainly present as less soluble species than the acetate. Instead [of] using a narrative to dismiss risks due to lead as insignificant, we recommend that the Navy deal with this issue quantitatively. The Navy could use their data on extractabiliy of lead in soils and sediments as a surrogate for bioavailability, thus creating a correction factor for the HQ. If such a correction were to yield a significant lowering in the HQ, than we might be persuaded that risks due to lead are insignificant for birds and mammals.

DTSC Specific Comment 27	Risk Assessment Conclusions, Sec. 16.1, pp. 16-1 ff: In drawing their conclusions, the Navy makes no use of HQ_4 and HQ_5, nor do they consider additive toxicity (summed HQ_5). In addition, COPEC have been erroneously omitted. Therefore, we cannot agree with their conclusions on the magnitude of risk for Tidal Area sites.
DTSC Comment on Conclusions and Recommendations:	The Navy's ecological risk assessment is unacceptable. The draft final document is essentially unresponsive to our comments on its predecessor. COPEC have been erroneously removed. HQs are not summed across chemicals and media for each receptor. The wrong construction of the HQ is used for risk characterization. It is clear, however, that the Navy should proceed to a Phase II Validation Study to refine their estimates of exposure.

CDFG GENERAL COMMENTS

CDFG General Comment 1

Applicable, Relevant, and Appropriate Requirements (ARARs). In comment 7 of the response to Fish and Game comments there appears to be some confusion regarding the definitions of ARARs and TBCs (to be considered). By their definitions ARARs are promulgated, but TBCs are another category of requirements that are non-promulgated criteria, advisories, guidance and proposed standards. That is, something need not be an ARAR to be a TBC. Sections 1601 and 1602 of the Fish and Game Code are locations specific TBCs for waters of the State of California.

CDFG SPECIFIC COMMENTS

CDFG Specific Comment 1

Section 5.1, pg. 5-2, para. 3: Please indicate why "ER-Ls (effects range-low) and AWQCs (ambient water quality criteria) were not used to identify COPECs for these higher level receptors."

CDFG Specific Comment 2

Section 5.2.3, pg. 5-6, para. 1 and Figure 5-4: The use of multiple HQs shown on Figure 5-4 is not appropriate. The HQ represents a threshold; above 1.0, a toxic effect is expected. HQ values above 1.0 do not reflect increasing toxicity correlated with increasing values of the HQ. For example, small incremental increase above the non-toxic dose of a chemical with a very steep dose-response (chemical A) would be expected to result in high levels of toxicity. Conversely, for a chemical with a shallow dose-response (chemical B), it would take a very large increase above the non-toxic dose to obtain the same high levels of toxicity observed with chemical A. Both chemicals A and B could have identical HQ values or chemical B could even have an HQ value greater than that of chemical A. The Department rejects the proposed screening process for the risk assessment because it relies upon incorrect usage of HQ values. While we understand the need to identify the major risk drivers for the screening process, this should be done in a clear and understandable manner based on correct application of "risk characterization tools" such as HQ.

In coordination with the U.S. EPA Region IX Biological Technical Advisory Group (BTAG), a set of soil ecological threshold reference values (TRVs) were developed for contaminants common to Naval facilities in the San Francisco Bay area (PRC 1997). The Department recommends that low and high BTAG-TRVs be used to delineate the range of potential risk to ecological receptors at the facility. Contaminants below the low TRV would not be considered to pose an appreciable risk to the receptors of concern, while those in excess of the high TRV would pose an unacceptable level of risk and would require remediation. For those contaminants that are between the low and high TRVs, a decision by risk managers would be required to determine the level of acceptable risk. For contaminants that do not have a BTAG-TRV, literature values agreed upon by the Navy and regulatory agencies should be used.

CDFG Specific Comment 3

Section 6.1.1.3, pg. 6-8, para. 1: The Department disagrees with the description of the risk associated with ER-L and ER-M (effects range-median). Since the ER-L is based on a 10% effects level, adverse effects at this level would be expected more than "rarely." Similarly, since the ER-M is based on a 50% effects level, more than occasional adverse effects would be expected at concentrations between ER-L and ER-M. If this discussion is to be retained in the ERA, it must be revised to more accurately reflect the level of adverse effects upon which the ER-L and ER-M are based.

CDFG Specific Comment 4

Section 6.2.1.1, pg. 6-73, para. 2: For ER-L and ER-M, see Specific Comment 3 above.

CDFG Specific Comment 5

Section 6.1.2.20, pg. 6-36, para 1: It is unclear why WET-acid extractions were used for some samples while WET-DI extractions were used for other samples. "WET-acid extractions were performed on 15 surface soil and five sediment samples, and WET-DI extractions were performed on 47 surface soil and five sediment samples (pg. 6-3, para. 1)." Were the same or different samples used to estimate bioavailability of inorganic constituents? Did you try to find the difference of inorganic constituents from the same sample by two extractions? Please provide the explanations.

APPENDIX C

APPENDIX TO DTSC COMMENTS ON THE REVISED DRAFT FINAL ECOLOGICAL RISK ASSESSMENT

Appendix 1

The discussion in this Appendix is related to the information presented in Section 5.3.2.2, starting on page 5-23, and the model inputs found in Tables J-6 and J-7 in Appendix J of the risk assessment.

Calculation of Field Metabolic Rates

The calculation of ingestion rates for gray fox and river otter were based on Nagy, Girard and Brown, 1999 (henceforth referred to as Nagy). Review of this section has indicated several problems in the application of Nagy's equations. To calculate the Field Metabolic Rates (FMR) or daily maintenance energy requirements, Nagy used the formula

$$FMR\ (kJ/day) = a\ x\ (\ grams\ body\ weight\ )^b$$

where a and b are from Nagy's Table 2 and are dependent on the taxonomic order or feeding class of the animal in question. Formula constants, a and b, as shown in Table A, should be selected carefully since Nagy's actual formula structure remains the same except for the chosen formula constants.

Table A. Based on Nagy Table 2

Order/ Feeding Class	a	b	Mean Log x	c	d	e
All Mammals	4.82	0.734	2.481	0.422	1.013	0.008
Eutherian	4.21	0.772	2.364	0.423	1.017	0.010
Carnivora	1.67	0.869	3.609	0.504	1.143	0.350
Carnivores	2.23	0.85	3.960	0.448	1.077	0.073
Omnivores	6.03	0.678	1.808	0.310	1.056	0.190

According to Table J-6 in Appendix J, a and b values from Nagy for "Eutherians" (shown above in Table A) were used to calculate ingestion rates in the gray fox. In Table J-7 in Appendix J, the values for "All Mammals" were used for the river otter. It should be noted that although Table J-7 indicates that the "All Mammals" numbers were used, the values for a and b actually presented in Table J-7 are those for "Eutherians".

Eutherians are the taxonomic group composed of all mammals except marsupials. Taxonomically both the gray fox and river otter are in the order

Carnivora, however, dietetically the river otter is a piscivore and the gray fox is an omnivore. In his paper, Nagy states "We recommend that colleagues calculate FMR and 95% CI values using the equation that applies most specifically to their animal of interest."

For the gray fox, the applicable taxonomic group could be "Carnivora", "Carnivores", or "Omnivores", while for the river otter the choice would be between "Carnivora" and "Carnivores". The dietetic class includes carnivorous and piscivorous marine mammals in addition to animals from the order Carnivora. It is unclear why the "Eutherian" values were chosen for the gray fox and the river otter. This should be explained in the document.

The FMR calculated in the document is for maintenance, and does not include energy requirements for growth or reproduction. Since growth and reproduction are also end points for the ecological risk assessment, it is recommended that the category "Carnivora" be used in the Nagy equations because it will result in the highest FMRs. Please see the table of calculations shown below illustrating FMRs. This table is based on inputs from Nagy's Table 2.

Table B. Ingestion rates based on various inputs from Nagy's Table 2.

Order/ Feeding group	Animal	Weight	Field Metabolic Rate (FMR) (Energy req.)	Dry Matter (DM) energy in prey	Dry Matter required - Energy Req./DM	Upper CL Energy req.	Upper CL Dry Matter required - Energy Req./DM	Lower CL Dry Matter required - Energy Req./DM
		g	kJ/day	kJ/g	kg/day	kJ/day	kg/day	kg/day
All Mammals	River Otter	5000	2501	16.8	0.149	6688	0.398	0.06
Eutherian	River Otter	5000	3019	16.8	0.180	8132	0.484	0.07
Carnivora	River Otter	5000	2736	16.8	0.163	9476	0.564	0.05
Carnivores	**River Otter**	**5000**	**3108**	**16.8**	**0.185**	**9087**	**0.541**	**0.06**
All Mammals	Gray Fox	3800	2045	14.0	0.146	5462	0.390	0.05
Eutherian	Gray Fox	3800	2443	14.0	0.174	6570	0.469	0.06
Carnivora	Gray Fox	3800	2156	14.0	0.154	7455	0.533	0.04
Carnivores	**Gray Fox**	**3800**	**2461**	**14.0**	**0.176**	**7216**	**0.515**	**0.06**
Omnivores	Gray Fox	3800	1612	14.0	0.115	4036	0.288	0.05

The resulting calculated required ingestion rates shown in Table B are not

specifically for the gray fox or the river otter but are average values for the feeding class Carnivores. Nagy's Table 1 reports measured FMRs for numerous specific vertebrates and includes FMRs for fourteen carnivores including representatives from the taxonomic orders: Marsupialia, Carnivora and Pinnipedia.

Since the measured FMRs take into account the body weight of the specific organism, a way to compare energy requirements between the different organisms is to divide through by the body weight to determine the daily energy requirements per gram of organism (kJ/g/day). The resulting values ranged from 0.128 kJ/g/day to 1.39 kJ/g/day, demonstrating the variability within the feeding class Carnivore. Therefore, it is recommended that the conservative approach of using the 95% Upper Confidence Limit (UCL) for calculated ingestion rate be utilized in the food web modeling. The 95% UCL can be calculated from Nagy's formula for the 95% CI:

$$95\%\ CI = log(predicted\ kJ/day) + c\{d + e[log(g\ body\ mass) - (mean\ log\ x)]^2\ \}^{0.5}$$

where c, d, e and mean log x are taken from the appropriate class in Nagy's Table 2. Once the FMRs are calculated they need to be converted to dry matter of prey required. The choices made in the Ecological Risk Assessment of 14 and 16.8 kJ/g for the gray fox and river otter seem the most appropriate. Following this approach prey ingestion rates would be 0.515 kg dry wt/day for the gray fox and 0.541 kg dry wt/day for the river otter.

Finally, the calculated ingestion rate based on Nagy is the ingestion rate of **prey** needed for a maintenance diet. It does not include incidental soil/sediment ingestion. Incidental soil/sediment ingestion is an addition to the calculated prey ingestion. Based on Table J-6, the calculated ingestion rate was reduced by the amount of incidental soil ingestion to give the prey ingestion rate. This is an incorrect calculation.

For the gray fox, the prey ingestion rate should be the calculated rate of 0.515 kg dw/day, which would represent 97.2% of the total ingestion rate of 0.530 kg dw/day. The difference is made up by soil ingestion of 0.015 kg dw/day. For the river otter the calculated prey ingestion rate is 0.541 kg dw/day, which represents 99% of the total ingestion rate of 0.546 kg dw/day, with the difference made up by sediment ingestion of 0.005 kg dw/day. It is suggested that these values be used in the risk assessment calculations.

APPENDIX B

ANALYTICAL DATA TABLES – TIDAL AREA LANDFILL SITE

LIST OF TABLES

Table

B-1 ANALYTICAL RESULTS FOR SOIL, TIDAL AREA LANDFILL (SITE 1)

Notes:

Point ID	Location of the sample.
Sample ID	Number assigned before the sample is sent to the analytical laboratory. The sample ID is separate from the point (location) ID to ensure that samples are sent blind to the laboratory.
Matrix	Sample media (soil, sediment, surface water, tissue).
Sample Date	Date of sample collection.
Sample Depth	Depth, in feet below ground surface (bgs). Soil or sediment samples collected from a depth of 0 to 0.5 feet bgs are considered surface soil or sediment, and samples collected below 0.5 feet bgs are considered subsurface samples. Surface water samples are collected at a depth of 0 feet bgs.
Result	Listed by analytical group; the concentration shown is the detected concentration. When the sample is not detected, the detection limit is shown.
Detection Limit	The detection limit achieved by the laboratory that is specific to the sample and analyte. The detection limit is different from the sample quantitation limit, which is not sample-specific and instead applies to the methodology.

TABLE B-1

ANALYTICAL RESULTS FOR SOIL
TIDAL AREA LANDFILL (SITE 1)

LANDFILL SOIL DATASET FOR TABLE B-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SOIL	TLSSB001	281TLSSS001	31-Jul-95	0	0.5
SOIL	TLSSB001	281TLSSS002	31-Jul-95	1.3	2.5
SOIL	TLSSB001	281TLSSS003	31-Jul-95	3.9	4.5
SOIL	TLSSB002	281TLSSS004	31-Jul-95	0	0.5
SOIL	TLSSB002	281TLSSS005	31-Jul-95	1.3	2.5
SOIL	TLSSB002	281TLSSS006	31-Jul-95	4.3	5.5
SOIL	TLSSB003	281TLSSS007	31-Jul-95	0	0.5
SOIL	TLSSB003	281TLSSS008	31-Jul-95	1.5	2.5
SOIL	TLSSB003	281TLSSS009	31-Jul-95	4.5	5.3
SOIL	TLSSB004	281TLSSS010	31-Jul-95	0	0.5
SOIL	TLSSB004	281TLSSS011	31-Jul-95	1.3	2.4
SOIL	TLSSB004	281TLSSS012	31-Jul-95	4.3	5.5
SOIL	TLSSB005	281TLSSS013	1-Aug-95	0	0.5
SOIL	TLSSB005	281TLSSS014	1-Aug-95	0.9	2
SOIL	TLSSB005	281TLSSS015	1-Aug-95	4.5	5.8
SOIL	TLSSB006	281TLSSS016	1-Aug-95	0	0.5
SOIL	TLSSB006	281TLSSS017	1-Aug-95	1.3	2
SOIL	TLSSB006	281TLSSS018	1-Aug-95	4.5	6
SOIL	TLSSB007	281TLSSS019	1-Aug-95	0	0.5
SOIL	TLSSB007	281TLSSS020	1-Aug-95	1.5	2.3
SOIL	TLSSB007	281TLSSS021	1-Aug-95	4.5	5.3
SOIL	TLSSB008	281TLSSS022	1-Aug-95	0	0.5
SOIL	TLSSB008	281TLSSS023	1-Aug-95	1.5	2.7
SOIL	TLSSB008	281TLSSS024	1-Aug-95	4.5	5.7

Notes:

MATRIX Media Sampled
PT_ID Point ID
SMP_ID Sample ID
SMP_DT Date that sample was collected
TOPDEPTH Top depth of the sample
BOTDEPTH Bottom depth of the sample

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB001	TLSSB001	TLSSB001	TLSSB002	TLSSB002	TLSSB002	TLSSB003	TLSSB003	TLSSB003	TLSSB004	TLSSB004	TLSSB004
Sample ID	281TLSSS001	281TLSSS002	281TLSSS003	281TLSSS004	281TLSSS005	281TLSSS006	281TLSSS007	281TLSSS008	281TLSSS009	281TLSSS010	281TLSSS011	281TLSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995
Sample Depth (in feet)	0.00 - 0.50	1.30 - 2.50	3.90 - 4.50	0.00 - 0.50	1.30 - 2.50	4.30 - 5.50	0.00 - 0.50	1.50 - 2.50	4.50 - 5.30	0.00 - 0.50	1.30 - 2.40	4.30 - 5.50
Volatiles (in µg/kg)												
1,1,1-TRICHLOROETHANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
1,1,2,2-TETRACHLOROETHANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
1,1,2-TRICHLOROETHANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
1,1-DICHLOROETHANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
1,1-DICHLOROETHENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
1,2-DICHLOROETHANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
1,2-DICHLOROETHENE (TOTAL)	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
1,2-DICHLOROPROPANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
2-BUTANONE	NA	110 U	120 U	NA	45 U	59 U	NA	250 U	29 U	NA	390 J	25 U
2-HEXANONE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
4-METHYL-2-PENTANONE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
ACETONE	NA	430 U	460 U	NA	150 U	210 U	NA	1,200 U	98 U	NA	1,800 U	110 U
BENZENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
BROMODICHLOROMETHANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
BROMOFORM	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
BROMOMETHANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
CARBON DISULFIDE	NA	32 U	48 U	NA	45 U	44 J	NA	69 U	85	NA	30 U	120
CARBON TETRACHLORIDE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
CHLOROBENZENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
CHLOROETHANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
CHLOROFORM	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
CHLOROMETHANE	NA	32 U	48 J	NA	45 U	59 U	NA	69 U	27 J	NA	30 U	37
CIS-1,3-DICHLOROPROPENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
DIBROMOCHLOROMETHANE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
ETHYLBENZENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
METHYLENE CHLORIDE	NA	32 U	48 U	NA	91 U	59 U	NA	69 U	29 U	NA	30 U	25 U
STYRENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
TETRACHLOROETHENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
TOLUENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
TRANS-1,3-DICHLOROPROPENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
TRICHLOROETHENE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
VINYL CHLORIDE	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
XYLENE (TOTAL)	NA	32 U	48 U	NA	45 U	59 U	NA	69 U	29 U	NA	30 U	25 U
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
1,2,4-TRICHLOROBENZENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
1,2-DICHLOROBENZENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
1,3-DICHLOROBENZENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB001	TLSSB001	TLSSB001	TLSSB002	TLSSB002	TLSSB002	TLSSB003	TLSSB003	TLSSB003	TLSSB004	TLSSB004	TLSSB004
Sample ID	281TLSSS001	281TLSSS002	281TLSSS003	281TLSSS004	281TLSSS005	281TLSSS006	281TLSSS007	281TLSSS008	281TLSSS009	281TLSSS010	281TLSSS011	281TLSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995
Sample Depth (in feet)	0.00 - 0.50	1.30 - 2.50	3.90 - 4.50	0.00 - 0.50	1.30 - 2.50	4.30 - 5.50	0.00 - 0.50	1.50 - 2.50	4.50 - 5.30	0.00 - 0.50	1.30 - 2.40	4.30 - 5.50
Low Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
1-METHYLNAPHTHALENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
1-METHYLPHENANTHRENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2,3,5-TRIMETHYLNAPHTHALENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2,4,5-TRICHLOROPHENOL	410 U	NA	NA	2,700 U	NA	NA	500 U	NA	NA	440 U	3,200 U	NA
2,4,6-TRICHLOROPHENOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2,4-DICHLOROPHENOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2,4-DIMETHYLPHENOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2,4-DINITROPHENOL	410 U	NA	NA	2,700 U	NA	NA	500 U	NA	NA	440 U	3,200 U	NA
2,4-DINITROTOLUENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2,6-DIMETHYLNAPHTHALENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	30 J	1,300 U	NA
2,6-DINITROTOLUENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2-CHLORONAPHTHALENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2-CHLOROPHENOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2-METHYLNAPHTHALENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2-METHYLPHENOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
2-NITROANILINE	410 U	NA	NA	2,700 U	NA	NA	500 U	NA	NA	440 U	3,200 U	NA
2-NITROPHENOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
3,3'-DICHLOROBENZIDINE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
3-NITROANILINE	410 U	NA	NA	2,700 U	NA	NA	500 U	NA	NA	440 U	3,200 U	NA
4,6-DINITRO-2-METHYLPHENOL	410 U	NA	NA	2,700 U	NA	NA	500 U	NA	NA	440 U	3,200 U	NA
4-BROMOPHENYL-PHENYLETHER	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
4-CHLORO-3-METHYLPHENOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
4-CHLOROANILINE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
4-CHLOROPHENYL-PHENYLETHER	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
4-METHYLPHENOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
4-NITROANILINE	410 U	NA	NA	2,700 U	NA	NA	500 U	NA	NA	440 U	3,200 U	NA
4-NITROPHENOL	410 U	NA	NA	2,700 U	NA	NA	500 U	NA	NA	440 U	3,200 U	NA
ACENAPHTHENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
ACENAPHTHYLENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
ANTHRACENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
BENZO(A)ANTHRACENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	68 J	1,300 U	NA
BENZO(A)PYRENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	68 J *	1,300 U	NA
BENZO(B)FLUORANTHENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	61 J	1,300 U	NA
BENZO(E)PYRENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	46 J	1,300 U	NA
BENZO(G,H,I)PERYLENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	66 J	1,300 U	NA
BENZO(K)FLUORANTHENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	75 J	1,300 U	NA
BENZOIC ACID	49 J	NA	NA	2,700 U	NA	NA	500 UJ	NA	NA	47 J	1,100 J	NA

Notes:

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Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB001	TLSSB001	TLSSB001	TLSSB002	TLSSB002	TLSSB002	TLSSB003	TLSSB003	TLSSB003	TLSSB004	TLSSB004	TLSSB004
Sample ID	281TLSSS001	281TLSSS002	281TLSSS003	281TLSSS004	281TLSSS005	281TLSSS006	281TLSSS007	281TLSSS008	281TLSSS009	281TLSSS010	281TLSSS011	281TLSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995
Sample Depth (in feet)	0.00 - 0.50	1.30 - 2.50	3.90 - 4.50	0.00 - 0.50	1.30 - 2.50	4.30 - 5.50	0.00 - 0.50	1.50 - 2.50	4.50 - 5.30	0.00 - 0.50	1.30 - 2.40	4.30 - 5.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
BIS(2-CHLOROETHOXY)METHANE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
BIS(2-CHLOROETHYL)ETHER	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
BUTYLBENZYLPHTHALATE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
CARBAZOLE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
CHRYSENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	59 J	1,300 U	NA
DI-N-BUTYLPHTHALATE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
DI-N-OCTYLPHTHALATE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
DIBENZ(A,H)ANTHRACENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
DIBENZOFURAN	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
DIBENZOTHIOPHENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
DIETHYLPHTHALATE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
DIMETHYLPHTHALATE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
FLUORANTHENE	160 U	NA	NA	150 J	NA	NA	200 U	NA	NA	100 J	1,300 U	NA
FLUORENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
HEXACHLOROBENZENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
HEXACHLOROBUTADIENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
HEXACHLOROCYCLOPENTADIENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
HEXACHLOROETHANE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
INDENO(1,2,3-CD)PYRENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	47 J	1,300 U	NA
ISOPHORONE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
N-NITROSO-DI-N-PROPYLAMINE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
N-NITROSODIPHENYLAMINE (1)	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
NAPHTHALENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
NITROBENZENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	1,300 U	NA
PENTACHLOROPHENOL	410 U	NA	NA	2,700 U	NA	NA	500 U	NA	NA	440 U	3,200 U	NA
PERYLENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	39 J	1,300 U	NA
PHENANTHRENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	32 J	1,300 U	NA
PHENOL	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	180 U	19,000	NA
PYRENE	160 U	NA	NA	1,100 U	NA	NA	200 U	NA	NA	280	1,300	NA
TOTAL HIGH MOLECULAR PAHS	U	NA	NA	150	NA	NA	U	NA	NA	910	NA	NA
TOTAL LOW MOLECULAR PAHS	U	NA	NA	U	NA	NA	U	NA	NA	32	NA	NA
TOTAL PAHS	U	NA	NA	150	NA	NA	U	NA	NA	940	NA	NA
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
1,2-DICHLOROBENZENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
1,3-DICHLOROBENZENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
1,4-DICHLOROBENZENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB001	TLSSB001	TLSSB001	TLSSB002	TLSSB002	TLSSB002	TLSSB003	TLSSB003	TLSSB003	TLSSB004	TLSSB004	TLSSB004
Sample ID	281TLSSS001	281TLSSS002	281TLSSS003	281TLSSS004	281TLSSS005	281TLSSS006	281TLSSS007	281TLSSS008	281TLSSS009	281TLSSS010	281TLSSS011	281TLSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995
Sample Depth (in feet)	0.00 - 0.50	1.30 - 2.50	3.90 - 4.50	0.00 - 0.50	1.30 - 2.50	4.30 - 5.50	0.00 - 0.50	1.50 - 2.50	4.50 - 5.30	0.00 - 0.50	1.30 - 2.40	4.30 - 5.50
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2,4,5-TRICHLOROPHENOL	NA	2,700 U	4,000 U	NA	3,800 U	4,900 U	NA	2,900 U	2,400 U	NA	2,500 U	2,100 U
2,4,6-TRICHLOROPHENOL	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2,4-DICHLOROPHENOL	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2,4-DIMETHYLPHENOL	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2,4-DINITROPHENOL	NA	2,700 U	4,000 U	NA	3,800 U	4,900 U	NA	2,900 U	2,400 U	NA	2,500 U	2,100 U
2,4-DINITROTOLUENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2,6-DINITROTOLUENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2-CHLORONAPHTHALENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2-CHLOROPHENOL	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2-METHYLNAPHTHALENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2-METHYLPHENOL	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
2-NITROANILINE	NA	2,700 U	4,000 U	NA	3,800 U	4,900 U	NA	2,900 U	2,400 U	NA	2,500 U	2,100 U
2-NITROPHENOL	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
3,3'-DICHLOROBENZIDINE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
3-NITROANILINE	NA	2,700 U	4,000 U	NA	3,800 U	4,900 U	NA	2,900 U	2,400 U	NA	2,500 U	2,100 U
4,6-DINITRO-2-METHYLPHENOL	NA	2,700 U	4,000 U	NA	3,800 U	4,900 U	NA	2,900 U	2,400 U	NA	2,500 U	2,100 U
4-BROMOPHENYL-PHENYLETHER	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
4-CHLORO-3-METHYLPHENOL	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
4-CHLOROANILINE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
4-CHLOROPHENYL-PHENYLETHER	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
4-METHYLPHENOL	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
4-NITROANILINE	NA	2,700 U	4,000 U	NA	3,800 U	4,900 U	NA	2,900 U	2,400 U	NA	2,500 U	2,100 U
4-NITROPHENOL	NA	2,700 U	4,000 U	NA	3,800 U	4,900 U	NA	2,900 U	2,400 U	NA	2,500 U	2,100 U
ACENAPHTHENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
ACENAPHTHYLENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
ANTHRACENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
BENZO(A)ANTHRACENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
BENZO(A)PYRENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
BENZO(B)FLUORANTHENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
BENZO(G,H,I)PERYLENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
BENZO(K)FLUORANTHENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
BIS(2-CHLOROETHOXY)METHANE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
BIS(2-CHLOROETHYL)ETHER	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
BUTYLBENZYLPHTHALATE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
CARBAZOLE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 UJ	NA	1,100 UJ	950 UJ	NA	1,000 UJ	830 U
CHRYSENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
DI-N-BUTYLPHTHALATE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB001	TLSSB001	TLSSB001	TLSSB002	TLSSB002	TLSSB002	TLSSB003	TLSSB003	TLSSB003	TLSSB004	TLSSB004	TLSSB004
Sample ID	281TLSSS001	281TLSSS002	281TLSSS003	281TLSSS004	281TLSSS005	281TLSSS006	281TLSSS007	281TLSSS008	281TLSSS009	281TLSSS010	281TLSSS011	281TLSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995
Sample Depth (in feet)	0.00 - 0.50	1.30 - 2.50	3.90 - 4.50	0.00 - 0.50	1.30 - 2.50	4.30 - 5.50	0.00 - 0.50	1.50 - 2.50	4.50 - 5.30	0.00 - 0.50	1.30 - 2.40	4.30 - 5.50
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
DIBENZ(A,H)ANTHRACENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
DIBENZOFURAN	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
DIETHYLPHTHALATE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
DIMETHYLPHTHALATE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
FLUORANTHENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
FLUORENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
HEXACHLOROBENZENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
HEXACHLOROBUTADIENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
HEXACHLOROCYCLOPENTADIENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
HEXACHLOROETHANE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
INDENO(1,2,3-CD)PYRENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
ISOPHORONE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
N-NITROSO-DI-N-PROPYLAMINE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
N-NITROSODIPHENYLAMINE (1)	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
NAPHTHALENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
NITROBENZENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
PENTACHLOROPHENOL	NA	2,700 U	4,000 U	NA	3,800 U	4,900 U	NA	2,900 U	2,400 U	NA	2,500 U	2,100 U
PHENANTHRENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
PHENOL	NA	1,100 U	11,000	NA	3,700	1,100 J	NA	1,100 U	720 J	NA	3,200	1,300
PYRENE	NA	1,100 U	1,600 U	NA	1,500 U	2,000 U	NA	1,100 U	950 U	NA	1,000 U	830 U
TOTAL HIGH MOLECULAR PAHS	NA	U	U	NA	U	U	NA	U	U	NA	1,300	U
TOTAL LOW MOLECULAR PAHS	NA	U	U	NA	U	U	NA	U	U	NA	U	U
TOTAL PAHS	NA	U	U	NA	U	U	NA	U	U	NA	1,300	U
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	12 J	NA	NA	3 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
2,4'-DDE	0.7 U	NA	NA	0.9 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
2,4'-DDT	1 J	NA	NA	0.4 U	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
4,4'-DDD	27	NA	NA	6	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
4,4'-DDE	6	NA	NA	6	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
4,4'-DDT	2	NA	NA	1 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
ALDRIN	2	NA	NA	1	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
ALPHA-CHLORDANE	4	NA	NA	5	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
DIELDRIN	2	NA	NA	2	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
GAMMA-BHC (LINDANE)	0.7 U	NA	NA	0.4 U	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
HEPTACHLOR	0.7 U	NA	NA	0.4 U	NA	NA	0.2 U	NA	NA	0.3 U	0.8	NA
HEPTACHLOR EPOXIDE	0.7 U	NA	NA	0.4 U	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
HEXACHLOROBENZENE	2	NA	NA	0.9	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
MIREX	0.5 J	NA	NA	0.5	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA

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Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB001	TLSSB001	TLSSB001	TLSSB002	TLSSB002	TLSSB002	TLSSB003	TLSSB003	TLSSB003	TLSSB004	TLSSB004	TLSSB004
Sample ID	281TLSSS001	281TLSSS002	281TLSSS003	281TLSSS004	281TLSSS005	281TLSSS006	281TLSSS007	281TLSSS008	281TLSSS009	281TLSSS010	281TLSSS011	281TLSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995
Sample Depth (in feet)	0.00 - 0.50	1.30 - 2.50	3.90 - 4.50	0.00 - 0.50	1.30 - 2.50	4.30 - 5.50	0.00 - 0.50	1.50 - 2.50	4.50 - 5.30	0.00 - 0.50	1.30 - 2.40	4.30 - 5.50
Low Level Pesticides (in µg/kg)												
PCB-101 (2,2',3,5,5')	1 J	NA	NA	2 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-105 (2,3,3',4,4')	1 J	NA	NA	2	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-118 (2,3',4,4',5)	2	NA	NA	4	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-126 (3,3',4,4',5)	0.7 U	NA	NA	0.4 U	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-128 (2,2',3,3',4,4')	0.8	NA	NA	0.8 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-138 (2,2',3,4,4',5')	3 J	NA	NA	3 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-153 (2,2',4,4',5,5')	2	NA	NA	2	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-170 (2,2',3,3',4,4',5)	0.7 U	NA	NA	0.5	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-18 (2,2',5)	0.7 U	NA	NA	2	NA	NA	0.2 U	NA	NA	0.3 U	0.2 J	NA
PCB-180 (2,2',3,4,4',5,5')	2 J	NA	NA	1 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-187 (2,2',3,4',5,5',6)	0.6 J	NA	NA	0.7 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-195 (2,2',3,3',4,4',5,6)	0.7 U	NA	NA	0.7 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-206 (2,2',3,3',4,4',5,5',6	0.7 U	NA	NA	0.3 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-209 (2,2',3,3',4,4',5,5',6	0.7 U	NA	NA	0.4 U	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-28 (2,4,4')	0.7 U	NA	NA	2	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-44 (2,2',3,5')	0.7 U	NA	NA	3 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 J	NA
PCB-52 (2,2',5,5')	0.7 J	NA	NA	2 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-66 (2,3',4,4')	3 J	NA	NA	4 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-77 (3,3',4,4')	1 J	NA	NA	1 J	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
PCB-8 (2,4')	0.7 U	NA	NA	0.4 U	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
TRANS-NONACHLOR	4	NA	NA	4	NA	NA	0.2 U	NA	NA	0.3 U	0.3 U	NA
TOTAL BHCS	U	NA	NA	U	NA	NA	U	NA	NA	U	NA	NA
TOTAL CHLORDANES	4	NA	NA	5	NA	NA	U	NA	NA	U	NA	NA
TOTAL DDTS	48	NA	NA	17	NA	NA	U	NA	NA	U	NA	NA
TOTAL PCBS	32	NA	NA	62	NA	NA	U	NA	NA	U	1	NA
Pesticides (in µg/kg)												
4,4'-DDD	NA	11 U	16 U	NA	16 U	20 U	NA	11 U	10 U	NA	10 U	8 U
4,4'-DDE	NA	11 U	16 U	NA	16 U	20 U	NA	11 U	10 U	NA	10 U	8 U
4,4'-DDT	NA	11 U	16 U	NA	16 U	20 U	NA	11 U	10 U	NA	10 U	8 U
ALDRIN	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
ALPHA-BHC	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
ALPHA-CHLORDANE	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
AROCLOR-1016	NA	110 U	160 U	NA	160 U	200 U	NA	110 U	95 U	NA	100 U	83 U
AROCLOR-1221	NA	220 U	320 U	NA	320 U	390 U	NA	230 U	190 U	NA	200 U	170 U
AROCLOR-1232	NA	110 U	160 U	NA	160 U	200 U	NA	110 U	95 U	NA	100 U	83 U
AROCLOR-1242	NA	110 U	160 U	NA	160 U	200 U	NA	110 U	95 U	NA	100 U	83 U
AROCLOR-1248	NA	110 U	160 U	NA	160 U	200 U	NA	110 U	95 U	NA	100 U	83 U
AROCLOR-1254	NA	110 U	160 U	NA	160 U	200 U	NA	110 U	95 U	NA	100 U	83 U

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB001	TLSSB001	TLSSB001	TLSSB002	TLSSB002	TLSSB002	TLSSB003	TLSSB003	TLSSB003	TLSSB004	TLSSB004	TLSSB004
Sample ID	281TLSSS001	281TLSSS002	281TLSSS003	281TLSSS004	281TLSSS005	281TLSSS006	281TLSSS007	281TLSSS008	281TLSSS009	281TLSSS010	281TLSSS011	281TLSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995
Sample Depth (in feet)	0.00 - 0.50	1.30 - 2.50	3.90 - 4.50	0.00 - 0.50	1.30 - 2.50	4.30 - 5.50	0.00 - 0.50	1.50 - 2.50	4.50 - 5.30	0.00 - 0.50	1.30 - 2.40	4.30 - 5.50
Pesticides (in µg/kg)												
AROCLOR-1260	NA	110 U	160 U	NA	160 U	200 U	NA	110 U	95 U	NA	100 U	83 U
BETA-BHC	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
DELTA-BHC	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
DIELDRIN	NA	11 U	16 U	NA	16 U	20 U	NA	11 U	10 U	NA	10 U	8 U
ENDOSULFAN I	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
ENDOSULFAN II	NA	11 U	16 U	NA	16 U	20 U	NA	11 U	10 U	NA	10 U	8 U
ENDOSULFAN SULFATE	NA	11 U	16 U	NA	16 U	20 U	NA	11 U	10 U	NA	10 U	8 U
ENDRIN	NA	11 U	16 U	NA	16 U	20 U	NA	11 U	10 U	NA	10 U	8 U
ENDRIN ALDEHYDE	NA	11 U	16 U	NA	16 U	20 U	NA	11 U	10 U	NA	10 U	8 U
ENDRIN KETONE	NA	11 U	16 U	NA	16 U	20 U	NA	11 U	10 U	NA	10 U	8 U
GAMMA-BHC (LINDANE)	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
GAMMA-CHLORDANE	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
HEPTACHLOR	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
HEPTACHLOR EPOXIDE	NA	5 U	8 U	NA	8 U	10 U	NA	6 U	5 U	NA	5 U	4 U
METHOXYCHLOR	NA	54 U	79 U	NA	79 U	98 U	NA	57 U	48 U	NA	51 U	42 U
TOXAPHENE	NA	540 U	790 U	NA	790 U	980 U	NA	570 U	480 U	NA	510 U	420 U
TOTAL BHCS	NA	U	U	NA	U	U	NA	U	U	NA	U	U
TOTAL CHLORDANES	NA	U	U	NA	U	U	NA	U	U	NA	U	U
TOTAL DDTS	NA	U	U	NA	U	U	NA	U	U	NA	U	U
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
1,3-DINITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-TRINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4-DINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,6-DINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	120 UJ	120 U	120 U	120 UJ
3-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
4-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 UJ	120 U	120 U	120 UJ	120 U	120 U	120 UJ
HMX	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
NITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
RDX	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
TETRYL	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
CLP Metals (in mg/Kg)												
ALUMINUM	23,700	12,200	9,930	14,100	15,900	4,370	20,100	23,500	29,400	21,300	27,400	26,500
ANTIMONY	1.6 U	1.4 UJ	2.0 UJ	2.5 U	2.0 UJ	2.5 UJ	2.1 U	1.5 UJ	1.7 U	3.5 U	3.7 U	2.4 U
ARSENIC	10.3 *	2.9 *	11.8 *	18.1 *	8.8 *	6.6 *	10.0 *	16.8 *	8.4 *	20.4 *	27.7 *	5.8 *
BARIUM	114	70.3	60.7	171	76.5	26.0	165	45.5	52.6	436	68.8	47.8
BERYLLIUM	0.16	0.070 U	0.090 U	0.060 U	0.090 U	0.12 U	0.51	0.080 U	0.060 U	0.060 U	0.56	0.050 U
CADMIUM	0.060 U	0.13 U	0.19 U	5.8	2.6	0.23 U	0.060 U	2.6	0.11 U	0.11 U	0.74	0.10 U

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07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB001	TLSSB001	TLSSB001	TLSSB002	TLSSB002	TLSSB002	TLSSB003	TLSSB003	TLSSB003	TLSSB004	TLSSB004	TLSSB004
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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995	07/31/1995
Sample Depth (in feet)	0.00 - 0.50	1.30 - 2.50	3.90 - 4.50	0.00 - 0.50	1.30 - 2.50	4.30 - 5.50	0.00 - 0.50	1.50 - 2.50	4.50 - 5.30	0.00 - 0.50	1.30 - 2.40	4.30 - 5.50
CLP Metals (in mg/Kg)												
CALCIUM	4,200	8,900	9,850	13,100	9,940	10,100	3,960	6,970	4,890	6,280	6,640	4,620
CHROMIUM	82.7	33.3	29.3	40.0	41.9	14.2 U	61.5	55.7	92.5	59.9	75.0	82.9
COBALT	19.0	8.1	10.2	16.4	33.5	5.2	14.6	13.6	17.0	15.3	7.7	17.4
COPPER	42.1	19.6	37.8	117	17.8	25.5	55.9	25.7	32.6	101	47.2	27.0
IRON	37,300 *	8,110	13,400	21,800	18,000	16,000	30,200 *	12,900	32,200 *	50,000 *	14,300	28,700 *
LEAD	19.7	14.6	24.9	152 *	6.7 U	3.6 U	49.1	12.3	10.3	82.6	20.9	9.7
MAGNESIUM	13,300	7,450	11,700	10,900	18,700	15,600	10,700	15,800	16,300	13,500	14,700	15,600
MANGANESE	394	140	152	692	410	75.1	309	325	333	472	217	413
MERCURY	0.090	0.16 U	0.23 U	0.14 U	0.23 U	0.29 U	0.14	0.19	0.14 U	0.48	0.16	0.13 U
MOLYBDENUM	0.26 U	4.6 U	8.1 U	3.7 U	6.5 U	7.7 U	1.3 U	6.7 U	1.9 U	3.2 U	8.5 U	1.7 U
NICKEL	80.1	66.4	72.7	131	103	24.7	72.1	94.0	79.1	81.5	80.5	92.5
POTASSIUM	4,940 J	3,290 J	4,500 J	4,050 J	4,840 J	3,250 J	3,800 J	6,040 J	7,320 J	6,710 J	6,940 J	6,800 J
SELENIUM	1.0 U	2.2 U	3.2 U	2.1 U	3.2 U	4.0 U	1.0 U	2.4 U	1.9 U	1.9 U	2.1 U	1.7 U
SILVER	0.18 U	0.39 U	0.74 U	0.93 U	0.56 U	0.86 U	0.18 U	0.42 U	0.34 U	0.34 U	0.37 U	0.30 U
SODIUM	4,830	23,200	46,000	27,200	64,600	57,100	6,730	58,300	26,000	46,700	48,100	30,900
THALLIUM	0.59 U	1.6 U	1.9 U	1.1 U	1.9 U	2.3 U	0.59 U	1.4 U	1.1 U	1.1 U	1.2 U	1.0 U
VANADIUM	75.1	55.5	49.4	69.9	63.0	29.6	63.7	71.6	100	92.4	89.5	81.5
ZINC	113 J	46.4 J	50.1 J	743 J	109 J	51.5 U	238 J	164 J	100 J	137 J	93.8 J	90.2 J
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	17.0 U	25.7 U	28.0 U	31.4 U	63.6 U	60.7 U	15.0 U	30.3 U	26.8 U	18.6 U	21.7 U	27.1 U
TOTAL ORGANIC CARBON	43,700 J	325,000 J	97,100 J	221,000 J	412,000 J	320,000 J	12,200 J	95,000 J	58,500 J	14,400 J	92,600 J	57,900 J
Percent Moisture (percent)												
PERCENT MOISTURE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERCENT SOLIDS	68.2	30.6	21.5	35.6	21.5	17.1	68.3	28.8	34.9	35.5	32.6	39.8
Miscellaneous												
PH	5	5	5.1	6.3	7.5	7.7	6.1	6.4	8	5.6	5.9	7.5

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB005	TLSSB005	TLSSB005	TLSSB006	TLSSB006	TLSSB006	TLSSB007	TLSSB007	TLSSB007	TLSSB008	TLSSB008	TLSSB008
Sample ID	281TLSSS013	281TLSSS014	281TLSSS015	281TLSSS016	281TLSSS017	281TLSSS018	281TLSSS019	281TLSSS020	281TLSSS021	281TLSSS022	281TLSSS023	281TLSSS024
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995
Sample Depth (in feet)	0.00 - 0.50	0.90 - 2.00	4.50 - 5.80	0.00 - 0.50	1.30 - 2.00	4.50 - 6.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	0.00 - 0.50	1.50 - 2.70	4.50 - 5.70
Volatiles (in µg/kg)												
1,1,1-TRICHLOROETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
1,1,2,2-TETRACHLOROETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
1,1,2-TRICHLOROETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
1,1-DICHLOROETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
1,1-DICHLOROETHENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
1,2-DICHLOROETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
1,2-DICHLOROETHENE (TOTAL)	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
1,2-DICHLOROPROPANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
2-BUTANONE	NA	30 UJ	33 UJ	NA	17 UJ	17 UJ	NA	200 U	50 UJ	NA	55 U	20 UJ
2-HEXANONE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
4-METHYL-2-PENTANONE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
ACETONE	NA	110 U	100 U	NA	110 U	100 U	NA	580 J	190 U	NA	240 J	130 U
BENZENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
BROMODICHLOROMETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
BROMOFORM	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
BROMOMETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
CARBON DISULFIDE	NA	30 U	23 J	NA	17 U	17 U	NA	97	33 J	NA	18 U	10 J
CARBON TETRACHLORIDE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
CHLOROBENZENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
CHLOROETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
CHLOROFORM	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
CHLOROMETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
CIS-1,3-DICHLOROPROPENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
DIBROMOCHLOROMETHANE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
ETHYLBENZENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
METHYLENE CHLORIDE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
STYRENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
TETRACHLOROETHENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
TOLUENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
TRANS-1,3-DICHLOROPROPENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
TRICHLOROETHENE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
VINYL CHLORIDE	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
XYLENE (TOTAL)	NA	30 U	33 U	NA	17 U	17 U	NA	40 U	50 U	NA	18 U	20 U
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
1,2,4-TRICHLOROBENZENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
1,2-DICHLOROBENZENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
1,3-DICHLOROBENZENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA

Notes:

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Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB005	TLSSB005	TLSSB005	TLSSB006	TLSSB006	TLSSB006	TLSSB007	TLSSB007	TLSSB007	TLSSB008	TLSSB008	TLSSB008
Sample ID	281TLSSS013	281TLSSS014	281TLSSS015	281TLSSS016	281TLSSS017	281TLSSS018	281TLSSS019	281TLSSS020	281TLSSS021	281TLSSS022	281TLSSS023	281TLSSS024
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995
Sample Depth (in feet)	0.00 - 0.50	0.90 - 2.00	4.50 - 5.80	0.00 - 0.50	1.30 - 2.00	4.50 - 6.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	0.00 - 0.50	1.50 - 2.70	4.50 - 5.70
Low Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
1-METHYLNAPHTHALENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
1-METHYLPHENANTHRENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2,4,5-TRICHLOROPHENOL	340 U	NA	NA	850 U	NA	NA	NA	NA	NA	790 U	NA	NA
2,4,6-TRICHLOROPHENOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2,4-DICHLOROPHENOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2,4-DIMETHYLPHENOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2,4-DINITROPHENOL	340 U	NA	NA	850 U	NA	NA	NA	NA	NA	790 U	NA	NA
2,4-DINITROTOLUENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2,6-DIMETHYLNAPHTHALENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2,6-DINITROTOLUENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2-CHLORONAPHTHALENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2-CHLOROPHENOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2-METHYLNAPHTHALENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2-METHYLPHENOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
2-NITROANILINE	340 U	NA	NA	850 U	NA	NA	NA	NA	NA	790 U	NA	NA
2-NITROPHENOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
3,3'-DICHLOROBENZIDINE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
3-NITROANILINE	340 U	NA	NA	850 U	NA	NA	NA	NA	NA	790 U	NA	NA
4,6-DINITRO-2-METHYLPHENOL	340 U	NA	NA	850 U	NA	NA	NA	NA	NA	790 U	NA	NA
4-BROMOPHENYL-PHENYLETHER	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
4-CHLORO-3-METHYLPHENOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
4-CHLOROANILINE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
4-CHLOROPHENYL-PHENYLETHER	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
4-METHYLPHENOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
4-NITROANILINE	340 U	NA	NA	850 U	NA	NA	NA	NA	NA	790 U	NA	NA
4-NITROPHENOL	340 U	NA	NA	850 U	NA	NA	NA	NA	NA	790 U	NA	NA
ACENAPHTHENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
ACENAPHTHYLENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
ANTHRACENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
BENZO(A)ANTHRACENE	130 U	NA	NA	38 J	NA	NA	NA	NA	NA	41 J	NA	NA
BENZO(A)PYRENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
BENZO(B)FLUORANTHENE	130 U	NA	NA	50 J	NA	NA	NA	NA	NA	85 J	NA	NA
BENZO(E)PYRENE	130 U	NA	NA	47 J	NA	NA	NA	NA	NA	47 J	NA	NA
BENZO(G,H,I)PERYLENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
BENZO(K)FLUORANTHENE	130 U	NA	NA	41 J	NA	NA	NA	NA	NA	53 J	NA	NA
BENZOIC ACID	14 J	NA	NA	100 J	NA	NA	NA	NA	NA	43 J	NA	NA

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07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB005	TLSSB005	TLSSB005	TLSSB006	TLSSB006	TLSSB006	TLSSB007	TLSSB007	TLSSB007	TLSSB008	TLSSB008	TLSSB008
Sample ID	281TLSSS013	281TLSSS014	281TLSSS015	281TLSSS016	281TLSSS017	281TLSSS018	281TLSSS019	281TLSSS020	281TLSSS021	281TLSSS022	281TLSSS023	281TLSSS024
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995
Sample Depth (in feet)	0.00 - 0.50	0.90 - 2.00	4.50 - 5.80	0.00 - 0.50	1.30 - 2.00	4.50 - 6.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	0.00 - 0.50	1.50 - 2.70	4.50 - 5.70
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
BIS(2-CHLOROETHOXY)METHANE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
BIS(2-CHLOROETHYL)ETHER	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
BUTYLBENZYLPHTHALATE	130 U	NA	NA	45 J	NA	NA	NA	NA	NA	320 U	NA	NA
CARBAZOLE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
CHRYSENE	130 U	NA	NA	72 J	NA	NA	NA	NA	NA	110 J	NA	NA
DI-N-BUTYLPHTHALATE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
DI-N-OCTYLPHTHALATE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
DIBENZ(A,H)ANTHRACENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
DIBENZOFURAN	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
DIBENZOTHIOPHENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
DIETHYLPHTHALATE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
DIMETHYLPHTHALATE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
FLUORANTHENE	130 U	NA	NA	99 J	NA	NA	NA	NA	NA	110 J	NA	NA
FLUORENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
HEXACHLOROBENZENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
HEXACHLOROBUTADIENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
HEXACHLOROCYCLOPENTADIENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
HEXACHLOROETHANE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
INDENO(1,2,3-CD)PYRENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
ISOPHORONE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
N-NITROSODIPHENYLAMINE (1)	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
NAPHTHALENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
NITROBENZENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
PENTACHLOROPHENOL	340 U	NA	NA	850 U	NA	NA	NA	NA	NA	790 U	NA	NA
PERYLENE	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
PHENANTHRENE	130 U	NA	NA	40 J	NA	NA	NA	NA	NA	41 J	NA	NA
PHENOL	130 U	NA	NA	340 U	NA	NA	NA	NA	NA	320 U	NA	NA
PYRENE	130 U	NA	NA	78 J	NA	NA	NA	NA	NA	92 J	NA	NA
TOTAL HIGH MOLECULAR PAHS	U	NA	NA	430	NA	NA	NA	NA	NA	540	NA	NA
TOTAL LOW MOLECULAR PAHS	U	NA	NA	40	NA	NA	NA	NA	NA	41	NA	NA
TOTAL PAHS	U	NA	NA	470	NA	NA	NA	NA	NA	580	NA	NA
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
1,2-DICHLOROBENZENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
1,3-DICHLOROBENZENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
1,4-DICHLOROBENZENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U

Notes:

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07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB005	TLSSB005	TLSSB005	TLSSB006	TLSSB006	TLSSB006	TLSSB007	TLSSB007	TLSSB007	TLSSB008	TLSSB008	TLSSB008
Sample ID	281TLSSS013	281TLSSS014	281TLSSS015	281TLSSS016	281TLSSS017	281TLSSS018	281TLSSS019	281TLSSS020	281TLSSS021	281TLSSS022	281TLSSS023	281TLSSS024
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995
Sample Depth (in feet)	0.00 - 0.50	0.90 - 2.00	4.50 - 5.80	0.00 - 0.50	1.30 - 2.00	4.50 - 6.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	0.00 - 0.50	1.50 - 2.70	4.50 - 5.70
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
2,4,5-TRICHLOROPHENOL	NA	2,500 U	2,800 U	NA	1,400 U	1,400 U	NA	3,300 U	4,200 U	NA	1,500 U	1,700 U
2,4,6-TRICHLOROPHENOL	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
2,4-DICHLOROPHENOL	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
2,4-DIMETHYLPHENOL	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
2,4-DINITROPHENOL	NA	2,500 U	2,800 U	NA	1,400 U	1,400 U	NA	3,300 U	4,200 U	NA	1,500 U	1,700 U
2,4-DINITROTOLUENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
2,6-DINITROTOLUENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
2-CHLORONAPHTHALENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
2-CHLOROPHENOL	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
2-METHYLNAPHTHALENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
2-METHYLPHENOL	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
2-NITROANILINE	NA	2,500 U	2,800 U	NA	1,400 U	1,400 U	NA	3,300 U	4,200 U	NA	1,500 U	1,700 U
2-NITROPHENOL	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
3,3'-DICHLOROBENZIDINE	NA	1,000 U	1,100 U	NA	560 UJ	560 UJ	NA	1,300 UJ	1,700 U	NA	600 UJ	670 UJ
3-NITROANILINE	NA	2,500 U	2,800 U	NA	1,400 U	1,400 U	NA	3,300 U	4,200 U	NA	1,500 U	1,700 U
4,6-DINITRO-2-METHYLPHENOL	NA	2,500 U	2,800 U	NA	1,400 U	1,400 U	NA	3,300 U	4,200 U	NA	1,500 U	1,700 U
4-BROMOPHENYL-PHENYLETHER	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
4-CHLORO-3-METHYLPHENOL	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
4-CHLOROANILINE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
4-CHLOROPHENYL-PHENYLETHER	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
4-METHYLPHENOL	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
4-NITROANILINE	NA	2,500 U	2,800 U	NA	1,400 U	1,400 U	NA	3,300 U	4,200 U	NA	1,500 U	1,700 U
4-NITROPHENOL	NA	2,500 U	2,800 U	NA	1,400 U	1,400 U	NA	3,300 U	4,200 U	NA	1,500 U	1,700 U
ACENAPHTHENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
ACENAPHTHYLENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
ANTHRACENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
BENZO(A)ANTHRACENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
BENZO(A)PYRENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
BENZO(B)FLUORANTHENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
BENZO(G,H,I)PERYLENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
BENZO(K)FLUORANTHENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
BIS(2-CHLOROETHOXY)METHANE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
BIS(2-CHLOROETHYL)ETHER	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	1,000 U	1,600 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
BUTYLBENZYLPHTHALATE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
CARBAZOLE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
CHRYSENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
DI-N-BUTYLPHTHALATE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB005	TLSSB005	TLSSB005	TLSSB006	TLSSB006	TLSSB006	TLSSB007	TLSSB007	TLSSB007	TLSSB008	TLSSB008	TLSSB008
Sample ID	281TLSSS013	281TLSSS014	281TLSSS015	281TLSSS016	281TLSSS017	281TLSSS018	281TLSSS019	281TLSSS020	281TLSSS021	281TLSSS022	281TLSSS023	281TLSSS024
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995
Sample Depth (in feet)	0.00 - 0.50	0.90 - 2.00	4.50 - 5.80	0.00 - 0.50	1.30 - 2.00	4.50 - 6.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	0.00 - 0.50	1.50 - 2.70	4.50 - 5.70
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
DIBENZ(A,H)ANTHRACENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
DIBENZOFURAN	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
DIETHYLPHTHALATE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
DIMETHYLPHTHALATE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
FLUORANTHENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
FLUORENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
HEXACHLOROBENZENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
HEXACHLOROBUTADIENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
HEXACHLOROCYCLOPENTADIENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
HEXACHLOROETHANE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
INDENO(1,2,3-CD)PYRENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
ISOPHORONE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
N-NITROSO-DI-N-PROPYLAMINE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
N-NITROSODIPHENYLAMINE (1)	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
NAPHTHALENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
NITROBENZENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
PENTACHLOROPHENOL	NA	2,500 U	2,800 U	NA	1,400 U	1,400 U	NA	3,300 U	4,200 U	NA	1,500 U	1,700 U
PHENANTHRENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 U	1,700 U	NA	600 U	670 U
PHENOL	NA	1,000 U	1,100 U	NA	450 J	560 U	NA	3,100	1,700 U	NA	600 U	670 U
PYRENE	NA	1,000 U	1,100 U	NA	560 U	560 U	NA	1,300 UJ	1,700 U	NA	600 U	670 U
TOTAL HIGH MOLECULAR PAHS	NA	U	U	NA	U	U	NA	U	U	NA	U	U
TOTAL LOW MOLECULAR PAHS	NA	U	U	NA	U	U	NA	U	U	NA	U	U
TOTAL PAHS	NA	U	U	NA	U	U	NA	U	U	NA	U	U
Low level Pesticides (in µg/Kg)												
2,4'-DDD	5	NA	NA	2	NA	NA	NA	NA	NA	0.7 J	NA	NA
2,4'-DDE	0.6	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
2,4'-DDT	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
4,4'-DDD	9	NA	NA	3	NA	NA	NA	NA	NA	2	NA	NA
4,4'-DDE	2	NA	NA	3	NA	NA	NA	NA	NA	2	NA	NA
4,4'-DDT	1	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.7	NA	NA
ALDRIN	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
ALPHA-CHLORDANE	2	NA	NA	2	NA	NA	NA	NA	NA	4	NA	NA
DIELDRIN	0.5	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
GAMMA-BHC (LINDANE)	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
HEPTACHLOR	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.6	NA	NA
HEPTACHLOR EPOXIDE	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
HEXACHLOROBENZENE	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
MIREX	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA

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07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB005	TLSSB005	TLSSB005	TLSSB006	TLSSB006	TLSSB006	TLSSB007	TLSSB007	TLSSB007	TLSSB008	TLSSB008	TLSSB008
Sample ID	281TLSSS013	281TLSSS014	281TLSSS015	281TLSSS016	281TLSSS017	281TLSSS018	281TLSSS019	281TLSSS020	281TLSSS021	281TLSSS022	281TLSSS023	281TLSSS024
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995
Sample Depth (in feet)	0.00 - 0.50	0.90 - 2.00	4.50 - 5.80	0.00 - 0.50	1.30 - 2.00	4.50 - 6.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	0.00 - 0.50	1.50 - 2.70	4.50 - 5.70
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	0.6	NA	NA	0.7	NA	NA	NA	NA	NA	0.3 J	NA	NA
PCB-105 (2,3,3',4,4')	0.4	NA	NA	0.5	NA	NA	NA	NA	NA	0.4 J	NA	NA
PCB-118 (2,3',4,4',5)	0.6	NA	NA	0.9	NA	NA	NA	NA	NA	0.4 J	NA	NA
PCB-126 (3,3',4,4',5)	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
PCB-128 (2,2',3,3',4,4')	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
PCB-138 (2,2',3,4,4',5')	0.9	NA	NA	2	NA	NA	NA	NA	NA	0.7 J	NA	NA
PCB-153 (2,2',4,4',5,5')	0.6	NA	NA	0.9	NA	NA	NA	NA	NA	1 J	NA	NA
PCB-170 (2,2',3,3',4,4',5)	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
PCB-18 (2,2',5)	0.3	NA	NA	0.4	NA	NA	NA	NA	NA	0.3 U	NA	NA
PCB-180 (2,2',3,4,4',5,5')	0.6	NA	NA	0.6	NA	NA	NA	NA	NA	1	NA	NA
PCB-187 (2,2',3,4',5,5',6)	0.2 J	NA	NA	0.2 J	NA	NA	NA	NA	NA	0.5	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	0.5	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.5 J	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
PCB-28 (2,4,4')	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
PCB-44 (2,2',3,5')	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
PCB-52 (2,2',5,5')	0.2 J	NA	NA	0.5	NA	NA	NA	NA	NA	0.3 U	NA	NA
PCB-66 (2,3',4,4')	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 UJ	NA	NA
PCB-77 (3,3',4,4')	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.2 J	NA	NA
PCB-8 (2,4')	0.3 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA
TRANS-NONACHLOR	0.8	NA	NA	1	NA	NA	NA	NA	NA	3	NA	NA
TOTAL BHCS	U	NA	NA	U	NA	NA	NA	NA	NA	U	NA	NA
TOTAL CHLORDANES	2	NA	NA	2	NA	NA	NA	NA	NA	4	NA	NA
TOTAL DDTS	17	NA	NA	8	NA	NA	NA	NA	NA	5	NA	NA
TOTAL PCBS	10	NA	NA	13	NA	NA	NA	NA	NA	10	NA	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	10 U	11 U	NA	6 U	6 U	NA	13 U	17 U	NA	6 U	7 U
4,4'-DDE	NA	10 U	11 U	NA	6 U	6 U	NA	13 U	17 U	NA	6 U	7 U
4,4'-DDT	NA	10 U	11 U	NA	6 U	6 U	NA	13 U	17 U	NA	6 U	7 U
ALDRIN	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
ALPHA-BHC	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
ALPHA-CHLORDANE	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
AROCLOR-1016	NA	100 U	110 U	NA	56 U	56 U	NA	130 U	170 U	NA	60 U	67 U
AROCLOR-1221	NA	200 U	220 U	NA	110 U	110 U	NA	270 U	330 U	NA	120 U	130 U
AROCLOR-1232	NA	100 U	110 U	NA	56 U	56 U	NA	130 U	170 U	NA	60 U	67 U
AROCLOR-1242	NA	100 U	110 U	NA	56 U	56 U	NA	130 U	170 U	NA	60 U	67 U
AROCLOR-1248	NA	100 U	110 U	NA	56 U	56 U	NA	130 U	170 U	NA	60 U	67 U
AROCLOR-1254	NA	100 U	110 U	NA	56 U	56 U	NA	130 U	170 U	NA	60 U	67 U

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07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB005	TLSSB005	TLSSB005	TLSSB006	TLSSB006	TLSSB006	TLSSB007	TLSSB007	TLSSB007	TLSSB008	TLSSB008	TLSSB008
Sample ID	281TLSSS013	281TLSSS014	281TLSSS015	281TLSSS016	281TLSSS017	281TLSSS018	281TLSSS019	281TLSSS020	281TLSSS021	281TLSSS022	281TLSSS023	281TLSSS024
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995
Sample Depth (in feet)	0.00 - 0.50	0.90 - 2.00	4.50 - 5.80	0.00 - 0.50	1.30 - 2.00	4.50 - 6.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	0.00 - 0.50	1.50 - 2.70	4.50 - 5.70
Pesticides (in µg/Kg)												
AROCLOR-1260	NA	100 U	110 U	NA	56 U	56 U	NA	130 U	170 U	NA	60 U	67 U
BETA-BHC	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
DELTA-BHC	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
DIELDRIN	NA	10 U	11 U	NA	6 U	6 U	NA	13 U	17 U	NA	6 U	7 U
ENDOSULFAN I	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
ENDOSULFAN II	NA	10 U	11 U	NA	6 U	6 U	NA	13 U	17 U	NA	6 U	7 U
ENDOSULFAN SULFATE	NA	10 U	11 U	NA	6 U	6 U	NA	13 U	17 U	NA	6 U	7 U
ENDRIN	NA	10 U	11 U	NA	6 U	6 U	NA	13 U	17 U	NA	6 U	7 U
ENDRIN ALDEHYDE	NA	10 U	11 U	NA	6 U	6 U	NA	13 U	17 U	NA	6 U	7 U
ENDRIN KETONE	NA	10 U	11 U	NA	6 U	6 U	NA	13 U	17 U	NA	6 U	7 U
GAMMA-BHC (LINDANE)	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
GAMMA-CHLORDANE	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
HEPTACHLOR	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
HEPTACHLOR EPOXIDE	NA	5 U	6 U	NA	3 U	3 U	NA	7 U	8 U	NA	3 U	3 U
METHOXYCHLOR	NA	51 U	56 U	NA	28 U	28 U	NA	67 U	83 U	NA	30 U	33 U
TOXAPHENE	NA	510 U	560 U	NA	280 U	280 U	NA	670 U	830 U	NA	300 U	330 U
TOTAL BHCS	NA	U	U	NA	U	U	NA	U	U	NA	U	U
TOTAL CHLORDANES	NA	U	U	NA	U	U	NA	U	U	NA	U	U
TOTAL DDTS	NA	U	U	NA	U	U	NA	U	U	NA	U	U
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
1,3-DINITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-TRINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4-DINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,6-DINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
3-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
4-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
HMX	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
NITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
RDX	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
TETRYL	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
CLP Metals (in mg/Kg)												
ALUMINUM	21,100	20,800	11,400	22,200	25,700	23,100	5,470	14,600	12,600	9,580	26,600	24,000
ANTIMONY	0.62 U	1.3 U	1.4 U	2.5 J	1.8 J	0.71 U	3.1 J	1.7 U	2.1 U	0.67 U	1.6 J	1.2 J
ARSENIC	11.6 *	12.4 *	6.6 *	7.7 *	8.4 *	11.1 *	57.6 *	11.2 *	5.7 *	11.5 *	42.7 *	17.2 *
BARIUM	103	65.6	45.3	99.0	91.4	90.5	340	52.3	35.7	148	57.6	67.2
BERYLLIUM	0.050 U	0.060 U	0.070 U	0.050 U	0.030 U	0.030 U	0.050 U	0.11 U	0.10 U	0.030 U	0.040 U	0.040 U
CADMIUM	3.2	0.14 U	0.13 U	0.10 U	0.070 U	0.070 U	0.11 U	0.16 U	0.20 U	0.060 U	0.070 U	0.080 U

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07/12/03

Table B-1
Site 1 - Tidal Area Landfill
Soil Analytical Results

Point ID	TLSSB005	TLSSB005	TLSSB005	TLSSB006	TLSSB006	TLSSB006	TLSSB007	TLSSB007	TLSSB007	TLSSB008	TLSSB008	TLSSB008
Sample ID	281TLSSS013	281TLSSS014	281TLSSS015	281TLSSS016	281TLSSS017	281TLSSS018	281TLSSS019	281TLSSS020	281TLSSS021	281TLSSS022	281TLSSS023	281TLSSS024
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995	08/01/1995
Sample Depth (in feet)	0.00 - 0.50	0.90 - 2.00	4.50 - 5.80	0.00 - 0.50	1.30 - 2.00	4.50 - 6.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	0.00 - 0.50	1.50 - 2.70	4.50 - 5.70
CLP Metals (in mg/Kg)												
CALCIUM	3,790	7,190	5,440	5,590	5,040	4,990	3,850	8,190	6,390	2,840	4,280	4,150
CHROMIUM	72.6	68.9	41.0	55.7	83.4	78.6	24.3	49.2	39.0	27.3	1.8	88.0
COBALT	14.5	8.3	29.4	13.5	18.4	24.8	5.8	12.6	8.4	5.5	29.4	26.5
COPPER	32.2	24.7	20.9	66.8	36.0	33.9	264	30.7	21.4	31.8	41.8	39.4
IRON	41,700 *	20,300	21,800	31,300 *	38,500 *	37,000 *	34,400 *	22,000	14,800	11,900	31,000 *	40,900 *
LEAD	23.9 J	10.2 J	5.3 J	54.0 J	11.4 J	10.9 J	156 J *	5.8 J	5.3 J	31.2 J	15.9 J	12.8 J
MAGNESIUM	11,900	14,400	11,300	13,900	14,800	15,100	3,920	13,900	11,300	5,210	12,500	14,300
MANGANESE	351	312	301	332	1,000	843	109	246	163	129	280	342
MERCURY	0.15 U	0.15 U	0.16 U	0.19 U	0.080 U	0.080 U	0.38	0.20 U	0.25 U	0.18 U	0.090 U	0.10 U
MOLYBDENUM	0.60 U	4.2	2.5	3.3	0.30 U	0.31 U	3.7	3.7	3.4	1.5	0.89 U	0.36 U
NICKEL	67.9	67.5	81.1	36.2	78.1	105	24.8	61.7	46.1	30.1	100	99.7
POTASSIUM	4,400 J	5,860 J	3,480 J	6,610 J	4,730 J	4,490 J	1,790 J	4,140 J	3,630 J	2,410 J	5,240 J	5,300 J
SELENIUM	1.0 U	2.1 U	3.0 U	2.2 U	1.1 U	1.2 U	1.8 U	2.9 U	3.4 U	1.1 U	1.2 U	1.4 U
SILVER	0.18 U	0.36 U	0.39 U	0.31 U	0.20 U	0.20 U	1.2	0.49 U	0.59 U	0.19 U	0.21 U	0.24 U
SODIUM	4,520	32,900	28,500	22,800	11,300	11,600	10,200	34,600	25,300	5,330	6,760	8,340
THALLIUM	0.59 U	2.2 J	1.3 U	1.0 U	1.2	1.7	1.1 U	1.6 U	2.0 U	0.64 U	0.71 U	0.80 U
VANADIUM	66.6	83.9	59.1	108	76.0	72.4	43.6	68.3	55.0	44.8	79.2	80.6
ZINC	307	127	64.1	163	98.7	92.3	258	56.3	60.5	70.6	144	102
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	7.0 UJ	50.0 U	50.0 U	50.0 U
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	20.0 U	31.3 U	31.4 U	3,370 J	124 J	79.3 J	19.8 U	30.7 U	36.7 U	41.1 J	18.1 U	20.5 U
TOTAL ORGANIC CARBON	26,300	135,000	96,200	60,900	28,400	19,500	92,000	132,000	122,000	46,700	14,800	21,400
Percent Moisture (percent)												
PERCENT MOISTURE	51.0	67.0	70.0	61.0	40.0	41.0	NA	75.0	80.0	48.0	44.0	50.0
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	7.6	6.8	7	7.8	7	7	4.6	5.4	6.95	7.3	5.9	6.6

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

APPENDIX C

ANALYTICAL DATA TABLES – TIDAL AREA R AREA DISPOSAL SITE

LIST OF TABLES

Table

C-1 ANALYTICAL RESULTS FOR SOIL, R AREA DISPOSAL SITE (SITE 2)

C-2 ANALYTICAL RESULTS FOR SURFACE WATER, R AREA DISPOSAL SITE (SITE 2)

C-3 ANALYTICAL RESULTS FOR TISSUE, R AREA DISPOSAL SITE (SITE 2)

Notes:

Point ID	Location of the sample.
Sample ID	Number assigned before the sample is sent to the analytical laboratory. The sample ID is separate from the point (location) ID to ensure that samples are sent blind to the laboratory.
Matrix	Sample media (soil, sediment, surface water, tissue).
Sample Date	Date of sample collection.
Sample Depth	Depth, in feet below ground surface (bgs). Soil or sediment samples collected from a depth of 0 to 0.5 feet bgs are considered surface soil or sediment, and samples collected below 0.5 feet bgs are considered subsurface samples. Surface water samples are collected at a depth of 0 feet bgs.
Result	Listed by analytical group; the concentration shown is the detected concentration. When the sample is not detected, the detection limit is shown.
Detection Limit	The detection limit achieved by the laboratory that is specific to the sample and analyte. The detection limit is different from the sample quantitation limit, which is not sample-specific and instead applies to the methodology.

TABLE C-1

ANALYTICAL RESULTS FOR SOIL
R AREA DISPOSAL (SITE 2)

R AREA SOIL DATASET FOR TABLE C-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SOIL	RADSB001	281RADSS025	2-Aug-95	0	0.5
SOIL	RADSB002	281RADSS019	2-Aug-95	0	0.5
SOIL	RADSB003	281RADSS026	2-Aug-95	0	0.5
SOIL	RADSB004	281RADSS018	2-Aug-95	0	0.5
SOIL	RADSB005	281RADSS027	2-Aug-95	0	0.5
SOIL	RADSB006	281RADSS012	27-Jul-95	0	0.5
SOIL	RADSB007	281RADSS020	2-Aug-95	0	0.5
SOIL	RADSB008	281RADSS013	27-Jul-95	0	0.5
SOIL	RADSB009	281RADSS042	3-Aug-95	0	0.5
SOIL	RADSB010	281RADSS120	23-Aug-95	0	0.5
SOIL	RADSB011	281RADSS119	23-Aug-95	0	0.5
SOIL	RADSB012	281RADSS014	27-Jul-95	0	0.5
SOIL	RADSB013	281RADSS015	27-Jul-95	0	0.5
SOIL	RADSB014	281RADSS147	28-Aug-95	0	0.5
SOIL	RADSB015	281RADSS148	28-Aug-95	0	0.5
SOIL	RADSB016	281RADSS024	2-Aug-95	0	0.5
SOIL	RADSB017	281RADSS034	3-Aug-95	0	0.5
SOIL	RADSB018	281RADSS049	4-Aug-95	0	0.5
SOIL	RADSB019	281RADSS055	4-Aug-95	0	0.5
SOIL	RADSB020	281RADSS096	21-Aug-95	0	0.5
SOIL	RADSB021	281RADSS115	22-Aug-95	0	0.5
SOIL	RADSB022	281RADSS114	22-Aug-95	0	0.5
SOIL	RADSB023	281RADSS127	23-Aug-95	0	0.5
SOIL	RADSB024	281RADSS101	22-Aug-95	0	0.5
SOIL	RADSB025	281RADSS134	23-Aug-95	0	0.5
SOIL	RADSB026	281RADSS136	23-Aug-95	0	0.5
SOIL	RADSB027	281RADSS007	27-Jul-95	0	0.5
SOIL	RADSB028	281RADSS084	23-Aug-95	0	0.5
SOIL	RADSB029	281RADSS109	22-Aug-95	0	0.5
SOIL	RADSB030	281RADSS151	28-Aug-95	0	0.5
SOIL	RADSBA01	281RADSS021	2-Aug-95	0	0.5
SOIL	RADSBA02	281RADSS022	2-Aug-95	0	0.5
SOIL	RADSBA03	281RADSS023	2-Aug-95	0	0.5
SOIL	RADSBA04	281RADSS032	3-Aug-95	0	0.5
SOIL	RADSBA05	281RADSS031	3-Aug-95	0	0.5
SOIL	RADSBA06	281RADSS030	3-Aug-95	0	0.5
SOIL	RADSBA07	281RADSS029	3-Aug-95	0	0.5
SOIL	RADSBA08	281RADSS028	3-Aug-95	0	0.5
SOIL	RADSBB01	281RADSS149	28-Aug-95	0	0.5
SOIL	RADSBB02	281RADSS150	28-Aug-95	0	0.5
SOIL	RADSBB03	281RADSS033	3-Aug-95	0	0.5
SOIL	RADSBB04	281RADSS035	3-Aug-95	0	0.5
SOIL	RADSBB04	281RADSS036	3-Aug-95	0.9	1.5

R AREA SOIL DATASET FOR TABLE C-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SOIL	RADSBB04	281RADSS037	3-Aug-95	4	5.2
SOIL	RADSBB05	281RADSS038	3-Aug-95	0	0.5
SOIL	RADSBB06	281RADSS039	3-Aug-95	0	0.5
SOIL	RADSBB06	281RADSS040	3-Aug-95	1.2	2
SOIL	RADSBB07	281RADSS041	3-Aug-95	0	0.5
SOIL	RADSBB08	281RADSS016	1-Aug-95	0	0.5
SOIL	RADSBB08	281RADSS017	1-Aug-95	1.5	2
SOIL	RADSBC03	281RADSS043	3-Aug-95	0	0.5
SOIL	RADSBC04	281RADSS044	3-Aug-95	0	0.5
SOIL	RADSBC05	281RADSS045	4-Aug-95	0	0.5
SOIL	RADSBC05	281RADSS046	4-Aug-95	1.1	2
SOIL	RADSBC06	281RADSS047	4-Aug-95	0	0.5
SOIL	RADSBC07	281RADSS048	4-Aug-95	0	0.5
SOIL	RADSBC08	281RADSS091	21-Aug-95	0	0.5
SOIL	RADSBD03	281RADSS118	23-Aug-95	0	0.5
SOIL	RADSBD04	281RADSS121	23-Aug-95	0	0.5
SOIL	RADSBD05	281RADSS053	4-Aug-95	0	0.5
SOIL	RADSBD05	281RADSS054	4-Aug-95	1.2	2
SOIL	RADSBD06	281RADSS050	4-Aug-95	0	0.5
SOIL	RADSBD06	281RADSS051	4-Aug-95	0.6	1
SOIL	RADSBD06	281RADSS052	4-Aug-95	4.5	5.7
SOIL	RADSBD07	281RADSS095	21-Aug-95	0	0.5
SOIL	RADSBD08	281RADSS090	21-Aug-95	0	0.5
SOIL	RADSBE02	281RADSS117	23-Aug-95	0	0.5
SOIL	RADSBE03	281RADSS076	23-Aug-95	0	0.5
SOIL	RADSBE03	281RADSS077	23-Aug-95	1.5	2.3
SOIL	RADSBE04	281RADSS122	23-Aug-95	0	0.5
SOIL	RADSBE05	281RADSS103	22-Aug-95	0	0.5
SOIL	RADSBE06	281RADSS097	22-Aug-95	0	0.5
SOIL	RADSBE07	281RADSS094	21-Aug-95	0	0.5
SOIL	RADSBE08	281RADSS089	21-Aug-95	0	0.5
SOIL	RADSBF02	281RADSS116	23-Aug-95	0	0.5
SOIL	RADSBF03	281RADSS124	23-Aug-95	0	0.5
SOIL	RADSBF04	281RADSS123	23-Aug-95	0	0.5
SOIL	RADSBF05	281RADSS102	22-Aug-95	0	0.5
SOIL	RADSBF06	281RADSS098	22-Aug-95	0	0.5
SOIL	RADSBF07	281RADSS093	21-Aug-95	0	0.5
SOIL	RADSBF08	281RADSS088	21-Aug-95	0	0.5
SOIL	RADSBG02	281RADSS125	23-Aug-95	0	0.5
SOIL	RADSBG03	281RADSS126	23-Aug-95	0	0.5
SOIL	RADSBG04	281RADSS078	23-Aug-95	0	0.5
SOIL	RADSBG04	281RADSS079	23-Aug-95	1	2
SOIL	RADSBG04	281RADSS080	23-Aug-95	4.5	5.8

R AREA SOIL DATASET FOR TABLE C-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SOIL	RADSBG05	281RADSS100	22-Aug-95	0	0.5
SOIL	RADSBG06	281RADSS099	22-Aug-95	0	0.5
SOIL	RADSBG07	281RADSS092	21-Aug-95	0	0.5
SOIL	RADSBG08	281RADSS085	21-Aug-95	0	0.5
SOIL	RADSBG08	281RADSS086	21-Aug-95	0.7	2
SOIL	RADSBG08	281RADSS087	21-Aug-95	4	5.3
SOIL	RADSBH02	281RADSS129	23-Aug-95	0	0.5
SOIL	RADSBH03	281RADSS128	23-Aug-95	0	0.5
SOIL	RADSBH04	281RADSS133	23-Aug-95	0	0.5
SOIL	RADSBH05	281RADSS104	22-Aug-95	0	0.5
SOIL	RADSBH06	281RADSS003	27-Jul-95	0	0.5
SOIL	RADSBH06	281RADSS004	27-Jul-95	1.5	2
SOIL	RADSBH06	281RADSS152	18-Sep-95	1.5	2
SOIL	RADSBH07	281RADSS112	22-Aug-95	0	0.5
SOIL	RADSBH08	281RADSS113	22-Aug-95	0	0.5
SOIL	RADSBI01	281RADSS131	23-Aug-95	0	0.5
SOIL	RADSBI02	281RADSS130	23-Aug-95	0	0.5
SOIL	RADSBI03	281RADSS135	23-Aug-95	0	0.5
SOIL	RADSBI04	281RADSS001	27-Jul-95	0	0.5
SOIL	RADSBI04	281RADSS002	27-Jul-95	1.5	2
SOIL	RADSBI05	281RADSS105	22-Aug-95	0	0.5
SOIL	RADSBI06	281RADSS106	22-Aug-95	0	0.5
SOIL	RADSBI07	281RADSS111	22-Aug-95	0	0.5
SOIL	RADSBI08	281RADSS005	27-Jul-95	0	0.5
SOIL	RADSBI08	281RADSS006	27-Jul-95	1.5	2
SOIL	RADSBJ01	281RADSS132	23-Aug-95	0	0.5
SOIL	RADSBJ02	281RADSS081	23-Aug-95	0	0.5
SOIL	RADSBJ02	281RADSS082	23-Aug-95	1	2.2
SOIL	RADSBJ02	281RADSS083	23-Aug-95	4.7	6
SOIL	RADSBJ03	281RADSS142	28-Aug-95	0	0.5
SOIL	RADSBJ04	281RADSS138	28-Aug-95	0	0.5
SOIL	RADSBJ06	281RADSS107	22-Aug-95	0	0.5
SOIL	RADSBJ07	281RADSS108	22-Aug-95	0	0.5
SOIL	RADSBJ08	281RADSS143	28-Aug-95	0	0.5
SOIL	RADSBK01	281RADSS140	28-Aug-95	0	0.5
SOIL	RADSBK02	281RADSS141	28-Aug-95	0	0.5
SOIL	RADSBK03	281RADSS137	28-Aug-95	0	0.5
SOIL	RADSBK04	281RADSS139	28-Aug-95	0	0.5
SOIL	RADSBK07	281RADSS110	22-Aug-95	0	0.5
SOIL	RADSBK08	281RADSS008	27-Jul-95	0	0.5
SOIL	RADSBK08	281RADSS009	27-Jul-95	1.3	2
SOIL	RADSBL03	281RADSS144	28-Aug-95	0	0.5
SOIL	RADSBL08	281RADSS145	28-Aug-95	0	0.5

R AREA SOIL DATASET FOR TABLE C-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SOIL	RADSBM08	281RADSS010	27-Jul-95	0	0.5
SOIL	RADSBM08	281RADSS011	27-Jul-95	1.3	2
SOIL	RADSBN08	281RADSS146	28-Aug-95	0	0.5

Notes:

MATRIX Media Sampled
PT_ID Point ID
SMP_ID Sample ID
SMP_DT Date that sample was collected
TOPDEPTH Top depth of the sample
BOTDEPTH Bottom depth of the sample

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB001	RADSB002	RADSB003	RADSB004	RADSB005	RADSB006	RADSB007	RADSB008	RADSB009	RADSB010	RADSB011	RADSB012
Sample ID	281RADSS025	281RADSS019	281RADSS026	281RADSS018	281RADSS027	281RADSS012	281RADSS020	281RADSS013	281RADSS042	281RADSS120	281RADSS119	281RADSS014
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/02/1995	08/02/1995	08/02/1995	08/02/1995	08/02/1995	07/27/1995	08/02/1995	07/27/1995	08/03/1995	08/23/1995	08/23/1995	07/27/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Volatiles (in µg/kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
1,2,4-TRICHLOROBENZENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
1,2-DICHLOROBENZENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
1,3-DICHLOROBENZENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB001	RADSB002	RADSB003	RADSB004	RADSB005	RADSB006	RADSB007	RADSB008	RADSB009	RADSB010	RADSB011	RADSB012
Sample ID	281RADSS025	281RADSS019	281RADSS026	281RADSS018	281RADSS027	281RADSS012	281RADSS020	281RADSS013	281RADSS042	281RADSS120	281RADSS119	281RADSS014
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/02/1995	08/02/1995	08/02/1995	08/02/1995	08/02/1995	07/27/1995	08/02/1995	07/27/1995	08/03/1995	08/23/1995	08/23/1995	07/27/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
1-METHYLNAPHTHALENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
1-METHYLPHENANTHRENE	350 U	240 U	240 U	750 U	790 U	790 U	37 J	140 U	200 U	50 U	47 U	430 U
2,2'-OXYBIS(1-CHLOROPROPANE)	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2,3,5-TRIMETHYLNAPHTHALENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2,4,5-TRICHLOROPHENOL	870 U	590 U	590 U	1,900 U	2,000 U	2,000 U	360 U	350 U	500 U	130 U	120 U	1,100 U
2,4,6-TRICHLOROPHENOL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2,4-DICHLOROPHENOL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2,4-DIMETHYLPHENOL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2,4-DINITROPHENOL	870 U	590 U	590 U	1,900 U	2,000 U	2,000 U	360 U	350 U	500 U	130 U	120 U	1,100 U
2,4-DINITROTOLUENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2,6-DIMETHYLNAPHTHALENE	350 U	97 J	53 J	130 J	98 J	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2,6-DINITROTOLUENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2-CHLORONAPHTHALENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2-CHLOROPHENOL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2-METHYLNAPHTHALENE	42 J	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2-METHYLPHENOL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
2-NITROANILINE	870 U	590 U	590 U	1,900 U	2,000 U	2,000 U	360 U	350 U	500 U	130 U	120 U	1,100 U
2-NITROPHENOL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
3,3'-DICHLOROBENZIDINE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
3-NITROANILINE	870 U	590 U	590 U	1,900 U	2,000 U	2,000 U	360 U	350 U	500 U	130 U	120 U	1,100 U
4,6-DINITRO-2-METHYLPHENOL	870 U	590 U	590 U	1,900 U	2,000 U	2,000 U	360 U	350 U	500 U	130 U	120 U	1,100 U
4-BROMOPHENYL-PHENYLETHER	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
4-CHLORO-3-METHYLPHENOL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
4-CHLOROANILINE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
4-CHLOROPHENYL-PHENYLETHER	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
4-METHYLPHENOL	45 J	34 J	240 U	750 U	790 U	740 J	140 U	140 U	95 J	50 U	47 U	430 U
4-NITROANILINE	870 U	590 U	590 U	1,900 U	2,000 U	2,000 U	360 U	350 U	500 U	130 U	120 U	1,100 U
4-NITROPHENOL	870 U	590 U	590 U	1,900 U	2,000 U	2,000 U	360 U	350 U	500 U	130 U	120 UJ	1,100 U
ACENAPHTHENE	350 U	30 J	240 U	750 U	790 U	790 U	15 J	18 J	200 U	50 U	47 U	430 U
ACENAPHTHYLENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
ANTHRACENE	38 J	30 J	240 U	750 U	790 U	790 U	100 J	67 J	200 U	50 U	47 U	430 U
BENZO(A)ANTHRACENE	68 J	44 J	32 J	750 U	790 U	790 U	440	340	200 U	50 U	47 U	97 J
BENZO(A)PYRENE	68 J *	43 J	45 J	750 U	790 U	790 U	320 *	280 *	200 U	50 U	47 U	140 J *
BENZO(B)FLUORANTHENE	70 J	49 J	45 J	750 U	790 U	790 U	360	390	200 U	50 U	47 U	210 J
BENZO(E)PYRENE	45 J	43 J	31 J	750 U	790 U	790 U	230	230	200 U	50 U	47 U	110 J
BENZO(G,H,I)PERYLENE	65 J	51 J	51 J	750 U	790 U	790 U	220	220	200 U	50 U	47 U	190 J
BENZO(K)FLUORANTHENE	56 J	43 J	34 J	750 U	790 U	790 U	320 J	260	200 U	50 U	47 U	96 J
BENZOIC ACID	260 J	150 J	71 J	95 J	2,000 UJ	230 J	360 U	350 UJ	500 U	130 U	120 U	1,100 UJ

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB001	RADSB002	RADSB003	RADSB004	RADSB005	RADSB006	RADSB007	RADSB008	RADSB009	RADSB010	RADSB011	RADSB012
Sample ID	281RADSS025	281RADSS019	281RADSS026	281RADSS018	281RADSS027	281RADSS012	281RADSS020	281RADSS013	281RADSS042	281RADSS120	281RADSS119	281RADSS014
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/02/1995	08/02/1995	08/02/1995	08/02/1995	08/02/1995	07/27/1995	08/02/1995	07/27/1995	08/03/1995	08/23/1995	08/23/1995	07/27/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
BIS(2-CHLOROETHOXY)METHANE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
BIS(2-CHLOROETHYL)ETHER	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
BIS(2-ETHYLHEXYL)PHTHALATE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	180	430 U
BUTYLBENZYLPHTHALATE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
CARBAZOLE	350 U	240 U	240 U	750 U	790 U	790 U	40 J	24 J	200 U	50 U	47 U	430 U
CHRYSENE	86 J	53 J	38 J	750 U	790 U	790 U	440	400	200 U	50 U	47 U	230 J
DI-N-BUTYLPHTHALATE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	49 U	430 U
DI-N-OCTYLPHTHALATE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
DIBENZ(A,H)ANTHRACENE	350 U	240 U	240 U	750 U	790 U	790 U	94 J *	87 J *	200 U	50 U	47 U	58 J
DIBENZOFURAN	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
DIBENZOTHIOPHENE	350 U	240 U	240 U	750 U	790 U	790 U	23 J	140 U	200 U	50 U	47 U	430 U
DIETHYLPHTHALATE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	160	430 U
DIMETHYLPHTHALATE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
FLUORANTHENE	150 J	310	72 J	110 J	790 U	790 U	1,100	650 J	200 U	50 U	47 U	280 J
FLUORENE	350 U	25 J	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
HEXACHLOROBENZENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
HEXACHLOROBUTADIENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
HEXACHLOROCYCLOPENTADIENE	350 U	240 UJ	240 U	750 UJ	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
HEXACHLOROETHANE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
INDENO(1,2,3-CD)PYRENE	350 U	37 J	37 J	750 U	790 U	790 U	190	180	200 U	50 U	47 U	140 J
ISOPHORONE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
N-NITROSO-DI-N-PROPYLAMINE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
N-NITROSODIPHENYLAMINE (1)	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
NAPHTHALENE	210 J	160 J	240 U	750 U	790 U	790 U	140 U	18 J	200 U	50 U	47 U	430 U
NITROBENZENE	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
PENTACHLOROPHENOL	870 U	590 U	590 U	1,900 U	2,000 U	2,000 U	360 U	350 U	500 U	130 U	120 U	1,100 U
PERYLENE	350 U	46 J	66 J	750 U	790 U	790 U	87 J	95 J	200 U	50 U	47 U	68 J
PHENANTHRENE	120 J	43 J	240 U	750 U	790 U	790 U	660	310	200 U	50 U	47 U	120 J
PHENOL	350 U	240 U	240 U	750 U	790 U	790 U	140 U	140 U	200 U	50 U	47 U	430 U
PYRENE	98 J	270	89 J	120 J	86 J	790 U	680	580	200 U	50 U	47 U	290 J
TOTAL HIGH MOLECULAR PAHS	710	990	540	230	86	U	4,500	3,700	U	U	U	1,900
TOTAL LOW MOLECULAR PAHS	410	290	U	U	U	U	810	410	U	U	U	120
TOTAL PAHS	1,100	1,300	540	230	86	U	5,300	4,100	U	U	U	2,000
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB001	RADSB002	RADSB003	RADSB004	RADSB005	RADSB006	RADSB007	RADSB008	RADSB009	RADSB010	RADSB011	RADSB012
Sample ID	281RADSS025	281RADSS019	281RADSS026	281RADSS018	281RADSS027	281RADSS012	281RADSS020	281RADSS013	281RADSS042	281RADSS120	281RADSS119	281RADSS014
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/02/1995	08/02/1995	08/02/1995	08/02/1995	08/02/1995	07/27/1995	08/02/1995	07/27/1995	08/03/1995	08/23/1995	08/23/1995	07/27/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB001	RADSB002	RADSB003	RADSB004	RADSB005	RADSB006	RADSB007	RADSB008	RADSB009	RADSB010	RADSB011	RADSB012
Sample ID	281RADSS025	281RADSS019	281RADSS026	281RADSS018	281RADSS027	281RADSS012	281RADSS020	281RADSS013	281RADSS042	281RADSS120	281RADSS119	281RADSS014
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/02/1995	08/02/1995	08/02/1995	08/02/1995	08/02/1995	07/27/1995	08/02/1995	07/27/1995	08/03/1995	08/23/1995	08/23/1995	07/27/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	0.3 U	0.7	0.4 U	0.5 U	0.4	0.5 U	0.1 U	0.1 U	0.6 J	7	7 J	2 J
2,4'-DDE	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 U	0.2 U	1	1	0.3 J
2,4'-DDT	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.3	1	3	5	0.7
4,4'-DDD	0.5	2	1	1	1	1 U	0.1 U	0.1 U	0.9	20	26	6
4,4'-DDE	0.3 U	3	2	2	2	2	0.1 U	0.5	1	9	7	3
4,4'-DDT	0.3 U	0.9	0.4 U	0.5 U	0.6	0.5 U	0.1 U	0.4 U	5 J	12	28	3 J
ALDRIN	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 U	0.2 U	0.5 U	0.6 U	0.1 U
ALPHA-CHLORDANE	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 U	1	1	2	1
DIELDRIN	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 U	0.7	0.9	2	0.6
GAMMA-BHC (LINDANE)	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 U	0.2 U	0.5 U	0.6 U	0.1 U
HEPTACHLOR	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 U	0.2 U	0.5 U	0.6 U	0.1 U
HEPTACHLOR EPOXIDE	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 U	0.2 U	0.5 U	0.6 U	0.1 U
HEXACHLOROBENZENE	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.3 J	0.5	0.5 U	2	0.5
MIREX	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 U	0.2	0.5 U	1 J	0.7 J

Notes:

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB001	RADSB002	RADSB003	RADSB004	RADSB005	RADSB006	RADSB007	RADSB008	RADSB009	RADSB010	RADSB011	RADSB012
Sample ID	281RADSS025	281RADSS019	281RADSS026	281RADSS018	281RADSS027	281RADSS012	281RADSS020	281RADSS013	281RADSS042	281RADSS120	281RADSS119	281RADSS014
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/02/1995	08/02/1995	08/02/1995	08/02/1995	08/02/1995	07/27/1995	08/02/1995	07/27/1995	08/03/1995	08/23/1995	08/23/1995	07/27/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	0.3 U	0.4	0.3 J	0.6	0.2 U	0.5 U	0.1 U	0.1 UJ	0.4 J	0.5 U	0.5 J	0.4 J
PCB-105 (2,3,3',4,4')	0.3 U	0.6	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.4 J	0.5 U	1 J	0.4
PCB-118 (2,3',4,4',5)	0.3 U	0.5	0.3 J	0.7	0.2 U	0.5 U	0.1 U	0.1 UJ	0.6 J	0.5 U	0.9 J	0.4
PCB-126 (3,3',4,4',5)	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2 U	3 J	0.6 U	0.1 U
PCB-128 (2,2',3,3',4,4')	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2 U	0.5 U	0.6 J	0.2 J
PCB-138 (2,2',3,4,4',5')	0.3 U	0.8	0.3 J	1	0.2 U	0.5 U	0.2	0.1 UJ	0.6	0.5 U	1 J	0.8 J
PCB-153 (2,2',4,4',5,5')	0.3 U	0.7	0.5	0.6	0.2 U	0.5 U	0.1 U	0.1 UJ	0.4 J	0.5 U	1	0.6
PCB-170 (2,2',3,3',4,4',5)	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2 U	0.5 U	0.6 U	0.3
PCB-18 (2,2',5)	0.3 U	0.4 U	0.2 J	0.5 U	0.2 J	0.2 J	0.1 U	0.1 UJ	0.2 U	0.5 U	0.6 U	0.1 U
PCB-180 (2,2',3,4,4',5,5')	0.3 U	0.6	0.4 U	0.8	0.2 U	0.5 U	0.1 U	0.1 UJ	0.3	0.5 U	1	0.5 J
PCB-187 (2,2',3,4',5,5',6)	0.3 U	0.4	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2	0.5 U	0.6 U	0.3 J
PCB-195 (2,2',3,3',4,4',5,6)	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2 U	0.5 U	0.6 U	0.1 U
PCB-206 (2,2',3,3',4,4',5,5',6	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2 U	0.4 J	0.6 U	0.5 J
PCB-209 (2,2',3,3',4,4',5,5',6	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2 U	0.5 U	0.6 U	0.1 U
PCB-28 (2,4,4')	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2 U	0.5 U	0.6 U	0.1 U
PCB-44 (2,2',3,5')	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2 U	0.5 U	0.6 U	0.1 U
PCB-52 (2,2',5,5')	0.3 U	0.4	1	0.9	1	1 J	0.1 U	0.1 UJ	0.08 J	0.5 U	0.6 U	0.1 U
PCB-66 (2,3',4,4')	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	0.2 UJ	0.5 U	0.9 J	0.2 J
PCB-77 (3,3',4,4')	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	1 J	0.1 U	0.1 UJ	0.2 U	0.5 U	0.6 U	0.1 U
PCB-8 (2,4')	0.3 U	0.5	1	0.7	0.2 U	0.5 U	0.2 U	0.1 UJ	0.2 U	0.5 U	2 J	0.1 U
TRANS-NONACHLOR	0.3 U	0.4 U	0.4 U	0.5 U	0.2 U	0.5 U	0.1 U	0.1 UJ	1 J	0.7	2 J	1
TOTAL BHCS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL CHLORDANES	U	U	U	U	U	U	U	U	1	1	2	1
TOTAL DDTS	0.5	7	3	3	4	2	U	0.7	9	51	73	15
TOTAL PCBS	U	10	8	11	2	3	0.3	U	6	0.7	17	9
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB001	RADSB002	RADSB003	RADSB004	RADSB005	RADSB006	RADSB007	RADSB008	RADSB009	RADSB010	RADSB011	RADSB012
Sample ID	281RADSS025	281RADSS019	281RADSS026	281RADSS018	281RADSS027	281RADSS012	281RADSS020	281RADSS013	281RADSS042	281RADSS120	281RADSS119	281RADSS014
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/02/1995	08/02/1995	08/02/1995	08/02/1995	08/02/1995	07/27/1995	08/02/1995	07/27/1995	08/03/1995	08/23/1995	08/23/1995	07/27/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/Kg):												
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Explosives (in µg/Kg):												
1,3,5-TRINITROBENZENE	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
1,3-DINITROBENZENE	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
2,4,6-TRINITROTOLUENE	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
2,4-DINITROTOLUENE	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
2,6-DINITROTOLUENE	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
2-NITROTOLUENE	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
3-NITROTOLUENE	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
4-NITROTOLUENE	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
HMX	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
NITROBENZENE	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
RDX	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 U	120 U	NA
TETRYL	NA	120 U	NA	NA	NA	NA	120 U	120 U	120 U	120 UJ	120 UJ	NA
CLP Metals (in mg/Kg):												
ALUMINUM	17,100	19,900	29,300	30,300	26,100	14,900	13,200	12,800	16,300	19,400	26,800	20,900
ANTIMONY	2.1 U	0.77 U	3.0 J	1.3 J	1.2 UJ	1.9 UJ	2.0 J	5.6 J	0.68 UJ	2.3 U	2.9 J	2.0 J
ARSENIC	15.2 *	11.1 *	28.0 *	9.0 *	15.0 *	33.2 *	9.5 *	11.1 *	12.3 *	17.2 *	17.7 *	28.1 *
BARIUM	97.7 J	83.2	90.9 J	89.8	93.1 J	87.7	232	169	98.0	50.0	104	65.7
BERYLLIUM	0.040 U	0.040 U	0.17 U	0.060 U	0.060 U	0.090 U	0.020 U	0.020 U	0.030 U	0.15 U	0.070 U	0.020 U
CADMIUM	0.080 U	0.070 U	0.43	0.11 U	0.12 U	0.18 U	0.040 U	0.040 U	0.060 UJ	0.060 U	0.050 UJ	0.050 U

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB001	RADSB002	RADSB003	RADSB004	RADSB005	RADSB006	RADSB007	RADSB008	RADSB009	RADSB010	RADSB011	RADSB012
Sample ID	281RADSS025	281RADSS019	281RADSS026	281RADSS018	281RADSS027	281RADSS012	281RADSS020	281RADSS013	281RADSS042	281RADSS120	281RADSS119	281RADSS014
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/02/1995	08/02/1995	08/02/1995	08/02/1995	08/02/1995	07/27/1995	08/02/1995	07/27/1995	08/03/1995	08/23/1995	08/23/1995	07/27/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
CLP Metals (in mg/kg)												
CALCIUM	6,900	6,890	3,920	5,190	6,550	5,670	8,410	13,500	4,330	2,300	3,160	4,060
CHROMIUM	52.8	53.6	92.3	90.2	80.1	56.2	37.2	33.4	46.3	69.6 J	93.4 J	72.3
COBALT	19.3	18.0	31.5	21.9	23.6	27.3	17.1	13.8	16.2	11.1	14.1	18.8
COPPER	64.9	47.8	83.4	68.7	56.9	57.6	62.3	62.4	45.8	47.4 J	48.5 J	71.0
IRON	37,600 *	32,200 *	43,900 *	43,500 *	53,100 *	71,400 *	29,500 *	27,300 *	28,100 *	37,300 *	48,200 *	32,400 *
LEAD	89.5	36.1 J	66.4	44.8 J	40.9	33.3	275 J *	132	40.9	79.2	75.4	70.7
MAGNESIUM	11,000	9,770	13,300	15,200	15,600	11,200	8,990	9,490	9,970	10,100	13,500	11,200
MANGANESE	429	383	479	530	563	897	827	716	913	200	283	533
MERCURY	0.27	0.15 U	0.55	0.79	0.34	0.44 U	0.36	0.15 U	0.15	0.37	0.31	0.58 J
MOLYBDENUM	0.52 U	0.82 U	0.85 U	0.50 U	0.53 U	0.83 U	0.48 U	0.19 U	1.4 U	0.97	0.60	0.77
NICKEL	67.4	56.7	114	86.4	76.4	76.4	74.3	66.4	72.9	66.3	77.9	75.1
POTASSIUM	3,380 J	3,700 J	5,310 J	5,440 J	4,270 J	3,050 J	2,230 J	2,830 J	3,520 J	4,250 J	5,940 J	6,390 J
SELENIUM	1.4 U	1.2 U	2.2 U	1.9 U	2.0 U	3.1 U	0.85 U	0.71 U	1.1 U	1.0 U	0.83 UJ	0.80 U
SILVER	0.25 U	0.22 U	0.39 U	0.33 U	0.35 U	0.62	0.12 U	0.21	0.19 U	0.41 U	0.15 U	0.14 U
SODIUM	1,890	4,800	5,640	7,180	2,230	10,800 J	962	2,550 J	2,110	5,260 J	3,500 J	3,950 J
THALLIUM	0.83 UJ	0.73 U	1.3 UJ	1.1 U	1.2 UJ	1.8 U	0.92	0.42 U	0.66	0.62 U	0.49 UJ	0.47 U
VANADIUM	67.5	68.2	102	96.8	99.0	95.6	70.3	55.3	73.1	78.7	91.2	86.6
ZINC	304 J	264	309 J	193	232 J	474	290	266	371	101	120	210
Hexavalent Chromium (in mg/kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	77.8 J	594 J	717 J	4,890 J	2,470 J	12,600	10.6 U	10.4 U	15.0 UJ	14.8 UJ	13.6 UJ	12.7 U
TOTAL ORGANIC CARBON	55,400	27,500	41,200	35,300	14,600	68,900	15,500	94,100	163,000 J	25,600	43,000	23,400
Percent Moisture (percent)												
PERCENT MOISTURE	62.0	72.0	72.0	78.0	58.0	79.0	8.0	6.0	34.0	34.0	30.0	23.0
Miscellaneous												
PH	8	8.2	8.3	7.8	8.3	7.4	8.4	7.2	6.6	4.5	5.3	6.9

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB013	RADSB014	RADSB015	RADSB016	RADSB017	RADSB018	RADSB019	RADSB020	RADSB021	RADSB022	RADSB023	RADSB024
Sample ID	281RADSS015	281RADSS147	281RADSS148	281RADSS024	281RADSS034	281RADSS049	281RADSS055	281RADSS096	281RADSS115	281RADSS114	281RADSS127	281RADSS101
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	08/28/1995	08/28/1995	08/02/1995	08/03/1995	08/04/1995	08/04/1995	08/21/1995	08/22/1995	08/22/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Volatiles (in µg/kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB013	RADSB014	RADSB015	RADSB016	RADSB017	RADSB018	RADSB019	RADSB020	RADSB021	RADSB022	RADSB023	RADSB024
Sample ID	281RADSS015	281RADSS147	281RADSS148	281RADSS024	281RADSS034	281RADSS049	281RADSS055	281RADSS096	281RADSS115	281RADSS114	281RADSS127	281RADSS101
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	08/28/1995	08/28/1995	08/02/1995	08/03/1995	08/04/1995	08/04/1995	08/21/1995	08/22/1995	08/22/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
1,4-DICHLOROBENZENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-METHYLNAPHTHALENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-METHYLPHENANTHRENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	1,200 U	570 U	89 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	1,200 U	570 U	89 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	1,200 U	570 U	89 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	1,200 U	570 U	89 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	1,200 U	570 U	89 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	1,200 U	570 U	89 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	1,200 U	570 U	89 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	89 J	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	97 J *	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	200 J	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(E)PYRENE	110 J	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	110 J	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	84 J	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	1,200 UJ	570 U	89 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB013	RADSB014	RADSB015	RADSB016	RADSB017	RADSB018	RADSB019	RADSB020	RADSB021	RADSB022	RADSB023	RADSB024
Sample ID	281RADSS015	281RADSS147	281RADSS148	281RADSS024	281RADSS034	281RADSS049	281RADSS055	281RADSS096	281RADSS115	281RADSS114	281RADSS127	281RADSS101
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	08/28/1995	08/28/1995	08/02/1995	08/03/1995	08/04/1995	08/04/1995	08/21/1995	08/22/1995	08/22/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	660 U	510 U	82 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	180 J	140 J	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	460 U	230 U	41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOTHIOPHENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	220 J	170 J	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	92 J	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	1,200 U	570 U	89 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERYLENE	460 U	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	120 J	230 U	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	120 U	230 U	40 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	190 J	130 J	35 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	1,400	440	U	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	120	U	U	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	1,500	440	U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB013	RADSB014	RADSB015	RADSB016	RADSB017	RADSB018	RADSB019	RADSB020	RADSB021	RADSB022	RADSB023	RADSB024
Sample ID	281RADSS015	281RADSS147	281RADSS148	281RADSS024	281RADSS034	281RADSS049	281RADSS055	281RADSS096	281RADSS115	281RADSS114	281RADSS127	281RADSS101
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	08/28/1995	08/28/1995	08/02/1995	08/03/1995	08/04/1995	08/04/1995	08/21/1995	08/22/1995	08/22/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Table C-1
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Soil Analytical Results

Point ID	RADSB013	RADSB014	RADSB015	RADSB016	RADSB017	RADSB018	RADSB019	RADSB020	RADSB021	RADSB022	RADSB023	RADSB024
Sample ID	281RADSS015	281RADSS147	281RADSS148	281RADSS024	281RADSS034	281RADSS049	281RADSS055	281RADSS096	281RADSS115	281RADSS114	281RADSS127	281RADSS101
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	08/28/1995	08/28/1995	08/02/1995	08/03/1995	08/04/1995	08/04/1995	08/21/1995	08/22/1995	08/22/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	0.7 J	0.3	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4'-DDE	0.1 U	0.3	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4'-DDT	0.1 U	0.1 U	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	1 U	0.3	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	0.7	0.4	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	0.4 U	0.1 U	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	0.3 J	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	2	0.9	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	0.4	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	0.1 U	0.3 U	0.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	0.2 J	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
MIREX	0.3	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB013	RADSB014	RADSB015	RADSB016	RADSB017	RADSB018	RADSB019	RADSB020	RADSB021	RADSB022	RADSB023	RADSB024
Sample ID	281RADSS015	281RADSS147	281RADSS148	281RADSS024	281RADSS034	281RADSS049	281RADSS055	281RADSS096	281RADSS115	281RADSS114	281RADSS127	281RADSS101
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	08/28/1995	08/28/1995	08/02/1995	08/03/1995	08/04/1995	08/04/1995	08/21/1995	08/22/1995	08/22/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	0.2 J	0.07 J	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-105 (2,3,3',4,4')	0.3 J	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-118 (2,3',4,4',5)	0.3 J	0.1 U	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-126 (3,3',4,4',5)	0.1 UJ	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-128 (2,2',3,3',4,4')	0.1 UJ	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-138 (2,2',3,4,4',5')	0.6 J	0.1 U	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-153 (2,2',4,4',5,5')	0.5 J	0.1 U	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-170 (2,2',3,3',4,4',5)	0.1 UJ	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-18 (2,2',5)	0.1 J	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-180 (2,2',3,4,4',5,5')	0.4 J	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-187 (2,2',3,4',5,5',6)	0.1 UJ	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	0.1 UJ	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	0.2 J	0.1 U	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	0.1 UJ	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-28 (2,4,4')	0.1 UJ	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-44 (2,2',3,5')	0.1 UJ	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-52 (2,2',5,5')	0.2 J	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-66 (2,3',4,4')	0.2 J	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-77 (3,3',4,4')	0.1 UJ	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-8 (2,4')	0.1 UJ	0.1 U	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-NONACHLOR	2	0.7	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	U	U	U	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	2	0.9	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	1	1	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PCBS	6	0.1	2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB013	RADSB014	RADSB015	RADSB016	RADSB017	RADSB018	RADSB019	RADSB020	RADSB021	RADSB022	RADSB023	RADSB024
Sample ID	281RADSS015	281RADSS147	281RADSS148	281RADSS024	281RADSS034	281RADSS049	281RADSS055	281RADSS096	281RADSS115	281RADSS114	281RADSS127	281RADSS101
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	08/28/1995	08/28/1995	08/02/1995	08/03/1995	08/04/1995	08/04/1995	08/21/1995	08/22/1995	08/22/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	16,300	12,900	12,400	23,700	13,600	18,400	17,600	15,400	22,200	26,000	26,100	4,420
ANTIMONY	0.60 UJ	1.2 J	1.1 J	1.9 U	3.1 J	0.73 J	0.48 UJ	1.6 J	0.87 J	1.9 J	1.6 J	1.4 J
ARSENIC	25.1 *	7.3 *	6.3 *	14.7 *	16.3 *	6.9 *	9.0 *	8.5 *	10.0 *	18.5 *	9.6 *	20.9 *
BARIUM	159	76.3	140	85.4 J	190 J	140	112	46.3	139	64.9	101	365
BERYLLIUM	0.030 U	0.030 U	0.020 U	0.040 U	0.020 U	0.21 U	0.12 U	0.12 U	0.37	0.41	0.030 U	0.050 U
CADMIUM	0.060 U	0.050 U	0.040 U	0.080 U	0.040 U	0.060 U	0.050 U	0.070 U	0.050 U	0.050 U	0.060 U	0.12 U

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB013	RADSB014	RADSB015	RADSB016	RADSB017	RADSB018	RADSB019	RADSB020	RADSB021	RADSB022	RADSB023	RADSB024
Sample ID	281RADSS015	281RADSS147	281RADSS148	281RADSS024	281RADSS034	281RADSS049	281RADSS055	281RADSS096	281RADSS115	281RADSS114	281RADSS127	281RADSS101
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	08/28/1995	08/28/1995	08/02/1995	08/03/1995	08/04/1995	08/04/1995	08/21/1995	08/22/1995	08/22/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
CLP Metals (in mg/kg)												
CALCIUM	8,210	3,600	4,090	3,880	12,800	2,500	3,400	6,290	2,880	2,550	3,600	8,660
CHROMIUM	65.5	47.5	53.6	81.7	41.7	53.4	49.7	49.1	60.3	74.6	85.9	20.4 U
COBALT	21.9	16.6	15.5	21.2	18.2	13.8	13.8	16.2	22.2	13.5	13.2	31.2
COPPER	55.3	20.6	24.1	65.5	85.5	36.3	34.2	60.3	40.6	69.7	34.9	27.0
IRON	49,500 *	23,500 *	25,000 *	39,900 *	50,200 *	24,200 *	24,500 *	19,900	32,100 *	28,500 *	41,700 *	61,400 *
LEAD	41.0	7.5	13.7	49.3	127	42.0	68.0	300 J *	54.6 J	53.4 J	16.9 J	56.0 J
MAGNESIUM	10,100	9,750	9,300	13,000	10,300	9,770	10,500	12,300	12,500	9,120	13,400	27,400
MANGANESE	701	1,170 J	666 J	798	838	228	425	470	550	309	303	626
MERCURY	0.17 U	0.070 U	0.050	0.35	0.14	0.080	0.14	0.47	0.29	0.41	0.070 U	0.15 U
MOLYBDENUM	0.26 U	0.24 U	0.19 U	0.37 U	2.1 U	0.42	0.20 U	1.4 U	0.24 U	1.6	0.27 U	2.7 U
NICKEL	89.7	68.5	71.7	87.7	81.1	61.9	65.8	102	84.3	69.3	65.2	95.5
POTASSIUM	3,180 J	2,150 J	2,030 J	3,920 J	3,020 J	4,730 J	4,320 J	5,460 J	7,060 J	4,710 J	4,920 J	10,600 J
SELENIUM	0.97 U	0.91 U	0.71 U	1.4 U	0.71 U	1.0 U	0.77 U	1.2 U	0.93 U	0.84 U	1.0 U	2.0 U
SILVER	0.17 U	0.16 U	0.13 U	0.30 U	0.24 U	0.18 U	0.14 U	0.51	0.16 U	0.15 U	0.18 U	0.36 U
SODIUM	4,200 J	630 U	122 U	1,450	1,240	5,560	3,030	30,300 J	14,400 J	7,050 J	8,520 J	117,000 J
THALLIUM	0.57 U	0.93	0.42 U	0.82 UJ	0.42 UJ	0.58 U	0.45 U	0.72 U	0.54 U	0.50 U	0.59 U	1.2 U
VANADIUM	94.7	46.4	59.4	85.7	64.0	59.1	54.8	61.2	55.4	89.1	76.4	41.1
ZINC	424	68.7	78.2	172 J	959 J	178	136	166	213	108	94.0	132
Hexavalent Chromium (in mg/kg)												
HEXAVALENT CHROMIUM	50.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	261	13.2 U	10.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	13,900	3,960	47,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	29.0	27.0	7.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	7.5	8.1	6.5	6.4	7.2	6.5	6.4	5.3	5.8	5.5	4.4	3.3

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB025	RADSB026	RADSB027	RADSB028	RADSB029	RADSB030	RADSBA01	RADSBA02	RADSBA03	RADSBA04	RADSBA05	RADSBA06
Sample ID	281RADSS134	281RADSS136	281RADSS007	281RADSS084	281RADSS109	281RADSS151	281RADSS021	281RADSS022	281RADSS023	281RADSS032	281RADSS031	281RADSS030
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	07/27/1995	08/23/1995	08/22/1995	08/28/1995	08/02/1995	08/02/1995	08/02/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA

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Soil Analytical Results

Point ID	RADSB025	RADSB026	RADSB027	RADSB028	RADSB029	RADSB030	RADSBA01	RADSBA02	RADSBA03	RADSBA04	RADSBA05	RADSBA06
Sample ID	281RADSS134	281RADSS136	281RADSS007	281RADSS084	281RADSS109	281RADSS151	281RADSS021	281RADSS022	281RADSS023	281RADSS032	281RADSS031	281RADSS030
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	07/27/1995	08/23/1995	08/22/1995	08/28/1995	08/02/1995	08/02/1995	08/02/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	370 U	NA	NA	1,800 U	900 U	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	370 U	NA	NA	1,800 U	900 U	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	370 U	NA	NA	1,800 U	900 U	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	370 U	NA	NA	1,800 U	900 U	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	370 U	NA	NA	1,800 U	900 U	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	370 U	NA	NA	1,800 U	900 U	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	370 U	NA	NA	1,800 U	900 U	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	75 J	360 U	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	80 J *	360 U	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	83 J	360 U	NA
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	72 J	360 U	NA
BENZOIC ACID	NA	NA	NA	NA	NA	NA	110 J	NA	NA	1,800 U	270 J	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB025	RADSB026	RADSB027	RADSB028	RADSB029	RADSB030	RADSBA01	RADSBA02	RADSBA03	RADSBA04	RADSBA05	RADSBA06
Sample ID	281RADSS134	281RADSS136	281RADSS007	281RADSS084	281RADSS109	281RADSS151	281RADSS021	281RADSS022	281RADSS023	281RADSS032	281RADSS031	281RADSS030
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	07/27/1995	08/23/1995	08/22/1995	08/28/1995	08/02/1995	08/02/1995	08/02/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	86 J	360 U	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
DIBENZOTHIOPHENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	170 J	360 U	NA
FLUORENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	150 UJ	NA	NA	720 UJ	360 U	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	76 J	360 U	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	370 U	NA	NA	1,800 U	900 U	NA
PERYLENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	110 J	360 U	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
PHENOL	NA	NA	NA	NA	NA	NA	150 U	NA	NA	720 U	360 U	NA
PYRENE	NA	NA	NA	NA	NA	NA	150 U	NA	NA	150 J	360 U	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	U	NA	NA	900	U	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	U	NA	NA	U	U	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	U	NA	NA	900	U	NA
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB025	RADSB026	RADSB027	RADSB028	RADSB029	RADSB030	RADSBA01	RADSBA02	RADSBA03	RADSBA04	RADSBA05	RADSBA06
Sample ID	281RADSS134	281RADSS136	281RADSS007	281RADSS084	281RADSS109	281RADSS151	281RADSS021	281RADSS022	281RADSS023	281RADSS032	281RADSS031	281RADSS030
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	07/27/1995	08/23/1995	08/22/1995	08/28/1995	08/02/1995	08/02/1995	08/02/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB025	RADSB026	RADSB027	RADSB028	RADSB029	RADSB030	RADSBA01	RADSBA02	RADSBA03	RADSBA04	RADSBA05	RADSBA06
Sample ID	281RADSS134	281RADSS136	281RADSS007	281RADSS084	281RADSS109	281RADSS151	281RADSS021	281RADSS022	281RADSS023	281RADSS032	281RADSS031	281RADSS030
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	07/27/1995	08/23/1995	08/22/1995	08/28/1995	08/02/1995	08/02/1995	08/02/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	NA	NA	NA	NA	NA	0.5	NA	NA	0.7	0.3	NA
2,4'-DDE	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
2,4'-DDT	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.4	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA	2	NA	NA	0.4 U	0.6	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	1	NA	NA	1	1	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	1	NA
ALDRIN	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.6	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.5	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
MIREX	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.09 J	NA

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB025	RADSB026	RADSB027	RADSB028	RADSB029	RADSB030	RADSBA01	RADSBA02	RADSBA03	RADSBA04	RADSBA05	RADSBA06
Sample ID	281RADSS134	281RADSS136	281RADSS007	281RADSS084	281RADSS109	281RADSS151	281RADSS021	281RADSS022	281RADSS023	281RADSS032	281RADSS031	281RADSS030
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	07/27/1995	08/23/1995	08/22/1995	08/28/1995	08/02/1995	08/02/1995	08/02/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/kg)												
PCB-101 (2,2',3,5,5')	NA	NA	NA	NA	NA	NA	0.2 J	NA	NA	0.4 U	0.2 J	NA
PCB-105 (2,3,3',4,4')	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-118 (2,3',4,4',5)	NA	NA	NA	NA	NA	NA	0.3	NA	NA	0.4 U	0.2	NA
PCB-126 (3,3',4,4',5)	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-128 (2,2',3,3',4,4')	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-138 (2,2',3,4,4',5')	NA	NA	NA	NA	NA	NA	0.3	NA	NA	0.3 J	0.3	NA
PCB-153 (2,2',4,4',5,5')	NA	NA	NA	NA	NA	NA	0.3	NA	NA	0.4 U	0.2 J	NA
PCB-170 (2,2',3,3',4,4',5)	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-18 (2,2',5)	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.3	NA
PCB-180 (2,2',3,4,4',5,5')	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-187 (2,2',3,4',5,5',6)	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-195 (2,2',3,3',4,4',5,6)	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-206 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-209 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-28 (2,4,4')	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-44 (2,2',3,5')	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-52 (2,2',5,5')	NA	NA	NA	NA	NA	NA	0.1 J	NA	NA	1	0.2 U	NA
PCB-66 (2,3',4,4')	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-77 (3,3',4,4')	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.2 U	NA
PCB-8 (2,4')	NA	NA	NA	NA	NA	NA	0.4	NA	NA	0.4 U	0.2 U	NA
TRANS-NONACHLOR	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	0.4 U	0.6	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	U	NA	NA	U	U	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	U	NA	NA	U	0.6	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	3	NA	NA	2	3	NA
TOTAL PCBS	NA	NA	NA	NA	NA	NA	3	NA	NA	3	2	NA
Pesticides (in µg/kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB025	RADSB026	RADSB027	RADSB028	RADSB029	RADSB030	RADSBA01	RADSBA02	RADSBA03	RADSBA04	RADSBA05	RADSBA06
Sample ID	281RADSS134	281RADSS136	281RADSS007	281RADSS084	281RADSS109	281RADSS151	281RADSS021	281RADSS022	281RADSS023	281RADSS032	281RADSS031	281RADSS030
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	07/27/1995	08/23/1995	08/22/1995	08/28/1995	08/02/1995	08/02/1995	08/02/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/kg)												
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Explosives (in µg/kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/kg)												
ALUMINUM	12,500	12,300	14,300	18,800	21,000	14,500	22,200	25,800	23,500	27,400	23,400	13,500
ANTIMONY	0.63 J	1.4 J	0.64 J	1.0 U	2.1 J	0.77 J	1.1 J	2.7 U	3.1 J	2.0 UJ	1.4 U	1.6 UJ
ARSENIC	5.5 *	7.0 *	7.9 *	11.8 *	17.4 *	19.5 *	17.8 *	15.6 *	16.7 *	9.1 *	14.6 *	17.5 *
BARIUM	111	124	174	83.2	51.5	184	90.8	196 J	91.2 J	75.0 J	57.3 J	92.9 J
BERYLLIUM	0.57	0.11	0.080 U	0.030 U	0.34	0.020 U	0.050 U	0.090 U	0.060 U	0.090 U	0.050 U	0.080 U
CADMIUM	0.050 U	0.040 U	0.040 U	0.050 U	0.070 U	0.040 U	0.090 U	0.12 U	0.68	0.19 U	0.090 U	0.15 U

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSB025	RADSB026	RADSB027	RADSB028	RADSB029	RADSB030	RADSBA01	RADSBA02	RADSBA03	RADSBA04	RADSBA05	RADSBA06
Sample ID	281RADSS134	281RADSS136	281RADSS007	281RADSS084	281RADSS109	281RADSS151	281RADSS021	281RADSS022	281RADSS023	281RADSS032	281RADSS031	281RADSS030
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	07/27/1995	08/23/1995	08/22/1995	08/28/1995	08/02/1995	08/02/1995	08/02/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
CLP Metals (in mg/kg)												
CALCIUM	1,870	3,690	11,100	4,730	5,370	15,600	3,740	4,100	4,190	5,980	7,210	2,500
CHROMIUM	32.6	38.3	29.4	65.2 J	58.3	37.4	71.0	81.7	81.2	82.0	78.9	46.3
COBALT	7.9	16.5	18.0	25.8	9.2	14.6	20.0	19.3	27.0	22.3	12.6	7.2
COPPER	29.1	28.6	25.6	31.1 J	75.2	37.7	55.6	61.9	98.0	72.6	47.4	46.6
IRON	12,800	17,900	22,500	31,000 *	22,900	28,500 *	36,500 *	38,700 *	43,100 *	42,200 *	27,400 *	38,300 *
LEAD	44.5	19.8	8.7	55.4	70.1 J	23.0	128 J	182 *	94.0	37.8	30.7	23.0
MAGNESIUM	6,600	11,000	8,620	12,200	10,600	8,700	10,900	12,600	13,100	15,300	11,800	6,520
MANGANESE	161	355	525	678	251	590 J	344	402	513	463	417	144
MERCURY	0.15	0.090	0.090 U	0.11	0.22	0.13	0.56	0.36	0.37	0.92	0.44	0.56
MOLYBDENUM	1.5 J	0.20 UJ	0.20 U	0.22 U	3.3	0.19 U	1.1 U	0.54 U	1.3 U	1.3 U	2.5	0.75 U
NICKEL	50.5	124	55.4	107	78.2	66.7	78.3	80.7	96.4	85.8	61.0	32.0
POTASSIUM	4,960 J	4,600 J	2,590 J	4,020 J	4,490 J	3,210 J	4,150 J	4,570 J	4,890 J	4,070 J	4,390 J	2,390 J
SELENIUM	0.80 U	0.76 U	0.74 U	0.83 U	1.3	0.72 U	1.5 U	2.1 U	2.2 U	3.2 U	1.6 U	2.6 U
SILVER	0.14 U	0.13 U	0.13 U	0.15 U	0.26	0.13 U	0.27 U	0.36 U	0.52 U	0.57 U	0.28 U	0.56 U
SODIUM	18,000	22,500	883 J	9,710 J	20,500 J	787 U	2,780	3,310	8,630	4,620	3,440	3,730
THALLIUM	0.47 U	0.45 U	0.43 U	0.49 U	0.68 U	0.42 U	0.91 U	1.2 UJ	1.3 UJ	1.9 UJ	0.94 UJ	1.5 UJ
VANADIUM	40.3	52.1	54.2	68.2	71.8	69.0	77.1	82.9	89.2	96.1	79.2	66.1
ZINC	46.9	105	62.5	93.9	115	86.9	241	228 J	305 J	215 J	146 J	152 J
Hexavalent Chromium (in mg/kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	NA	NA	NA	NA	NA	375 J	NA	NA	5,120	21.7 U	NA
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	11,200	NA	NA	37,200	53,000	NA
Percent Moisture (percent)												
PERCENT MOISTURE	NA	NA	NA	NA	NA	NA	55.0	NA	NA	77.0	54.0	NA
Miscellaneous												
PH	4.5	6.2	9.7	4.7	4.8	8.5	8.2	7.2	7.6	8	6.9	7

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBA07	RADSBA08	RADSBB01	RADSBB02	RADSBB03	RADSBB04	RADSBB04	RADSBB04	RADSBB05	RADSBB06	RADSBB06	RADSBB07
Sample ID	281RADSS029	281RADSS028	281RADSS149	281RADSS150	281RADSS033	281RADSS035	281RADSS036	281RADSS037	281RADSS038	281RADSS039	281RADSS040	281RADSS041
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/03/1995	08/03/1995	08/28/1995	08/28/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.90 - 1.50	4.00 - 5.20	0.00 - 0.50	0.00 - 0.50	1.20 - 2.00	0.00 - 0.50
Volatiles (in µg/kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	43 J	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
ACETONE	NA	NA	NA	NA	NA	NA	24 U	300 U	NA	NA	260 U	NA
BENZENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	24 U	160	NA	NA	19 U	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	24 U	43 U	NA	NA	19 U	NA
STYRENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
TOLUENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	24 U	38 U	NA	NA	19 U	NA
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
1,2,4-TRICHLOROBENZENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
1,2-DICHLOROBENZENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
1,3-DICHLOROBENZENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U

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Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBA07	RADSBA08	RADSBB01	RADSBB02	RADSBB03	RADSBB04	RADSBB04	RADSBB04	RADSBB05	RADSBB06	RADSBB06	RADSBB07
Sample ID	281RADSS029	281RADSS028	281RADSS149	281RADSS150	281RADSS033	281RADSS035	281RADSS036	281RADSS037	281RADSS038	281RADSS039	281RADSS040	281RADSS041
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/03/1995	08/03/1995	08/28/1995	08/28/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.90 - 1.50	4.00 - 5.20	0.00 - 0.50	0.00 - 0.50	1.20 - 2.00	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
1-METHYLNAPHTHALENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
1-METHYLPHENANTHRENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2,2'-OXYBIS(1-CHLOROPROPANE)	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2,3,5-TRIMETHYLNAPHTHALENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2,4,5-TRICHLOROPHENOL	500 U	NA	91 U	NA	180 U	1,600 U	NA	NA	NA	1,100 U	NA	240 U
2,4,6-TRICHLOROPHENOL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2,4-DICHLOROPHENOL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2,4-DIMETHYLPHENOL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2,4-DINITROPHENOL	500 U	NA	91 U	NA	180 U	1,600 U	NA	NA	NA	1,100 U	NA	240 U
2,4-DINITROTOLUENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2,6-DIMETHYLNAPHTHALENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2,6-DINITROTOLUENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2-CHLORONAPHTHALENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2-CHLOROPHENOL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2-METHYLNAPHTHALENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2-METHYLPHENOL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
2-NITROANILINE	500 U	NA	91 U	NA	180 U	1,600 U	NA	NA	NA	1,100 U	NA	240 U
2-NITROPHENOL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
3,3'-DICHLOROBENZIDINE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
3-NITROANILINE	500 U	NA	91 U	NA	180 U	1,600 U	NA	NA	NA	1,100 U	NA	240 U
4,6-DINITRO-2-METHYLPHENOL	500 U	NA	91 U	NA	180 U	1,600 U	NA	NA	NA	1,100 U	NA	240 U
4-BROMOPHENYL-PHENYLETHER	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
4-CHLORO-3-METHYLPHENOL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
4-CHLOROANILINE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
4-CHLOROPHENYL-PHENYLETHER	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
4-METHYLPHENOL	200 U	NA	36 U	NA	70 U	280 J	NA	NA	NA	420 U	NA	96 U
4-NITROANILINE	500 U	NA	91 U	NA	180 U	1,600 U	NA	NA	NA	1,100 U	NA	240 U
4-NITROPHENOL	500 U	NA	91 U	NA	180 U	1,600 U	NA	NA	NA	1,100 U	NA	240 U
ACENAPHTHENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
ACENAPHTHYLENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
ANTHRACENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
BENZO(A)ANTHRACENE	22 J	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
BENZO(A)PYRENE	35 J	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	13 J
BENZO(B)FLUORANTHENE	39 J	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	15 J
BENZO(E)PYRENE	39 J	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	11 J
BENZO(G,H,I)PERYLENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	21 J
BENZO(K)FLUORANTHENE	24 J	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
BENZOIC ACID	250 J	NA	91 U	NA	18 J	280 J	NA	NA	NA	200 J	NA	240 J

Notes:

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBA07	RADSBA08	RADSBB01	RADSBB02	RADSBB03	RADSBB04	RADSBB04	RADSBB04	RADSBB05	RADSBB06	RADSBB06	RADSBB07
Sample ID	281RADSS029	281RADSS028	281RADSS149	281RADSS150	281RADSS033	281RADSS035	281RADSS036	281RADSS037	281RADSS038	281RADSS039	281RADSS040	281RADSS041
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/03/1995	08/03/1995	08/28/1995	08/28/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.90 - 1.50	4.00 - 5.20	0.00 - 0.50	0.00 - 0.50	1.20 - 2.00	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
BIS(2-CHLOROETHOXY)METHANE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
BIS(2-CHLOROETHYL)ETHER	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
BIS(2-ETHYLHEXYL)PHTHALATE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
BUTYLBENZYLPHTHALATE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
CARBAZOLE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
CHRYSENE	39 J	NA	36 U	NA	8 J	630 U	NA	NA	NA	420 U	NA	96 U
DI-N-BUTYLPHTHALATE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
DI-N-OCTYLPHTHALATE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
DIBENZ(A,H)ANTHRACENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
DIBENZOFURAN	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
DIBENZOTHIOPHENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
DIETHYLPHTHALATE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
DIMETHYLPHTHALATE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
FLUORANTHENE	45 J	NA	36 U	NA	10 J	630 U	NA	NA	NA	47 J	NA	12 J
FLUORENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
HEXACHLOROBENZENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
HEXACHLOROBUTADIENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
HEXACHLOROCYCLOPENTADIENE	200 U	NA	36 U	NA	70 UJ	630 UJ	NA	NA	NA	420 UJ	NA	96 U
HEXACHLOROETHANE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
INDENO(1,2,3-CD)PYRENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	15 J
ISOPHORONE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
N-NITROSO-DI-N-PROPYLAMINE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
N-NITROSODIPHENYLAMINE (1)	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
NAPHTHALENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
NITROBENZENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
PENTACHLOROPHENOL	500 U	NA	91 U	NA	180 U	1,600 U	NA	NA	NA	1,100 U	NA	240 U
PERYLENE	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
PHENANTHRENE	25 J	NA	36 U	NA	8 J	630 U	NA	NA	NA	420 U	NA	96 U
PHENOL	200 U	NA	36 U	NA	70 U	630 U	NA	NA	NA	420 U	NA	96 U
PYRENE	55 J	NA	36 U	NA	8 J	630 U	NA	NA	NA	44 J	NA	16 J
TOTAL HIGH MOLECULAR PAHS	300	NA	U	NA	26	U	NA	NA	NA	91	NA	100
TOTAL LOW MOLECULAR PAHS	25	NA	U	NA	8	U	NA	NA	NA	U	NA	U
TOTAL PAHS	320	NA	U	NA	34	U	NA	NA	NA	91	NA	100
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA

Notes:

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBA07	RADSBA08	RADSBB01	RADSBB02	RADSBB03	RADSBB04	RADSBB04	RADSBB04	RADSBB05	RADSBB06	RADSBB06	RADSBB07
Sample ID	281RADSS029	281RADSS028	281RADSS149	281RADSS150	281RADSS033	281RADSS035	281RADSS036	281RADSS037	281RADSS038	281RADSS039	281RADSS040	281RADSS041
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/03/1995	08/03/1995	08/28/1995	08/28/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.90 - 1.50	4.00 - 5.20	0.00 - 0.50	0.00 - 0.50	1.20 - 2.00	0.00 - 0.50
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	2,000 U	3,200 U	NA	NA	1,600 U	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	2,000 U	3,200 U	NA	NA	1,600 U	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	2,000 U	3,200 U	NA	NA	1,600 U	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	2,000 U	3,200 U	NA	NA	1,600 U	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	2,000 U	3,200 U	NA	NA	1,600 U	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	2,000 U	3,200 U	NA	NA	1,600 U	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	2,000 U	3,200 U	NA	NA	1,600 U	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBA07	RADSBA08	RADSBB01	RADSBB02	RADSBB03	RADSBB04	RADSBB04	RADSBB04	RADSBB05	RADSBB06	RADSBB06	RADSBB07
Sample ID	281RADSS029	281RADSS028	281RADSS149	281RADSS150	281RADSS033	281RADSS035	281RADSS036	281RADSS037	281RADSS038	281RADSS039	281RADSS040	281RADSS041
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/03/1995	08/03/1995	08/28/1995	08/28/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.90 - 1.50	4.00 - 5.20	0.00 - 0.50	0.00 - 0.50	1.20 - 2.00	0.00 - 0.50
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
FLUORENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	2,000 U	3,200 U	NA	NA	1,600 U	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
PHENOL	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
PYRENE	NA	NA	NA	NA	NA	NA	810 U	1,300 U	NA	NA	630 U	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	U	U	NA	NA	U	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	U	U	NA	NA	U	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	U	U	NA	NA	U	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	1	NA	0.1 U	NA	0.1 U	0.7	NA	NA	NA	0.3 U	NA	0.1 U
2,4'-DDE	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
2,4'-DDT	0.3 U	NA	0.1 U	NA	0.2	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
4,4'-DDD	1	NA	0.1 U	NA	0.1 U	0.9	NA	NA	NA	0.5	NA	0.1 U
4,4'-DDE	3	NA	0.2	NA	0.7	2	NA	NA	NA	2	NA	0.1 U
4,4'-DDT	0.7	NA	0.3	NA	2	0.9	NA	NA	NA	0.3 U	NA	0.1 UJ
ALDRIN	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.4
ALPHA-CHLORDANE	1	NA	0.1 U	NA	0.2	0.8	NA	NA	NA	0.7	NA	0.1 U
DIELDRIN	0.6	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
GAMMA-BHC (LINDANE)	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
HEPTACHLOR	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
HEPTACHLOR EPOXIDE	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
HEXACHLOROBENZENE	0.3 U	NA	0.1 U	NA	0.4	0.4 U	NA	NA	NA	0.3 U	NA	0.3
MIREX	0.1 J	NA	0.1 U	NA	0.05 J	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U

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Soil Analytical Results

Point ID	RADSBA07	RADSBA08	RADSBB01	RADSBB02	RADSBB03	RADSBB04	RADSBB04	RADSBB04	RADSBB05	RADSBB06	RADSBB06	RADSBB07
Sample ID	281RADSS029	281RADSS028	281RADSS149	281RADSS150	281RADSS033	281RADSS035	281RADSS036	281RADSS037	281RADSS038	281RADSS039	281RADSS040	281RADSS041
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/03/1995	08/03/1995	08/28/1995	08/28/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.90 - 1.50	4.00 - 5.20	0.00 - 0.50	0.00 - 0.50	1.20 - 2.00	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	1	NA	0.1 U	NA	0.6	0.5	NA	NA	NA	0.9	NA	0.1 U
PCB-105 (2,3,3',4,4')	0.7	NA	0.1 U	NA	0.2	0.4 U	NA	NA	NA	0.4	NA	0.1 U
PCB-118 (2,3',4,4',5)	1	NA	0.1 U	NA	0.1	0.7	NA	NA	NA	0.8	NA	0.1 U
PCB-126 (3,3',4,4',5)	0.3 U	NA	0.1 U	NA	0.2	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
PCB-128 (2,2',3,3',4,4')	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
PCB-138 (2,2',3,4,4',5')	2	NA	0.1 U	NA	0.3	0.8	NA	NA	NA	1	NA	0.1 U
PCB-153 (2,2',4,4',5,5')	1	NA	0.1 U	NA	0.09 J	0.6	NA	NA	NA	1	NA	0.1 U
PCB-170 (2,2',3,3',4,4',5)	0.4	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
PCB-18 (2,2',5)	0.2 J	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.2 J	NA	0.1 U
PCB-180 (2,2',3,4,4',5,5')	0.8	NA	0.1 U	NA	0.1	0.5	NA	NA	NA	0.6	NA	0.1 U
PCB-187 (2,2',3,4',5,5',6)	0.5	NA	0.1 U	NA	0.07 J	0.4 U	NA	NA	NA	0.3	NA	0.1 U
PCB-195 (2,2',3,3',4,4',5,6)	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
PCB-206 (2,2',3,3',4,4',5,5',6	0.2 J	NA	0.1 U	NA	0.2	0.4 U	NA	NA	NA	0.1 J	NA	0.1 U
PCB-209 (2,2',3,3',4,4',5,5',6	0.3 U	NA	0.1 U	NA	0.2	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
PCB-28 (2,4,4')	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
PCB-44 (2,2',3,5')	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.3
PCB-52 (2,2',5,5')	0.4	NA	0.1 U	NA	0.06 J	0.4 U	NA	NA	NA	0.2 J	NA	0.1 U
PCB-66 (2,3',4,4')	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.3 U	NA	0.1 U
PCB-77 (3,3',4,4')	0.3 U	NA	0.1 U	NA	0.1 U	0.4 U	NA	NA	NA	0.2 J	NA	0.1 U
PCB-8 (2,4')	0.8	NA	0.1 U	NA	0.3	0.7	NA	NA	NA	0.4	NA	0.2 U
TRANS-NONACHLOR	1	NA	0.1 U	NA	0.2	1	NA	NA	NA	2	NA	0.1 U
TOTAL BHCS	U	NA	U	NA	U	U	NA	NA	NA	U	NA	U
TOTAL CHLORDANES	1	NA	U	NA	0.2	0.8	NA	NA	NA	0.7	NA	U
TOTAL DDTS	6	NA	0.5	NA	3	4	NA	NA	NA	2	NA	U
TOTAL PCBS	18	NA	U	NA	4	8	NA	NA	NA	12	NA	0.5
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	8 U	13 U	NA	NA	6 U	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	8 U	13 U	NA	NA	6 U	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	8 U	13 U	NA	NA	6 U	NA
ALDRIN	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	81 U	130 U	NA	NA	63 U	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	160 U	260 U	NA	NA	130 U	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	81 U	130 U	NA	NA	63 U	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	81 U	130 U	NA	NA	63 U	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	81 U	130 U	NA	NA	63 U	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	81 U	130 U	NA	NA	63 U	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBA07	RADSBA08	RADSBB01	RADSBB02	RADSBB03	RADSBB04	RADSBB04	RADSBB04	RADSBB05	RADSBB06	RADSBB06	RADSBB07
Sample ID	281RADSS029	281RADSS028	281RADSS149	281RADSS150	281RADSS033	281RADSS035	281RADSS036	281RADSS037	281RADSS038	281RADSS039	281RADSS040	281RADSS041
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/03/1995	08/03/1995	08/28/1995	08/28/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.90 - 1.50	4.00 - 5.20	0.00 - 0.50	0.00 - 0.50	1.20 - 2.00	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1260	NA	NA	NA	NA	NA	NA	81 U	130 U	NA	NA	63 U	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	8 U	13 U	NA	NA	6 U	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	8 U	13 U	NA	NA	6 U	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	8 U	13 U	NA	NA	6 U	NA
ENDRIN	NA	NA	NA	NA	NA	NA	8 U	13 U	NA	NA	6 U	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	8 U	13 U	NA	NA	6 U	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	8 U	13 U	NA	NA	6 U	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	4 U	6 U	NA	NA	3 U	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	41 U	64 U	NA	NA	31 U	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	410 U	640 U	NA	NA	310 U	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	U	U	NA	NA	U	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	U	U	NA	NA	U	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	U	U	NA	NA	U	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	23,100	11,900	13,900	11,700	15,300	15,200	18,000	17,500	20,200	13,200	25,200	19,800
ANTIMONY	7.1 J	1.1 U	1.1 J	0.78 J	1.2 U	1.9 U	1.1 U	1.6 UJ	1.2 U	1.1 U	0.79 UJ	0.72 J
ARSENIC	47.2 *	9.0 *	6.2 *	3.8 *	9.0 *	8.9 *	12.8 *	8.6 *	10.7 *	5.6 *	21.2 *	19.7 *
BARIUM	77.1 J	499 J	180	177	205 J	127 J	57.4 J	33.1 J	166 J	47.2 J	70.1	165
BERYLLIUM	0.050 U	0.21	0.090 U	0.18	0.020 U	0.030 U	0.050 U	0.080 U	0.16 U	0.030 U	0.14	0.10 U
CADMIUM	0.090 U	0.040 U	0.040 U	0.040 U	0.050 U	0.060 U	0.10 U	0.15 U	0.050 U	0.060 U	0.080 U	0.060 U

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBA07	RADSBA08	RADSBB01	RADSBB02	RADSBB03	RADSBB04	RADSBB04	RADSBB04	RADSBB05	RADSBB06	RADSBB06	RADSBB07
Sample ID	281RADSS029	281RADSS028	281RADSS149	281RADSS150	281RADSS033	281RADSS035	281RADSS036	281RADSS037	281RADSS038	281RADSS039	281RADSS040	281RADSS041
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/03/1995	08/03/1995	08/28/1995	08/28/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995	08/03/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.90 - 1.50	4.00 - 5.20	0.00 - 0.50	0.00 - 0.50	1.20 - 2.00	0.00 - 0.50
CLP Metals (in mg/kg)												
CALCIUM	3,340	6,650	12,600	14,600	11,400	2,610	4,950	5,080	39,400	2,900	3,450	2,930
CHROMIUM	319 *	29.0	32.2	20.4	41.9	54.0	60.7	59.5	56.6	41.2	72.1	61.1
COBALT	20.3	11.8	11.1	9.2	18.6	13.6	6.8	10.3	28.2	9.0	12.6	20.7
COPPER	272	64.4	23.7	20.2	44.8	30.2	35.3	24.4	36.5	34.5	56.1	51.7
IRON	135,000 *	27,500 *	19,600	18,400	27,000 *	25,200 *	15,500	29,700 *	30,900 *	19,600	29,100 *	34,000 *
LEAD	106	192 *	26.7	35.8	35.8	54.9	18.0	7.2	51.5	53.4	34.2	100
MAGNESIUM	9,780	7,240	7,450	6,190	11,500	11,300	8,190	11,900	18,500	7,450	11,400	11,400
MANGANESE	401	59.0	498 J	365 J	638	229	175	246	803	257	268	653
MERCURY	0.51	0.10	0.070	0.060	0.10	0.19	0.12 U	0.19 U	0.070 U	0.11	0.25	0.36
MOLYBDENUM	53.7	0.20 U	0.19 U	0.20 U	0.21 U	0.40 U	5.6	4.5	0.51 U	0.28 U	2.1	0.27 U
NICKEL	140	41.1	44.5	29.4	92.0	78.5	39.4	58.9	90.0	54.4	78.0	79.0
POTASSIUM	3,760 J	1,870 J	2,670 J	1,910 J	2,480 J	3,860 J	4,220 J	4,400 J	6,720 J	2,670 J	4,670 J	4,820 J
SELENIUM	1.6 U	0.76 U	0.71 U	0.76 U	0.79 U	1.1 U	1.6 U	2.6 U	0.93 U	1.0 U	1.3 U	1.0 U
SILVER	0.28 U	0.13 U	0.12 U	0.13 U	0.14 U	0.19 U	0.29 U	0.46 U	0.16 U	0.18 U	0.23 U	0.18 U
SODIUM	4,770	629	218 U	430 U	1,800	1,960	9,750	20,900	4,720	5,980	9,230	6,190
THALLIUM	0.94 UJ	0.45 UJ	0.42 U	0.45 U	0.47 UJ	0.65 UJ	0.97 UJ	1.5 UJ	0.55 UJ	0.59 UJ	0.75 U	0.59 U
VANADIUM	96.8	36.7	47.2	40.4	62.8	61.4	67.5	73.0	65.5	53.3	72.7	70.9
ZINC	496 J	201 J	70.3	62.5	102 J	135 J	72.1 J	72.2 J	100 J	93.8 J	108	215
Hexavalent Chromium (in mg/kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	50.0 U	NA	NA	NA	50.0 U	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	251	NA	10.6 U	NA	10.5 U	390	47.2	39.2 U	NA	25.3 U	161 J	14.4 UJ
TOTAL ORGANIC CARBON	53,500	NA	110 U	NA	36,500	42,600	6,420	113,000	NA	10,500	NA	11,000 J
Percent Moisture (percent)												
PERCENT MOISTURE	67.0	NA	9.0	NA	6.0	74.0	59.0	74.0	NA	61.0	NA	31.0
Miscellaneous												
PH	6.7	7.8	7.3	8.8	8.2	7.3	7.3	7.5	9.2	8.5	7.3	7.6

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBB08	RADSBB08	RADSBC03	RADSBC04	RADSBC05	RADSBC05	RADSBC06	RADSBC07	RADSBC08	RADSBD03	RADSBD04	RADSBD05
Sample ID	281RADSS016	281RADSS017	281RADSS043	281RADSS044	281RADSS045	281RADSS046	281RADSS047	281RADSS048	281RADSS091	281RADSS118	281RADSS121	281RADSS053
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/03/1995	08/03/1995	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/23/1995	08/23/1995	08/04/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Volatiles (in ug/kg)												
1,1,1-TRICHLOROETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
ACETONE	NA	12 U	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA
BENZENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
STYRENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
TOLUENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	12 U	NA	NA	NA	14 U	NA	NA	NA	NA	NA	NA
Low level semi-volatiles (in µg/Kg)												
1,1'-BIPHENYL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
1,2,4-TRICHLOROBENZENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
1,2-DICHLOROBENZENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
1,3-DICHLOROBENZENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U

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Point ID	RADSBB08	RADSBB08	RADSBC03	RADSBC04	RADSBC05	RADSBC05	RADSBC06	RADSBC07	RADSBC08	RADSBD03	RADSBD04	RADSBD05
Sample ID	281RADSS016	281RADSS017	281RADSS043	281RADSS044	281RADSS045	281RADSS046	281RADSS047	281RADSS048	281RADSS091	281RADSS118	281RADSS121	281RADSS053
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/03/1995	08/03/1995	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/23/1995	08/23/1995	08/04/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
1-METHYLNAPHTHALENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
1-METHYLPHENANTHRENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2,2'-OXYBIS(1-CHLOROPROPANE)	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2,3,5-TRIMETHYLNAPHTHALENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2,4,5-TRICHLOROPHENOL	260 U	NA	180 U	NA	390 U	NA	NA	NA	170 U	94 U	NA	430 U
2,4,6-TRICHLOROPHENOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2,4-DICHLOROPHENOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2,4-DIMETHYLPHENOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2,4-DINITROPHENOL	260 U	NA	180 U	NA	390 U	NA	NA	NA	170 U	94 U	NA	430 U
2,4-DINITROTOLUENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2,6-DIMETHYLNAPHTHALENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2,6-DINITROTOLUENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2-CHLORONAPHTHALENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2-CHLOROPHENOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2-METHYLNAPHTHALENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2-METHYLPHENOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
2-NITROANILINE	260 U	NA	180 U	NA	390 U	NA	NA	NA	170 U	94 U	NA	430 U
2-NITROPHENOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
3,3'-DICHLOROBENZIDINE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
3-NITROANILINE	260 U	NA	180 U	NA	390 U	NA	NA	NA	170 U	94 U	NA	430 U
4,6-DINITRO-2-METHYLPHENOL	260 U	NA	180 U	NA	390 U	NA	NA	NA	170 U	94 U	NA	430 U
4-BROMOPHENYL-PHENYLETHER	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
4-CHLORO-3-METHYLPHENOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
4-CHLOROANILINE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
4-CHLOROPHENYL-PHENYLETHER	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
4-METHYLPHENOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
4-NITROANILINE	260 U	NA	180 U	NA	390 U	NA	NA	NA	170 U	94 U	NA	430 U
4-NITROPHENOL	260 U	NA	180 U	NA	390 U	NA	NA	NA	170 U	94 UJ	NA	430 U
ACENAPHTHENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
ACENAPHTHYLENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
ANTHRACENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BENZO(A)ANTHRACENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BENZO(A)PYRENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BENZO(B)FLUORANTHENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BENZO(E)PYRENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BENZO(G,H,I)PERYLENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BENZO(K)FLUORANTHENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BENZOIC ACID	260 U	NA	180 U	NA	390 U	NA	NA	NA	170 U	94 U	NA	430 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBB08	RADSBB08	RADSBC03	RADSBC04	RADSBC05	RADSBC05	RADSBC06	RADSBC07	RADSBC08	RADSBD03	RADSBD04	RADSBD05
Sample ID	281RADSS016	281RADSS017	281RADSS043	281RADSS044	281RADSS045	281RADSS046	281RADSS047	281RADSS048	281RADSS091	281RADSS118	281RADSS121	281RADSS053
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/03/1995	08/03/1995	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/23/1995	08/23/1995	08/04/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BIS(2-CHLOROETHOXY)METHANE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BIS(2-CHLOROETHYL)ETHER	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BIS(2-ETHYLHEXYL)PHTHALATE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
BUTYLBENZYLPHTHALATE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
CARBAZOLE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
CHRYSENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
DI-N-BUTYLPHTHALATE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
DI-N-OCTYLPHTHALATE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
DIBENZ(A,H)ANTHRACENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
DIBENZOFURAN	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
DIBENZOTHIOPHENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
DIETHYLPHTHALATE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
DIMETHYLPHTHALATE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
FLUORANTHENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
FLUORENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
HEXACHLOROBENZENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
HEXACHLOROBUTADIENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
HEXACHLOROCYCLOPENTADIENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
HEXACHLOROETHANE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
INDENO(1,2,3-CD)PYRENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
ISOPHORONE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
N-NITROSO-DI-N-PROPYLAMINE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
N-NITROSODIPHENYLAMINE (1)	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
NAPHTHALENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
NITROBENZENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
PENTACHLOROPHENOL	260 U	NA	180 U	NA	390 U	NA	NA	NA	170 U	94 U	NA	430 U
PERYLENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
PHENANTHRENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
PHENOL	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
PYRENE	100 U	NA	70 U	NA	160 U	NA	NA	NA	69 U	38 U	NA	170 U
TOTAL HIGH MOLECULAR PAHS	U	NA	U	NA	U	NA	NA	NA	U	U	NA	U
TOTAL LOW MOLECULAR PAHS	U	NA	U	NA	U	NA	NA	NA	U	U	NA	U
TOTAL PAHS	U	NA	U	NA	U	NA	NA	NA	U	U	NA	U
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA

Notes:

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Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBB08	RADSBB08	RADSBC03	RADSBC04	RADSBC05	RADSBC05	RADSBC06	RADSBC07	RADSBC08	RADSBD03	RADSBD04	RADSBD05
Sample ID	281RADSS016	281RADSS017	281RADSS043	281RADSS044	281RADSS045	281RADSS046	281RADSS047	281RADSS048	281RADSS091	281RADSS118	281RADSS121	281RADSS053
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/03/1995	08/03/1995	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/23/1995	08/23/1995	08/04/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	400 UJ	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	990 U	NA	NA	NA	1,200 U	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	990 U	NA	NA	NA	1,200 U	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	990 U	NA	NA	NA	1,200 U	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	990 U	NA	NA	NA	1,200 U	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	990 U	NA	NA	NA	1,200 U	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	990 U	NA	NA	NA	1,200 U	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	990 U	NA	NA	NA	1,200 U	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	320 J	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	290 J	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	300 J	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA

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Soil Analytical Results

Point ID	RADSBB08	RADSBB08	RADSBC03	RADSBC04	RADSBC05	RADSBC05	RADSBC06	RADSBC07	RADSBC08	RADSBD03	RADSBD04	RADSBD05
Sample ID	281RADSS016	281RADSS017	281RADSS043	281RADSS044	281RADSS045	281RADSS046	281RADSS047	281RADSS048	281RADSS091	281RADSS118	281RADSS121	281RADSS053
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/03/1995	08/03/1995	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/23/1995	08/23/1995	08/04/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
DI-N-OCTYLPHTHALATE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	640	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
FLUORENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	990 U	NA	NA	NA	1,200 U	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	440	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
PHENOL	NA	400 U	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
PYRENE	NA	630	NA	NA	NA	470 U	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	2,200	NA	NA	NA	U	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	440	NA	NA	NA	U	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	2,600	NA	NA	NA	U	NA	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/kg)												
2,4'-DDD	0.1 U	NA	0.1 UJ	NA	1	NA	NA	NA	0.2 U	0.1 U	NA	4
2,4'-DDE	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.6
2,4'-DDT	0.1 U	NA	0.1 UJ	NA	2	NA	NA	NA	0.8	0.3	NA	0.8
4,4'-DDD	0.1 U	NA	0.1 UJ	NA	3	NA	NA	NA	0.2 U	0.1 U	NA	6
4,4'-DDE	0.3	NA	0.1 UJ	NA	5	NA	NA	NA	0.7	0.5	NA	3
4,4'-DDT	0.3	NA	0.1 UJ	NA	7 J	NA	NA	NA	6	0.9	NA	2 J
ALDRIN	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
ALPHA-CHLORDANE	0.1 U	NA	0.1 UJ	NA	2	NA	NA	NA	0.2 U	0.1 U	NA	3
DIELDRIN	0.1 U	NA	0.1 UJ	NA	0.6	NA	NA	NA	0.2 U	0.1 U	NA	1
GAMMA-BHC (LINDANE)	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.8
HEPTACHLOR	0.1 U	NA	0.1 UJ	NA	0.4	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
HEPTACHLOR EPOXIDE	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.6
HEXACHLOROBENZENE	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.6
MIREX	0.1 U	NA	0.1 UJ	NA	0.2 J	NA	NA	NA	0.2 U	0.1	NA	0.5

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBB08	RADSBB08	RADSBC03	RADSBC04	RADSBC05	RADSBC05	RADSBC06	RADSBC07	RADSBC08	RADSBD03	RADSBD04	RADSBD05
Sample ID	281RADSS016	281RADSS017	281RADSS043	281RADSS044	281RADSS045	281RADSS046	281RADSS047	281RADSS048	281RADSS091	281RADSS118	281RADSS121	281RADSS053
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/03/1995	08/03/1995	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/23/1995	08/23/1995	08/04/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	0.1 U	NA	0.1 UJ	NA	0.9	NA	NA	NA	0.2 U	0.1 U	NA	1
PCB-105 (2,3,3',4,4')	0.1 U	NA	0.1 UJ	NA	0.8	NA	NA	NA	0.2 U	0.1 U	NA	0.7
PCB-118 (2,3',4,4',5)	0.1 U	NA	0.1 UJ	NA	1	NA	NA	NA	0.2 U	0.1 U	NA	1
PCB-126 (3,3',4,4',5)	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
PCB-128 (2,2',3,3',4,4')	0.1 U	NA	0.1 UJ	NA	0.6	NA	NA	NA	0.2 U	0.1 U	NA	0.6
PCB-138 (2,2',3,4,4',5')	0.1 U	NA	0.1 UJ	NA	2	NA	NA	NA	0.2 U	0.3	NA	2
PCB-153 (2,2',4,4',5,5')	0.1 U	NA	0.1 UJ	NA	1	NA	NA	NA	0.2 U	0.1 U	NA	1
PCB-170 (2,2',3,3',4,4',5)	0.1 U	NA	0.1 UJ	NA	0.5	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
PCB-18 (2,2',5)	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
PCB-180 (2,2',3,4,4',5,5')	0.1 U	NA	0.1 UJ	NA	0.9	NA	NA	NA	0.2 U	0.1 U	NA	0.7
PCB-187 (2,2',3,4',5,5',6)	0.1 U	NA	0.1 UJ	NA	0.5	NA	NA	NA	0.2 U	0.1 U	NA	0.5
PCB-195 (2,2',3,3',4,4',5,6)	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
PCB-206 (2,2',3,3',4,4',5,5',6	0.1 U	NA	0.1 UJ	NA	0.4	NA	NA	NA	0.2 U	0.1 U	NA	0.5
PCB-209 (2,2',3,3',4,4',5,5',6	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
PCB-28 (2,4,4')	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
PCB-44 (2,2',3,5')	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
PCB-52 (2,2',5,5')	0.1 U	NA	0.1 UJ	NA	0.3	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
PCB-66 (2,3',4,4')	0.1 U	NA	0.1 UJ	NA	0.8	NA	NA	NA	0.2 U	0.1 U	NA	0.6
PCB-77 (3,3',4,4')	0.1 U	NA	0.1 UJ	NA	0.5	NA	NA	NA	0.2 U	0.1 U	NA	0.8
PCB-8 (2,4')	0.1 U	NA	0.1 UJ	NA	0.2 U	NA	NA	NA	0.2 U	0.1 U	NA	0.3 U
TRANS-NONACHLOR	0.1 U	NA	0.1 UJ	NA	2	NA	NA	NA	0.2 U	0.1 U	NA	2
TOTAL BHCS	U	NA	U	NA	U	NA	NA	NA	U	U	NA	0.8
TOTAL CHLORDANES	U	NA	U	NA	2	NA	NA	NA	U	U	NA	3
TOTAL DDTS	0.6	NA	U	NA	18	NA	NA	NA	8	2	NA	15
TOTAL PCBS	U	NA	U	NA	19	NA	NA	NA	U	0.6	NA	17
Pesticides (in µg/Kg)												
4,4'-DDD	NA	4 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	4 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	4 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA
ALDRIN	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	40 U	NA	NA	NA	47 U	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	79 U	NA	NA	NA	94 U	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	40 U	NA	NA	NA	47 U	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	40 U	NA	NA	NA	47 U	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	40 U	NA	NA	NA	47 U	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	40 U	NA	NA	NA	47 U	NA	NA	NA	NA	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBB08	RADSBB08	RADSBC03	RADSBC04	RADSBC05	RADSBC05	RADSBC06	RADSBC07	RADSBC08	RADSBD03	RADSBD04	RADSBD05
Sample ID	281RADSS016	281RADSS017	281RADSS043	281RADSS044	281RADSS045	281RADSS046	281RADSS047	281RADSS048	281RADSS091	281RADSS118	281RADSS121	281RADSS053
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/03/1995	08/03/1995	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/23/1995	08/23/1995	08/04/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/kg)												
AROCLOR-1260	NA	40 U	NA	NA	NA	47 U	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	4 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	4 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	4 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA
ENDRIN	NA	4 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	4 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	4 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	2 U	NA	NA	NA	2 U	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	20 U	NA	NA	NA	23 U	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	200 U	NA	NA	NA	230 U	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	U	NA	NA	NA	U	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	U	NA	NA	NA	U	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	U	NA	NA	NA	U	NA	NA	NA	NA	NA	NA
Explosives (in µg/kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/kg)												
ALUMINUM	13,500	13,700	11,000	14,700	11,700	16,500	10,400	17,600	16,000	12,600	17,300	15,800
ANTIMONY	0.89 J	0.50 U	0.43 UJ	1.0 J	0.50 UJ	0.59 UJ	0.67 J	0.79 J	1.2 J	1.5 U	1.4 U	0.55 UJ
ARSENIC	6.1 *	6.0 *	8.9 *	10.8 *	8.3 *	14.5 *	5.9 *	19.2 *	8.0 *	8.9 *	16.1 *	9.6 *
BARIUM	178	185	173	45.4	162	188	107	140	168	141	169	160
BERYLLIUM	0.020 U	0.020 U	0.020 U	0.030 U	0.020 U	0.22 U	0.020 U	0.030 U	0.020 U	0.020 U	0.24 U	0.27 U
CADMIUM	0.040 U	0.050 U	0.040 U	0.050 U	0.050 U	0.060 U	0.23 U	0.070 U	0.040 U	0.040 U	0.050 U	0.83

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Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBB08	RADSBB08	RADSBC03	RADSBC04	RADSBC05	RADSBC05	RADSBC06	RADSBC07	RADSBC08	RADSBD03	RADSBD04	RADSBD05
Sample ID	281RADSS016	281RADSS017	281RADSS043	281RADSS044	281RADSS045	281RADSS046	281RADSS047	281RADSS048	281RADSS091	281RADSS118	281RADSS121	281RADSS053
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/01/1995	08/01/1995	08/03/1995	08/03/1995	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/23/1995	08/23/1995	08/04/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
CLP Metals (in mg/Kg)												
CALCIUM	9,040	15,400	30,200	4,280	13,500	5,240	4,720	3,640	6,300	6,750	2,690	3,210
CHROMIUM	31.3	27.9	27.1	52.8	41.9	49.3	40.2	56.1	38.7 U	33.5 J	54.7 J	45.9
COBALT	13.0	18.6	14.6	16.3	17.7	13.4	11.7	14.4	15.9	13.0	21.6	18.9
COPPER	26.0	23.3	32.8	41.3	20.7	40.0	26.8	51.7	31.5	40.3 J	48.7 J	37.9
IRON	21,500	21,800	20,300	28,400 *	20,100	23,800 *	17,700	28,200 *	25,100 *	22,200	31,500 *	24,100 *
LEAD	32.5 J	9.5 J	20.0	71.6	164 *	176 *	140	84.1	45.5 J	67.1	120	68.0
MAGNESIUM	8,080	8,200	7,740	11,500	10,900	9,490	7,860	11,000	7,870	8,150	11,500	11,400
MANGANESE	601	789	719	349	793	291	487	305	567	504	517	1,250
MERCURY	0.10 U	0.060 U	0.080	0.25	0.060 U	0.23	0.15	0.32	0.12	0.25	0.29	0.27
MOLYBDENUM	0.19 U	0.21 U	0.19 U	0.39 U	0.22 U	0.28 U	0.37	1.5	0.19 U	0.95	0.24 U	0.23 U
NICKEL	49.2	66.1	61.2	78.1	67.1	62.7	58.9	65.0	70.0	57.0	71.5	80.8
POTASSIUM	2,790 J	2,250 J	3,270 J	3,410 J	2,710 J	3,520 J	2,940 J	4,700 J	3,360 J	3,610 J	5,610 J	4,520 J
SELENIUM	0.72 U	0.81 U	0.70 U	0.91 U	0.81 U	0.95 U	0.99 U	1.4 U	0.71 U	0.73 U	0.91 U	0.89 U
SILVER	0.13 U	0.14 U	0.12 U	0.16 U	0.14 U	0.22 U	0.13 U	0.20 U	0.13 U	0.13 U	0.16 U	0.16 U
SODIUM	27.0 U	1,780	154	4,480	4,760	8,460	698	10,400	48.2 J	1,100 J	8,180 J	9,270
THALLIUM	0.42 U	0.47 U	0.72	0.53 U	2.4	0.56 U	0.42 U	0.67 U	0.42 U	0.43 U	0.53 U	1.3
VANADIUM	62.0	56.2	52.4	66.1	50.7	60.1	47.3	74.5	70.8	60.0	67.0	46.9
ZINC	87.8	62.1	71.1	155	95.8	204	148	173	122	120	203	172
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	50.0 U	NA	NA	NA	NA	NA	NA	250 U
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	10.7 U	11.6 U	10.6 UJ	NA	11.6 U	13.4 U	NA	NA	10.2 UJ	11.1 UJ	NA	13.0 U
TOTAL ORGANIC CARBON	109 U	117 U	2,450 J	NA	24,900 J	135 UJ	NA	NA	12,900 J	34,100	NA	28,600 J
Percent Moisture (percent)												
PERCENT MOISTURE	8.0	16.0	6.0	NA	15.0	NA	NA	NA	4.0	12.0	NA	24.0
Miscellaneous												
PH	7.5	7.6	7.7	7.5	7.8	7.3	6.3	5.5	6.8	7	5.9	6.1

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Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBD05	RADSBD06	RADSBD06	RADSBD06	RADSBD07	RADSBD08	RADSBE02	RADSBE03	RADSBE03	RADSBE04	RADSBE05	RADSBE06
Sample ID	281RADSS054	281RADSS050	281RADSS051	281RADSS052	281RADSS095	281RADSS090	281RADSS117	281RADSS076	281RADSS077	281RADSS122	281RADSS103	281RADSS097
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	1.20 - 2.00	0.00 - 0.50	0.60 - 1.00	4.50 - 5.70	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Volatiles (in µg/kg)												
1,1,1-TRICHLOROETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
1,1,2-TRICHLOROETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
1,1-DICHLOROETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
1,1-DICHLOROETHENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
1,2-DICHLOROETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
1,2-DICHLOROPROPANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
2-BUTANONE	20 U	NA	20 U	73 J	NA	NA	NA	NA	96 U	NA	NA	NA
2-HEXANONE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
4-METHYL-2-PENTANONE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
ACETONE	95 U	NA	67 U	350 U	NA	NA	NA	NA	330 U	NA	NA	NA
BENZENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
BROMODICHLOROMETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
BROMOFORM	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
BROMOMETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
CARBON DISULFIDE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
CARBON TETRACHLORIDE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
CHLOROBENZENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
CHLOROETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
CHLOROFORM	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
CHLOROMETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
DIBROMOCHLOROMETHANE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
ETHYLBENZENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
METHYLENE CHLORIDE	20 U	NA	20 U	23 U	NA	NA	NA	NA	41 U	NA	NA	NA
STYRENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
TETRACHLOROETHENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
TOLUENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
TRICHLOROETHENE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
VINYL CHLORIDE	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
XYLENE (TOTAL)	20 U	NA	20 U	23 U	NA	NA	NA	NA	43 U	NA	NA	NA
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
1,2,4-TRICHLOROBENZENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
1,2-DICHLOROBENZENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
1,3-DICHLOROBENZENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA

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Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBD05	RADSBD06	RADSBD06	RADSBD06	RADSBD07	RADSBD08	RADSBE02	RADSBE03	RADSBE03	RADSBE04	RADSBE05	RADSBE06
Sample ID	281RADSS054	281RADSS050	281RADSS051	281RADSS052	281RADSS095	281RADSS090	281RADSS117	281RADSS076	281RADSS077	281RADSS122	281RADSS103	281RADSS097
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	1.20 - 2.00	0.00 - 0.50	0.60 - 1.00	4.50 - 5.70	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
1,4-DICHLOROBENZENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
1-METHYLNAPHTHALENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
1-METHYLPHENANTHRENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2,4,5-TRICHLOROPHENOL	NA	490 U	NA	NA	380 U	460 U	91 U	300 U	NA	NA	190 U	NA
2,4,6-TRICHLOROPHENOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2,4-DICHLOROPHENOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2,4-DIMETHYLPHENOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2,4-DINITROPHENOL	NA	490 U	NA	NA	380 U	460 U	91 U	300 U	NA	NA	190 U	NA
2,4-DINITROTOLUENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2,6-DIMETHYLNAPHTHALENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2,6-DINITROTOLUENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2-CHLORONAPHTHALENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2-CHLOROPHENOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2-METHYLNAPHTHALENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2-METHYLPHENOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
2-NITROANILINE	NA	490 U	NA	NA	380 U	460 U	91 U	300 U	NA	NA	190 U	NA
2-NITROPHENOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
3,3'-DICHLOROBENZIDINE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
3-NITROANILINE	NA	490 U	NA	NA	380 U	460 U	91 U	300 U	NA	NA	190 U	NA
4,6-DINITRO-2-METHYLPHENOL	NA	490 U	NA	NA	380 U	460 U	91 U	300 U	NA	NA	190 U	NA
4-BROMOPHENYL-PHENYLETHER	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
4-CHLORO-3-METHYLPHENOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
4-CHLOROANILINE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
4-CHLOROPHENYL-PHENYLETHER	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
4-METHYLPHENOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
4-NITROANILINE	NA	490 U	NA	NA	380 U	460 U	91 U	300 U	NA	NA	190 U	NA
4-NITROPHENOL	NA	490 U	NA	NA	380 U	460 U	91 UJ	300 U	NA	NA	190 U	NA
ACENAPHTHENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
ACENAPHTHYLENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
ANTHRACENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BENZO(A)ANTHRACENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BENZO(A)PYRENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BENZO(B)FLUORANTHENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BENZO(E)PYRENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BENZO(G,H,I)PERYLENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BENZO(K)FLUORANTHENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BENZOIC ACID	NA	490 U	NA	NA	380 U	460 U	91 U	920 J	NA	NA	190 U	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBD05	RADSBD06	RADSBD06	RADSBD06	RADSBD07	RADSBD08	RADSBE02	RADSBE03	RADSBE03	RADSBE04	RADSBE05	RADSBE06
Sample ID	281RADSS054	281RADSS050	281RADSS051	281RADSS052	281RADSS095	281RADSS090	281RADSS117	281RADSS076	281RADSS077	281RADSS122	281RADSS103	281RADSS097
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	1.20 - 2.00	0.00 - 0.50	0.60 - 1.00	4.50 - 5.70	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BIS(2-CHLOROETHOXY)METHANE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BIS(2-CHLOROETHYL)ETHER	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
BUTYLBENZYLPHTHALATE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
CARBAZOLE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
CHRYSENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
DI-N-BUTYLPHTHALATE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
DI-N-OCTYLPHTHALATE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
DIBENZ(A,H)ANTHRACENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
DIBENZOFURAN	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
DIBENZOTHIOPHENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
DIETHYLPHTHALATE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
DIMETHYLPHTHALATE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
FLUORANTHENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
FLUORENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
HEXACHLOROBENZENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
HEXACHLOROBUTADIENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
HEXACHLOROCYCLOPENTADIENE	NA	190 UJ	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
HEXACHLOROETHANE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
INDENO(1,2,3-CD)PYRENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
ISOPHORONE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
N-NITROSODIPHENYLAMINE (1)	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
NAPHTHALENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
NITROBENZENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
PENTACHLOROPHENOL	NA	490 U	NA	NA	380 U	460 U	91 U	300 U	NA	NA	190 U	NA
PERYLENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
PHENANTHRENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
PHENOL	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
PYRENE	NA	190 U	NA	NA	150 U	180 U	36 U	120 U	NA	NA	75 U	NA
TOTAL HIGH MOLECULAR PAHS	NA	U	NA	NA	U	U	U	U	NA	NA	U	NA
TOTAL LOW MOLECULAR PAHS	NA	U	NA	NA	U	U	U	U	NA	NA	U	NA
TOTAL PAHS	NA	U	NA	NA	U	U	U	U	NA	NA	U	NA
Semi-volatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
1,2-DICHLOROBENZENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
1,3-DICHLOROBENZENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
1,4-DICHLOROBENZENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBD05	RADSBD06	RADSBD06	RADSBD06	RADSBD07	RADSBD08	RADSBE02	RADSBE03	RADSBE03	RADSBE04	RADSBE05	RADSBE06
Sample ID	281RADSS054	281RADSS050	281RADSS051	281RADSS052	281RADSS095	281RADSS090	281RADSS117	281RADSS076	281RADSS077	281RADSS122	281RADSS103	281RADSS097
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	1.20 - 2.00	0.00 - 0.50	0.60 - 1.00	4.50 - 5.70	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2,4,5-TRICHLOROPHENOL	1,700 U	NA	1,700 U	1,900 U	NA	NA	NA	NA	3,500 U	NA	NA	NA
2,4,6-TRICHLOROPHENOL	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2,4-DICHLOROPHENOL	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2,4-DIMETHYLPHENOL	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2,4-DINITROPHENOL	1,700 U	NA	1,700 U	1,900 U	NA	NA	NA	NA	3,500 U	NA	NA	NA
2,4-DINITROTOLUENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2,6-DINITROTOLUENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2-CHLORONAPHTHALENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2-CHLOROPHENOL	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2-METHYLNAPHTHALENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2-METHYLPHENOL	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
2-NITROANILINE	1,700 U	NA	1,700 U	1,900 U	NA	NA	NA	NA	3,500 U	NA	NA	NA
2-NITROPHENOL	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
3,3'-DICHLOROBENZIDINE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
3-NITROANILINE	1,700 U	NA	1,700 U	1,900 U	NA	NA	NA	NA	3,500 U	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	1,700 U	NA	1,700 U	1,900 U	NA	NA	NA	NA	3,500 U	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
4-CHLOROANILINE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
4-METHYLPHENOL	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
4-NITROANILINE	1,700 U	NA	1,700 U	1,900 U	NA	NA	NA	NA	3,500 U	NA	NA	NA
4-NITROPHENOL	1,700 U	NA	1,700 U	1,900 U	NA	NA	NA	NA	3,500 U	NA	NA	NA
ACENAPHTHENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
ACENAPHTHYLENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
ANTHRACENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
BENZO(A)ANTHRACENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
BENZO(A)PYRENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
BENZO(B)FLUORANTHENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
BENZO(G,H,I)PERYLENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
BENZO(K)FLUORANTHENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
BUTYLBENZYLPHTHALATE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
CARBAZOLE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 UJ	NA	NA	NA
CHRYSENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
DI-N-BUTYLPHTHALATE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBD05	RADSBD06	RADSBD06	RADSBD06	RADSBD07	RADSBD08	RADSBE02	RADSBE03	RADSBE03	RADSBE04	RADSBE05	RADSBE06
Sample ID	281RADSS054	281RADSS050	281RADSS051	281RADSS052	281RADSS095	281RADSS090	281RADSS117	281RADSS076	281RADSS077	281RADSS122	281RADSS103	281RADSS097
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	1.20 - 2.00	0.00 - 0.50	0.60 - 1.00	4.50 - 5.70	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
DIBENZOFURAN	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
DIETHYLPHTHALATE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
DIMETHYLPHTHALATE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
FLUORANTHENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
FLUORENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
HEXACHLOROBENZENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
HEXACHLOROBUTADIENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
HEXACHLOROETHANE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
ISOPHORONE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
NAPHTHALENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
NITROBENZENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
PENTACHLOROPHENOL	1,700 U	NA	1,700 U	1,900 U	NA	NA	NA	NA	3,500 U	NA	NA	NA
PHENANTHRENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
PHENOL	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
PYRENE	680 U	NA	670 U	760 U	NA	NA	NA	NA	1,400 U	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	U	NA	U	U	NA	NA	NA	NA	U	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	U	NA	U	U	NA	NA	NA	NA	U	NA	NA	NA
TOTAL PAHS	U	NA	U	U	NA	NA	NA	NA	U	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	0.9	NA	NA	0.1 U	0.1 U	0.1 U	0.2 U	NA	NA	0.1 U	NA
2,4'-DDE	NA	0.2 U	NA	NA	0.1 U	0.1 U	0.1 U	0.2 U	NA	NA	0.1 U	NA
2,4'-DDT	NA	0.6	NA	NA	0.4	0.1 U	0.1 U	0.5	NA	NA	0.2	NA
4,4'-DDD	NA	1	NA	NA	0.3	0.1 U	0.1 U	0.2 U	NA	NA	0.3	NA
4,4'-DDE	NA	1	NA	NA	0.6	0.5	0.7	0.2 U	NA	NA	0.2	NA
4,4'-DDT	NA	1 J	NA	NA	2	2	1	0.5	NA	NA	0.6	NA
ALDRIN	NA	0.4	NA	NA	0.1 U	0.1 U	0.1 U	0.5	NA	NA	0.1 U	NA
ALPHA-CHLORDANE	NA	2	NA	NA	0.1 U	0.1 U	0.3	0.2 U	NA	NA	0.1 U	NA
DIELDRIN	NA	0.9	NA	NA	0.1 U	0.2	0.1 U	0.2 U	NA	NA	0.1 U	NA
GAMMA-BHC (LINDANE)	NA	0.5	NA	NA	0.1 U	0.1 U	0.1 U	0.2 U	NA	NA	0.1 U	NA
HEPTACHLOR	NA	0.2 U	NA	NA	0.1 U	0.1 U	0.5 U	0.2 U	NA	NA	0.3 U	NA
HEPTACHLOR EPOXIDE	NA	0.4	NA	NA	0.1 U	0.1 U	0.1 U	0.5	NA	NA	0.1 U	NA
HEXACHLOROBENZENE	NA	0.5	NA	NA	0.1 U	0.1 U	0.1 U	0.3	NA	NA	0.1 U	NA
MIREX	NA	1	NA	NA	0.1 U	0.1 U	0.1 U	0.2 U	NA	NA	0.1 U	NA

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBD05	RADSBD06	RADSBD06	RADSBD06	RADSBD07	RADSBD08	RADSBE02	RADSBE03	RADSBE03	RADSBE04	RADSBE05	RADSBE06
Sample ID	281RADSS054	281RADSS050	281RADSS051	281RADSS052	281RADSS095	281RADSS090	281RADSS117	281RADSS076	281RADSS077	281RADSS122	281RADSS103	281RADSS097
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	1.20 - 2.00	0.00 - 0.50	0.60 - 1.00	4.50 - 5.70	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	NA	0.8	NA	NA	0.1 U	0.1 U	0.2	0.2 U	NA	NA	0.1 U	NA
PCB-105 (2,3,3',4,4')	NA	0.6	NA	NA	0.1 U	0.1 U	0.1	0.2 U	NA	NA	0.1 U	NA
PCB-118 (2,3',4,4',5)	NA	0.8	NA	NA	0.1 U	0.1 U	0.09 J	0.2 U	NA	NA	0.1 U	NA
PCB-126 (3,3',4,4',5)	NA	0.2 U	NA	NA	0.1 U	0.1 U	0.1 U	0.4	NA	NA	0.1 U	NA
PCB-128 (2,2',3,3',4,4')	NA	0.4	NA	NA	0.1 U	0.1 U	0.1 U	0.2 U	NA	NA	0.1 U	NA
PCB-138 (2,2',3,4,4',5')	NA	1	NA	NA	0.1 U	0.1 U	0.1 U	0.2	NA	NA	0.1 U	NA
PCB-153 (2,2',4,4',5,5')	NA	0.8	NA	NA	0.1 U	0.1 U	0.07 J	0.2 U	NA	NA	0.1 U	NA
PCB-170 (2,2',3,3',4,4',5)	NA	0.3	NA	NA	0.1 U	0.1 U	0.1 U	0.2 U	NA	NA	0.1 U	NA
PCB-18 (2,2',5)	NA	0.2 U	NA	NA	0.1 U	0.1 U	0.1 U	0.3	NA	NA	0.1 U	NA
PCB-180 (2,2',3,4,4',5,5')	NA	0.5	NA	NA	0.1 U	0.1 U	0.1 U	0.2 U	NA	NA	0.1 U	NA
PCB-187 (2,2',3,4',5,5',6)	NA	0.4	NA	NA	0.1 U	0.1 U	0.4 U	0.2 U	NA	NA	0.2 U	NA
PCB-195 (2,2',3,3',4,4',5,6)	NA	0.2 U	NA	NA	0.1 U	0.1 U	0.1 U	0.3	NA	NA	0.1 U	NA
PCB-206 (2,2',3,3',4,4',5,5',6	NA	0.5	NA	NA	0.1 U	0.1 U	0.09 J	0.2 U	NA	NA	0.1 U	NA
PCB-209 (2,2',3,3',4,4',5,5',6	NA	0.2 U	NA	NA	0.1 U	0.1 U	0.1 U	0.2 U	NA	NA	0.1 U	NA
PCB-28 (2,4,4')	NA	0.2 U	NA	NA	0.1 U	0.1 U	0.1 U	0.4	NA	NA	0.1 U	NA
PCB-44 (2,2',3,5')	NA	0.3	NA	NA	0.1 U	0.1 U	0.1 U	0.2 UJ	NA	NA	0.1 U	NA
PCB-52 (2,2',5,5')	NA	0.2 U	NA	NA	0.1 U	0.1 U	0.1 U	0.3	NA	NA	0.1 U	NA
PCB-66 (2,3',4,4')	NA	0.4	NA	NA	0.1 U	0.1 U	0.09 J	0.2 U	NA	NA	0.1 U	NA
PCB-77 (3,3',4,4')	NA	0.2 U	NA	NA	0.1 U	0.1 U	0.1 U	1	NA	NA	0.1 U	NA
PCB-8 (2,4')	NA	0.2 U	NA	NA	0.9 U	0.1 U	0.9	2	NA	NA	0.1 U	NA
TRANS-NONACHLOR	NA	2	NA	NA	0.1 U	0.1 U	0.5	0.2 U	NA	NA	0.1 U	NA
TOTAL BHCS	NA	0.5	NA	NA	U	U	U	U	NA	NA	U	NA
TOTAL CHLORDANES	NA	2	NA	NA	U	U	0.3	U	NA	NA	U	NA
TOTAL DDTS	NA	5	NA	NA	3	2	2	1	NA	NA	1	NA
TOTAL PCBS	NA	14	NA	NA	U	U	3	7	NA	NA	U	NA
Pesticides (in µg/Kg)												
4,4'-DDD	7 U	NA	7 U	8 U	NA	NA	NA	NA	14 U	NA	NA	NA
4,4'-DDE	7 U	NA	7 U	8 U	NA	NA	NA	NA	14 U	NA	NA	NA
4,4'-DDT	7 U	NA	7 U	8 U	NA	NA	NA	NA	14 UJ	NA	NA	NA
ALDRIN	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 UJ	NA	NA	NA
ALPHA-BHC	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 U	NA	NA	NA
ALPHA-CHLORDANE	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 U	NA	NA	NA
AROCLOR-1016	68 U	NA	67 U	76 U	NA	NA	NA	NA	140 U	NA	NA	NA
AROCLOR-1221	140 U	NA	130 U	150 U	NA	NA	NA	NA	290 U	NA	NA	NA
AROCLOR-1232	68 U	NA	67 U	76 U	NA	NA	NA	NA	140 U	NA	NA	NA
AROCLOR-1242	68 U	NA	67 U	76 U	NA	NA	NA	NA	140 U	NA	NA	NA
AROCLOR-1248	68 U	NA	67 U	76 U	NA	NA	NA	NA	140 U	NA	NA	NA
AROCLOR-1254	68 U	NA	67 U	76 U	NA	NA	NA	NA	140 U	NA	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBD05	RADSBD06	RADSBD06	RADSBD06	RADSBD07	RADSBD08	RADSBE02	RADSBE03	RADSBE03	RADSBE04	RADSBE05	RADSBE06
Sample ID	281RADSS054	281RADSS050	281RADSS051	281RADSS052	281RADSS095	281RADSS090	281RADSS117	281RADSS076	281RADSS077	281RADSS122	281RADSS103	281RADSS097
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	1.20 - 2.00	0.00 - 0.50	0.60 - 1.00	4.50 - 5.70	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1260	68 U	NA	67 U	76 U	NA	NA	NA	NA	140 U	NA	NA	NA
BETA-BHC	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 U	NA	NA	NA
DELTA-BHC	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 U	NA	NA	NA
DIELDRIN	7 U	NA	7 U	8 U	NA	NA	NA	NA	14 UJ	NA	NA	NA
ENDOSULFAN I	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 U	NA	NA	NA
ENDOSULFAN II	7 U	NA	7 U	8 U	NA	NA	NA	NA	14 U	NA	NA	NA
ENDOSULFAN SULFATE	7 U	NA	7 U	8 U	NA	NA	NA	NA	14 U	NA	NA	NA
ENDRIN	7 U	NA	7 U	8 U	NA	NA	NA	NA	14 UJ	NA	NA	NA
ENDRIN ALDEHYDE	7 U	NA	7 U	8 U	NA	NA	NA	NA	14 U	NA	NA	NA
ENDRIN KETONE	7 U	NA	7 U	8 U	NA	NA	NA	NA	14 U	NA	NA	NA
GAMMA-BHC (LINDANE)	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 UJ	NA	NA	NA
GAMMA-CHLORDANE	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 U	NA	NA	NA
HEPTACHLOR	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 UJ	NA	NA	NA
HEPTACHLOR EPOXIDE	3 U	NA	3 U	4 U	NA	NA	NA	NA	7 U	NA	NA	NA
METHOXYCHLOR	34 U	NA	33 U	38 U	NA	NA	NA	NA	72 U	NA	NA	NA
TOXAPHENE	340 U	NA	330 U	380 U	NA	NA	NA	NA	720 U	NA	NA	NA
TOTAL BHCS	U	NA	U	U	NA	NA	NA	NA	U	NA	NA	NA
TOTAL CHLORDANES	U	NA	U	U	NA	NA	NA	NA	U	NA	NA	NA
TOTAL DDTS	U	NA	U	U	NA	NA	NA	NA	U	NA	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAL Metals (in mg/Kg)												
ALUMINUM	22,200	16,400	24,700	17,200	28,800	21,300	15,400	32,500	8,640	15,100	21,600	33,500
ANTIMONY	0.85 UJ	0.74 J	0.84 UJ	0.96 UJ	0.87 J	1.2 J	0.82 U	2.2 J	1.9 UJ	0.60 UJ	1.1 J	0.69 J
ARSENIC	3.2 U	8.0 *	13.6 *	5.1 *	13.3 *	12.4 *	9.0 *	29.9 *	2.5 U	9.0 *	9.6 *	18.3 *
BARIUM	37.7	149	51.8	49.6	160	81.6	198	155	25.7	105	101	168
BERYLLIUM	0.040 U	0.29 U	0.040 U	0.050 U	0.22 U	0.020 U	0.12 U	0.050 U	0.090 U	0.070 U	0.29	0.31 U
CADMIUM	0.080 U	0.050 U	0.080 UJ	0.090 U	0.050 U	0.040 U	0.040 U	0.10 U	0.18 U	0.060 U	0.040 U	0.060 U

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBD05	RADSBD06	RADSBD06	RADSBD05	RADSBD07	RADSBD08	RADSBE02	RADSBE03	RADSBE03	RADSBE04	RADSBE05	RADSBE06
Sample ID	281RADSS054	281RADSS050	281RADSS051	281RADSS052	281RADSS095	281RADSS090	281RADSS117	281RADSS076	281RADSS077	281RADSS122	281RADSS103	281RADSS097
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/04/1995	08/04/1995	08/04/1995	08/04/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	1.20 - 2.00	0.00 - 0.50	0.60 - 1.00	4.50 - 5.70	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
CLP Metals (in mg/kg)												
CALCIUM	5,580	3,220	4,250	3,180	3,220	4,820	14,700	5,290	7,260	5,150	4,000	3,330
CHROMIUM	77.8	47.4	80.9	69.2	74.5	72.8	37.6 J	101	27.2	48.0 J	61.4	80.0
COBALT	9.0	15.2	9.3	7.5	17.7	14.1	16.4	11.6	3.7	12.4	16.9	18.1
COPPER	34.2	39.2	36.8	29.1	49.3	29.6	33.0 J	76.9	13.0	34.7 J	47.0	46.5
IRON	24,100 *	24,100 *	30,000 *	16,700	35,200 *	33,500 *	25,300 *	41,900 *	12,300	40,800 *	31,300 *	44,000 *
LEAD	7.5	79.0	17.2 J	11.2	83.4 J	43.1 J	11.2	55.8	4.7	51.3	113 J	76.2 J
MAGNESIUM	12,300	11,300	11,500	10,900	14,200	11,500	10,100	13,800	20,900	13,000	13,200	14,500
MANGANESE	220	657	238	192	784	376	753	240	105	290	674	351
MERCURY	0.10 U	0.24	0.10 U	0.11 U	0.30	0.15	0.080	0.12 U	0.22 U	0.30	0.34	0.20
MOLYBDENUM	2.0	0.24 U	5.0	2.7	0.24 U	1.4 U	0.20 U	3.1 J	2.1 J	0.32	0.20 U	0.26 U
NICKEL	48.3	67.0	52.2	42.5	106	71.4	67.6	85.4	25.0	52.5	79.6	84.6
POTASSIUM	5,690 J	4,300 J	5,620 J	4,750 J	7,060 J	5,450 J	3,630 J	7,610 J	5,010 J	7,360 J	6,550 J	8,540 J
SELENIUM	1.4 U	0.90 U	3.6 U	1.5 U	0.91 U	0.72 U	0.76 U	1.7 U	3.0 U	0.97 U	0.76 U	0.99 U
SILVER	0.24 U	0.16 U	0.24 U	0.27 U	0.16 U	0.13 U	0.13 U	0.30 U	0.53 U	0.17 U	0.13 U	0.18 U
SODIUM	21,100	4,440	15,500	21,800	6,200 J	128 J	94.0 UJ	10,100	83,600	31,800 J	4,220 J	13,700 J
THALLIUM	0.81 U	0.53 U	0.80 UJ	0.91 U	0.53 U	0.43 U	1.4	0.99 U	1.8 U	0.57 U	0.45 U	0.58 U
VANADIUM	65.1	45.8	82.4	69.4	74.4	79.1	57.0	130	37.3	53.2	59.7	86.0
ZINC	77.9	179	84.1	65.9	235	119	74.1	137	40.4	119	201	229
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	50.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	17.5 U	14.5 U	14.3 U	19.1 U	13.4 UJ	10.9 UJ	10.6 UJ	17.8 UJ	46.0 UJ	NA	11.1 U	NA
TOTAL ORGANIC CARBON	26,100 J	41,800 J	14,900 J	16,100 J	9,970 J	17,400 J	1,640	110,000	220,000	NA	12,500 J	NA
Percent Moisture (percent)												
PERCENT MOISTURE	NA	32.0	NA	NA	28.0	10.0	9.0	45.0	NA	NA	12.0	NA
Miscellaneous												
PH	4.3	6	4.4	4.4	6.3	5.5	8.7	5.2	7.8	4.1	6.6	4.6

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBE07	RADSBE08	RADSBF02	RADSBF03	RADSBF04	RADSBF05	RADSBF06	RADSBF07	RADSBF08	RADSBG02	RADSBG03	RADSBG04
Sample ID	281RADSS094	281RADSS089	281RADSS116	281RADSS124	281RADSS123	281RADSS102	281RADSS098	281RADSS093	281RADSS088	281RADSS125	281RADSS126	281RADSS078
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Volatiles (in µg/kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
1,2,4-TRICHLOROBENZENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
1,2-DICHLOROBENZENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
1,3-DICHLOROBENZENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBE07	RADSBE08	RADSBF02	RADSBF03	RADSBF04	RADSBF05	RADSBF06	RADSBF07	RADSBF08	RADSBG02	RADSBG03	RADSBG04
Sample ID	281RADSS094	281RADSS089	281RADSS116	281RADSS124	281RADSS123	281RADSS102	281RADSS098	281RADSS093	281RADSS088	281RADSS125	281RADSS126	281RADSS078
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in ug/kg)												
1,4-DICHLOROBENZENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
1-METHYLNAPHTHALENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
1-METHYLPHENANTHRENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2,3,5-TRIMETHYLNAPHTHALENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2,4,5-TRICHLOROPHENOL	NA	190 U	250 U	110 U	NA	NA	510 U	NA	300 U	NA	NA	210 U
2,4,6-TRICHLOROPHENOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2,4-DICHLOROPHENOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2,4-DIMETHYLPHENOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2,4-DINITROPHENOL	NA	190 U	250 U	110 U	NA	NA	510 U	NA	300 U	NA	NA	210 U
2,4-DINITROTOLUENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2,6-DIMETHYLNAPHTHALENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2,6-DINITROTOLUENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2-CHLORONAPHTHALENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2-CHLOROPHENOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2-METHYLNAPHTHALENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2-METHYLPHENOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
2-NITROANILINE	NA	190 U	250 U	110 U	NA	NA	510 U	NA	300 U	NA	NA	210 U
2-NITROPHENOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
3,3'-DICHLOROBENZIDINE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
3-NITROANILINE	NA	190 U	250 U	110 U	NA	NA	510 U	NA	300 U	NA	NA	210 U
4,6-DINITRO-2-METHYLPHENOL	NA	190 U	250 U	110 U	NA	NA	510 U	NA	300 U	NA	NA	210 U
4-BROMOPHENYL-PHENYLETHER	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
4-CHLORO-3-METHYLPHENOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
4-CHLOROANILINE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
4-CHLOROPHENYL-PHENYLETHER	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
4-METHYLPHENOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
4-NITROANILINE	NA	190 U	250 U	110 U	NA	NA	510 U	NA	300 U	NA	NA	210 U
4-NITROPHENOL	NA	190 U	250 UJ	110 UJ	NA	NA	510 U	NA	300 U	NA	NA	210 UJ
ACENAPHTHENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
ACENAPHTHYLENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
ANTHRACENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BENZO(A)ANTHRACENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BENZO(A)PYRENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BENZO(B)FLUORANTHENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BENZO(E)PYRENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BENZO(G,H,I)PERYLENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BENZO(K)FLUORANTHENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BENZOIC ACID	NA	190 U	220 J	110 U	NA	NA	510 U	NA	300 U	NA	NA	120 J

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBE07	RADSBE08	RADSBF02	RADSBF03	RADSBF04	RADSBF05	RADSBF06	RADSBF07	RADSBF08	RADSBG02	RADSBG03	RADSBG04
Sample ID	281RADSS094	281RADSS089	281RADSS116	281RADSS124	281RADSS123	281RADSS102	281RADSS098	281RADSS093	281RADSS088	281RADSS125	281RADSS126	281RADSS078
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BIS(2-CHLOROETHOXY)METHANE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BIS(2-CHLOROETHYL)ETHER	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
BUTYLBENZYLPHTHALATE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
CARBAZOLE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
CHRYSENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
DI-N-BUTYLPHTHALATE	NA	42 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
DI-N-OCTYLPHTHALATE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
DIBENZ(A,H)ANTHRACENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
DIBENZOFURAN	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
DIBENZOTHIOPHENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
DIETHYLPHTHALATE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
DIMETHYLPHTHALATE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
FLUORANTHENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
FLUORENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
HEXACHLOROBENZENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
HEXACHLOROBUTADIENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
HEXACHLOROCYCLOPENTADIENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
HEXACHLOROETHANE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
INDENO(1,2,3-CD)PYRENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
ISOPHORONE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
N-NITROSO-DI-N-PROPYLAMINE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
N-NITROSODIPHENYLAMINE (1)	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
NAPHTHALENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
NITROBENZENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
PENTACHLOROPHENOL	NA	190 U	250 U	110 U	NA	NA	510 U	NA	300 U	NA	NA	210 U
PERYLENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
PHENANTHRENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
PHENOL	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
PYRENE	NA	78 U	100 U	45 U	NA	NA	200 U	NA	120 U	NA	NA	86 U
TOTAL HIGH MOLECULAR PAHS	NA	U	U	U	NA	NA	U	NA	U	NA	NA	U
TOTAL LOW MOLECULAR PAHS	NA	U	U	U	NA	NA	U	NA	U	NA	NA	U
TOTAL PAHS	NA	U	U	U	NA	NA	U	NA	U	NA	NA	U
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBE07	RADSBE08	RADSBF02	RADSBF03	RADSBF04	RADSBF05	RADSBF06	RADSBF07	RADSBF08	RADSBG02	RADSBG03	RADSBG04
Sample ID	281RADSS094	281RADSS089	281RADSS116	281RADSS124	281RADSS123	281RADSS102	281RADSS098	281RADSS093	281RADSS088	281RADSS125	281RADSS126	281RADSS078
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBE07	RADSBE08	RADSBF02	RADSBF03	RADSBF04	RADSBF05	RADSBF06	RADSBF07	RADSBF08	RADSBG02	RADSBG03	RADSBG04
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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/kg)												
2,4'-DDD	NA	0.1 U	3	4	NA	NA	0.3 J	NA	0.5 U	NA	NA	3
2,4'-DDE	NA	0.1 U	0.4	0.3	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.5
2,4'-DDT	NA	0.1 U	0.2 U	0.7	NA	NA	0.4	NA	0.4	NA	NA	2
4,4'-DDD	NA	0.1 U	6	7	NA	NA	0.4	NA	1	NA	NA	11
4,4'-DDE	NA	0.1 U	2	3	NA	NA	0.3	NA	2	NA	NA	2
4,4'-DDT	NA	0.1 U	0.5	3	NA	NA	1	NA	2	NA	NA	6
ALDRIN	NA	0.1 U	0.4	0.1 U	NA	NA	0.2 J	NA	0.1 U	NA	NA	0.3 U
ALPHA-CHLORDANE	NA	0.1 U	1	0.2	NA	NA	0.1 U	NA	0.6	NA	NA	0.4
DIELDRIN	NA	0.1 U	0.4	0.2	NA	NA	0.1 U	NA	0.3	NA	NA	0.5
GAMMA-BHC (LINDANE)	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.9
HEPTACHLOR	NA	0.3	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
HEPTACHLOR EPOXIDE	NA	0.1 U	0.4	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
HEXACHLOROBENZENE	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.8
MIREX	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.1 J	NA	NA	0.3 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBE07	RADSBE08	RADSBF02	RADSBF03	RADSBF04	RADSBF05	RADSBF06	RADSBF07	RADSBF08	RADSBG02	RADSBG03	RADSBG04
Sample ID	281RADSS094	281RADSS089	281RADSS116	281RADSS124	281RADSS123	281RADSS102	281RADSS098	281RADSS093	281RADSS088	281RADSS125	281RADSS126	281RADSS078
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/kg)												
PCB-101 (2,2',3,5,5')	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
PCB-105 (2,3,3',4,4')	NA	0.1 U	0.3	0.1 U	NA	NA	0.1 U	NA	0.3	NA	NA	0.3 U
PCB-118 (2,3',4,4',5)	NA	0.1 U	0.3	0.1 U	NA	NA	0.1 U	NA	0.6	NA	NA	0.3 U
PCB-126 (3,3',4,4',5)	NA	0.3	0.2 U	4	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
PCB-128 (2,2',3,3',4,4')	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.3	NA	NA	0.3 U
PCB-138 (2,2',3,4,4',5')	NA	0.1 U	0.5	0.1 U	NA	NA	0.1 U	NA	0.4	NA	NA	0.3 U
PCB-153 (2,2',4,4',5,5')	NA	0.1 U	0.2	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
PCB-170 (2,2',3,3',4,4',5)	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.3	NA	NA	0.3 U
PCB-18 (2,2',5)	NA	0.2 U	0.3 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
PCB-180 (2,2',3,4,4',5,5')	NA	0.1 U	0.1 J	0.1 U	NA	NA	0.1 U	NA	0.3	NA	NA	0.3 U
PCB-187 (2,2',3,4',5,5',6)	NA	0.4	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
PCB-195 (2,2',3,3',4,4',5,6)	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.4	NA	NA	0.3 U
PCB-206 (2,2',3,3',4,4',5,5',6	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.3 J	NA	0.1 U	NA	NA	0.3 U
PCB-209 (2,2',3,3',4,4',5,5',6	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
PCB-28 (2,4,4')	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
PCB-44 (2,2',3,5')	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.2 J	NA	0.1 U	NA	NA	0.3 U
PCB-52 (2,2',5,5')	NA	0.1 U	0.2 U	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
PCB-66 (2,3',4,4')	NA	0.1 U	0.2	0.1 U	NA	NA	0.1 U	NA	0.1 U	NA	NA	0.3 U
PCB-77 (3,3',4,4')	NA	0.1 U	0.2 U	0.4	NA	NA	0.7 J	NA	0.1 U	NA	NA	0.3 U
PCB-8 (2,4')	NA	0.1 U	4	0.1 U	NA	NA	0.6 J	NA	0.1 U	NA	NA	0.9
TRANS-NONACHLOR	NA	0.1 U	1	0.1 U	NA	NA	0.1 U	NA	0.7	NA	NA	0.3 U
TOTAL BHCS	NA	U	U	U	NA	NA	U	NA	U	NA	NA	0.9
TOTAL CHLORDANES	NA	U	1	0.2	NA	NA	U	NA	0.6	NA	NA	0.4
TOTAL DDTS	NA	U	11	17	NA	NA	2	NA	5	NA	NA	24
TOTAL PCBS	NA	0.9	11	U	NA	NA	2	NA	5	NA	NA	2
Pesticides (in µg/kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBE07	RADSBE08	RADSBF02	RADSBF03	RADSBF04	RADSBF05	RADSBF06	RADSBF07	RADSBF08	RADSBG02	RADSBG03	RADSBG04
Sample ID	281RADSS094	281RADSS089	281RADSS116	281RADSS124	281RADSS123	281RADSS102	281RADSS098	281RADSS093	281RADSS088	281RADSS125	281RADSS126	281RADSS078
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	22,300	9,380	20,400	10,000	20,900	33,700	14,300	32,900	17,600	12,700	17,000	19,300
ANTIMONY	3.1 J	0.51 UJ	1.3 U	1.8 U	1.5 U	1.0 J	2.2 J	1.4 J	0.53 J	0.75 U	2.8 J	0.83 U
ARSENIC	9.8 *	7.6 *	15.3 *	18.3 *	12.4 *	11.4 *	7.5 *	16.7 *	10.1 *	5.9 *	14.7 *	10.6 *
BARIUM	7,710 *	126	127	94.2	99.6	121	44.0	139	269	189	100	79.3
BERYLLIUM	0.040 U	0.040 U	0.060 U	0.19 U	0.30 U	0.19 U	0.96 U	0.23 U	0.020 U	0.11 U	0.030 U	0.030 U
CADMIUM	0.070 U	0.050 U	6.0 U	0.070 U	0.60 U	0.060 U	0.050 U	0.060 U	0.050 U	0.040 U	0.060 U	0.050 U

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBE07	RADSBE08	RADSBF02	RADSBF03	RADSBF04	RADSBF05	RADSBF06	RADSBF07	RADSBF08	RADSBG02	RADSBG03	RADSBG04
Sample ID	281RADSS094	281RADSS089	281RADSS116	281RADSS124	281RADSS123	281RADSS102	281RADSS098	281RADSS093	281RADSS088	281RADSS125	281RADSS126	281RADSS078
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
CLP Metals (in mg/Kg)												
CALCIUM	5,640	7,260	20,000	13,300	7,310	3,610	6,230	2,970	23,000	3,310	6,090	2,840
CHROMIUM	66.3	22.7 U	68.6 J	36.8 J	79.1 J	95.0	38.4 U	84.7	34.1 U	31.4 J	58.9 J	70.2 J
COBALT	14.1	14.9	13.2	21.9	14.9	17.0	14.0	15.6	14.7	14.9	15.9	10.9
COPPER	87.8	18.0	43.4 J	46.5 J	38.9 J	49.8	63.2	46.0	42.8	28.4 J	49.2 J	27.3 J
IRON	24,400 *	17,400	37,800 *	36,300 *	43,600 *	40,000 *	19,800	43,000 *	24,900 *	23,600 *	26,800 *	37,900 *
LEAD	235 J *	7.5 J	65.4	68.4	49.2	44.6 J	208 J *	117 J	26.8 J	9.5	46.7	14.8
MAGNESIUM	12,600	6,400	11,700	23,200	13,100	15,000	8,530	14,300	9,790	7,290	14,300	11,600
MANGANESE	450	653	292	1,090	432	330	489	287	588	702	478	249
MERCURY	0.34	0.060	0.14	0.35	0.14	0.15	0.54	0.32	0.060 U	0.070	0.23	0.10
MOLYBDENUM	1.2 U	0.35 U	0.26 U	2.9	0.28 U	0.26 U	2.2 U	0.74 U	0.22 U	0.19 U	2.1	0.23 U
NICKEL	120	43.7	62.1	64.1	66.6	83.8	146	80.8	52.9	55.9	72.7	53.6
POTASSIUM	5,970 J	2,050 J	4,500 J	8,370 J	5,060 J	7,110 J	3,170 J	7,290 J	3,480 J	1,880 J	6,530 J	4,010 J
SELENIUM	1.3 U	0.82 U	0.99 U	1.1 U	1.1 U	0.99 U	0.84 U	1.1 U	0.83 U	0.73 U	0.96 U	0.88 U
SILVER	0.72	0.14 U	0.17 U	0.20 U	0.19 U	0.17 U	0.62	0.19 U	0.15 U	0.13 U	0.17 U	0.16 U
SODIUM	19,300 J	4,690 J	9,510 J	86,800 J	12,000 J	10,200 J	13,300 J	6,150 J	6,810 J	28.3 U	33,900 J	7,530 J
THALLIUM	0.75 U	1.6	0.58 U	0.67 U	0.63 U	0.58 U	0.49 U	0.64 U	0.49 U	0.43 U	0.57 U	0.52 U
VANADIUM	80.3	48.4	68.5	57.7	74.3	87.8	55.9	91.9	71.4	55.4	69.4	63.6
ZINC	185	50.6	113	89.9	105	154	143	236	78.4	62.3	101	79.7
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.0 UJ
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	11.6 UJ	14.9 UJ	13.0 UJ	NA	NA	12.2 UJ	NA	14.0 UJ	NA	NA	12.5 UJ
TOTAL ORGANIC CARBON	NA	1,650 J	27,000	15,600	NA	NA	36,500 J	NA	68,800 J	NA	NA	39,600
Percent Moisture (percent)												
PERCENT MOISTURE	NA	15.0	35.0	27.0	NA	NA	19.0	NA	31.0	NA	NA	23.0
Miscellaneous												
PH	5	8.2	5.3	4.1	4.8	5	5	5.8	8.1	7.2	4.8	4.4

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBG04	RADSBG04	RADSBG05	RADSBG06	RADSBG07	RADSBG08	RADSBG08	RADSBG08	RADSBH02	RADSBH03	RADSBH04	RADSBH05
Sample ID	281RADSS079	281RADSS080	281RADSS100	281RADSS099	281RADSS092	281RADSS085	281RADSS086	281RADSS087	281RADSS129	281RADSS128	281RADSS133	281RADSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	1.00 - 2.00	4.50 - 5.80	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.70 - 2.00	4.00 - 5.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
1,1-DICHLOROETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
1,1-DICHLOROETHENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
1,2-DICHLOROETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
1,2-DICHLOROPROPANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
2-BUTANONE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
2-HEXANONE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
4-METHYL-2-PENTANONE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
ACETONE	68 U	87 U	NA	NA	NA	NA	13 U	100 U	NA	NA	NA	NA
BENZENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
BROMODICHLOROMETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
BROMOFORM	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
BROMOMETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
CARBON DISULFIDE	18 U	21 J	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
CARBON TETRACHLORIDE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
CHLOROBENZENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
CHLOROETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
CHLOROFORM	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
CHLOROMETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
ETHYLBENZENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
METHYLENE CHLORIDE	25 U	28 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
STYRENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
TETRACHLOROETHENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
TOLUENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
TRICHLOROETHENE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
VINYL CHLORIDE	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
XYLENE (TOTAL)	18 U	24 U	NA	NA	NA	NA	13 U	29 U	NA	NA	NA	NA
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
1,2,4-TRICHLOROBENZENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
1,2-DICHLOROBENZENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
1,3-DICHLOROBENZENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBG04	RADSBG04	RADSBG05	RADSBG06	RADSBG07	RADSBG08	RADSBG08	RADSBG08	RADSBH02	RADSBH03	RADSBH04	RADSBH05
Sample ID	281RADSS079	281RADSS080	281RADSS100	281RADSS099	281RADSS092	281RADSS085	281RADSS086	281RADSS087	281RADSS129	281RADSS128	281RADSS133	281RADSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	1.00 - 2.00	4.50 - 5.80	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.70 - 2.00	4.00 - 5.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
1-METHYLNAPHTHALENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
1-METHYLPHENANTHRENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2,4,5-TRICHLOROPHENOL	NA	NA	130 U	120 U	NA	97 U	NA	NA	87 U	240 U	NA	610 U
2,4,6-TRICHLOROPHENOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2,4-DICHLOROPHENOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2,4-DIMETHYLPHENOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2,4-DINITROPHENOL	NA	NA	130 U	120 U	NA	97 U	NA	NA	87 U	240 U	NA	610 U
2,4-DINITROTOLUENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2,6-DIMETHYLNAPHTHALENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2,6-DINITROTOLUENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2-CHLORONAPHTHALENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2-CHLOROPHENOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2-METHYLNAPHTHALENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2-METHYLPHENOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
2-NITROANILINE	NA	NA	130 U	120 U	NA	97 U	NA	NA	87 U	240 U	NA	610 U
2-NITROPHENOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
3,3'-DICHLOROBENZIDINE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
3-NITROANILINE	NA	NA	130 U	120 U	NA	97 U	NA	NA	87 U	240 U	NA	610 U
4,6-DINITRO-2-METHYLPHENOL	NA	NA	130 U	120 U	NA	97 U	NA	NA	87 U	240 U	NA	610 U
4-BROMOPHENYL-PHENYLETHER	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
4-CHLORO-3-METHYLPHENOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
4-CHLOROANILINE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
4-CHLOROPHENYL-PHENYLETHER	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
4-METHYLPHENOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
4-NITROANILINE	NA	NA	130 U	120 U	NA	97 U	NA	NA	87 U	240 U	NA	610 U
4-NITROPHENOL	NA	NA	130 U	120 U	NA	97 U	NA	NA	87 U	240 U	NA	610 U
ACENAPHTHENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
ACENAPHTHYLENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
ANTHRACENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BENZO(A)ANTHRACENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BENZO(A)PYRENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BENZO(B)FLUORANTHENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BENZO(E)PYRENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BENZO(G,H,I)PERYLENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BENZO(K)FLUORANTHENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BENZOIC ACID	NA	NA	280	83 J	NA	97 U	NA	NA	87 U	240 U	NA	610 U

Notes:

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBG04	RADSBG04	RADSBG05	RADSBG06	RADSBG07	RADSBG08	RADSBG08	RADSBG08	RADSBH02	RADSBH03	RADSBH04	RADSBH05
Sample ID	281RADSS079	281RADSS080	281RADSS100	281RADSS099	281RADSS092	281RADSS085	281RADSS086	281RADSS087	281RADSS129	281RADSS128	281RADSS133	281RADSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	1.00 - 2.00	4.50 - 5.80	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.70 - 2.00	4.00 - 5.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BIS(2-CHLOROETHOXY)METHANE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BIS(2-CHLOROETHYL)ETHER	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
BUTYLBENZYLPHTHALATE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
CARBAZOLE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
CHRYSENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
DI-N-BUTYLPHTHALATE	NA	NA	71 U	38 U	NA	61 U	NA	NA	35 U	96 U	NA	240 U
DI-N-OCTYLPHTHALATE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
DIBENZ(A,H)ANTHRACENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
DIBENZOFURAN	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
DIBENZOTHIOPHENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
DIETHYLPHTHALATE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
DIMETHYLPHTHALATE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
FLUORANTHENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
FLUORENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
HEXACHLOROBENZENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
HEXACHLOROBUTADIENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
HEXACHLOROCYCLOPENTADIENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
HEXACHLOROETHANE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
INDENO(1,2,3-CD)PYRENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
ISOPHORONE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
N-NITROSODIPHENYLAMINE (1)	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
NAPHTHALENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
NITROBENZENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
PENTACHLOROPHENOL	NA	NA	130 U	120 U	NA	97 U	NA	NA	87 U	240 U	NA	610 U
PERYLENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
PHENANTHRENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
PHENOL	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
PYRENE	NA	NA	53 U	50 U	NA	39 U	NA	NA	35 U	96 U	NA	240 U
TOTAL HIGH MOLECULAR PAHS	NA	NA	U	U	NA	U	NA	NA	U	U	NA	U
TOTAL LOW MOLECULAR PAHS	NA	NA	U	U	NA	U	NA	NA	U	U	NA	U
TOTAL PAHS	NA	NA	U	U	NA	U	NA	NA	U	U	NA	U
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
1,2-DICHLOROBENZENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
1,3-DICHLOROBENZENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
1,4-DICHLOROBENZENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA

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Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBG04	RADSBG04	RADSBG05	RADSBG06	RADSBG07	RADSBG08	RADSBG08	RADSBG08	RADSBH02	RADSBH03	RADSBH04	RADSBH05
Sample ID	281RADSS079	281RADSS080	281RADSS100	281RADSS099	281RADSS092	281RADSS085	281RADSS086	281RADSS087	281RADSS129	281RADSS128	281RADSS133	281RADSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	1.00 - 2.00	4.50 - 5.80	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.70 - 2.00	4.00 - 5.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	1,500 U	2,000 U	NA	NA	NA	NA	1,100 U	2,500 U	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2,4-DICHLOROPHENOL	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2,4-DINITROPHENOL	1,500 U	2,000 U	NA	NA	NA	NA	1,100 U	2,500 U	NA	NA	NA	NA
2,4-DINITROTOLUENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2,6-DINITROTOLUENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2-CHLORONAPHTHALENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2-CHLOROPHENOL	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2-METHYLNAPHTHALENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2-METHYLPHENOL	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
2-NITROANILINE	1,500 U	2,000 U	NA	NA	NA	NA	1,100 U	2,500 U	NA	NA	NA	NA
2-NITROPHENOL	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
3-NITROANILINE	1,500 U	2,000 U	NA	NA	NA	NA	1,100 U	2,500 U	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	1,500 U	2,000 U	NA	NA	NA	NA	1,100 U	2,500 U	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
4-CHLOROANILINE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
4-METHYLPHENOL	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
4-NITROANILINE	1,500 U	2,000 U	NA	NA	NA	NA	1,100 U	2,500 U	NA	NA	NA	NA
4-NITROPHENOL	1,500 U	2,000 U	NA	NA	NA	NA	1,100 U	2,500 U	NA	NA	NA	NA
ACENAPHTHENE	610 U	810 U	NA	NA	NA	NA	660	980 U	NA	NA	NA	NA
ACENAPHTHYLENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
ANTHRACENE	610 U	810 U	NA	NA	NA	NA	1,200	980 U	NA	NA	NA	NA
BENZO(A)ANTHRACENE	610 U	810 U	NA	NA	NA	NA	2,000 *	980 U	NA	NA	NA	NA
BENZO(A)PYRENE	610 U	810 U	NA	NA	NA	NA	1,500 J *	980 UJ	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	610 U	810 U	NA	NA	NA	NA	2,300 J *	980 UJ	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	610 U	810 U	NA	NA	NA	NA	520 J	980 UJ	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	610 U	810 U	NA	NA	NA	NA	820 J *	980 UJ	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
CARBAZOLE	610 U	810 U	NA	NA	NA	NA	1,100 J	980 UJ	NA	NA	NA	NA
CHRYSENE	610 U	810 U	NA	NA	NA	NA	1,800	980 U	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA

Notes:

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Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBG04	RADSBG04	RADSBG05	RADSBG06	RADSBG07	RADSBG08	RADSBG08	RADSBG08	RADSBH02	RADSBH03	RADSBH04	RADSBH05
Sample ID	281RADSS079	281RADSS080	281RADSS100	281RADSS099	281RADSS092	281RADSS085	281RADSS086	281RADSS087	281RADSS129	281RADSS128	281RADSS133	281RADSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	1.00 - 2.00	4.50 - 5.80	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.70 - 2.00	4.00 - 5.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	610 U	810 U	NA	NA	NA	NA	430 UJ	980 UJ	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	610 U	810 U	NA	NA	NA	NA	430 UJ	980 UJ	NA	NA	NA	NA
DIBENZOFURAN	610 U	810 U	NA	NA	NA	NA	500	980 U	NA	NA	NA	NA
DIETHYLPHTHALATE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
DIMETHYLPHTHALATE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
FLUORANTHENE	610 U	810 U	NA	NA	NA	NA	5,000	980 U	NA	NA	NA	NA
FLUORENE	610 U	810 U	NA	NA	NA	NA	600	980 U	NA	NA	NA	NA
HEXACHLOROBENZENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
HEXACHLOROBUTADIENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	610 U	810 U	NA	NA	NA	NA	430 UJ	980 UJ	NA	NA	NA	NA
HEXACHLOROETHANE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	610 U	810 U	NA	NA	NA	NA	530 J	980 UJ	NA	NA	NA	NA
ISOPHORONE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
NAPHTHALENE	610 U	810 U	NA	NA	NA	NA	300 J	980 U	NA	NA	NA	NA
NITROBENZENE	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
PENTACHLOROPHENOL	1,500 U	2,000 U	NA	NA	NA	NA	1,100 U	2,500 U	NA	NA	NA	NA
PHENANTHRENE	610 U	810 U	NA	NA	NA	NA	5,900	980 U	NA	NA	NA	NA
PHENOL	610 U	810 U	NA	NA	NA	NA	430 U	980 U	NA	NA	NA	NA
PYRENE	610 U	810 U	NA	NA	NA	NA	4,300	980 U	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	U	U	NA	NA	NA	NA	19,000	U	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	U	U	NA	NA	NA	NA	8,700	U	NA	NA	NA	NA
TOTAL PAHS	U	U	NA	NA	NA	NA	27,000	U	NA	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.8	NA	0.5
2,4'-DDE	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.3
2,4'-DDT	NA	NA	0.2 U	0.4	NA	0.1 U	NA	NA	0.3	0.4	NA	0.2 U
4,4'-DDD	NA	NA	0.4	0.4	NA	0.1 U	NA	NA	0.1 U	2	NA	1
4,4'-DDE	NA	NA	0.2 U	0.4	NA	0.2	NA	NA	0.1 U	0.4	NA	0.9
4,4'-DDT	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.3	0.3	NA	1
ALDRIN	NA	NA	0.4	0.3	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
ALPHA-CHLORDANE	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.2	0.1 U	NA	0.3
DIELDRIN	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.3
GAMMA-BHC (LINDANE)	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.3	0.1 U	NA	0.2 U
HEPTACHLOR	NA	NA	0.3 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.6 U
HEPTACHLOR EPOXIDE	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.3	0.3	NA	0.2 U
HEXACHLOROBENZENE	NA	NA	0.2	0.2 U	NA	0.1 U	NA	NA	0.2 J	0.2	NA	0.5
MIREX	NA	NA	0.2	0.2 U	NA	0.1 U	NA	NA	0.1 UJ	0.1 U	NA	0.2 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBG04	RADSBG04	RADSBG05	RADSBG06	RADSBG07	RADSBG08	RADSBG08	RADSBG08	RADSBH02	RADSBH03	RADSBH04	RADSBH05
Sample ID	281RADSS079	281RADSS080	281RADSS100	281RADSS099	281RADSS092	281RADSS085	281RADSS086	281RADSS087	281RADSS129	281RADSS128	281RADSS133	281RADSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	1.00 - 2.00	4.50 - 5.80	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.70 - 2.00	4.00 - 5.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1	0.1 U	NA	0.1 J
PCB-105 (2,3,3',4,4')	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-118 (2,3',4,4',5)	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-126 (3,3',4,4',5)	NA	NA	0.2 U	2	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.7
PCB-128 (2,2',3,3',4,4')	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-138 (2,2',3,4,4',5')	NA	NA	0.2 U	0.2 U	NA	0.3	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-153 (2,2',4,4',5,5')	NA	NA	0.2 U	0.2	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-170 (2,2',3,3',4,4',5)	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-18 (2,2',5)	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.4	0.1 U	NA	0.2 U
PCB-180 (2,2',3,4,4',5,5')	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-187 (2,2',3,4',5,5',6)	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.8 U
PCB-195 (2,2',3,3',4,4',5,6)	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-206 (2,2',3,3',4,4',5,5',6	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-209 (2,2',3,3',4,4',5,5',6	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-28 (2,4,4')	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-44 (2,2',3,5')	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2 U
PCB-52 (2,2',5,5')	NA	NA	0.2 U	0.3	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2
PCB-56 (2,3',4,4')	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	0.2
PCB-77 (3,3',4,4')	NA	NA	0.2 U	0.9	NA	0.1 U	NA	NA	0.1 U	0.5	NA	0.4
PCB-8 (2,4')	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.6	0.1 U	NA	0.2 U
TRANS-NONACHLOR	NA	NA	0.2 U	0.2 U	NA	0.1 U	NA	NA	0.3	0.1 U	NA	0.2
TOTAL BHCS	NA	NA	U	U	NA	U	NA	NA	0.3	U	NA	U
TOTAL CHLORDANES	NA	NA	U	U	NA	U	NA	NA	0.2	U	NA	0.3
TOTAL DDTS	NA	NA	0.4	1	NA	0.2	NA	NA	0.6	4	NA	4
TOTAL PCBS	NA	NA	U	1	NA	0.5	NA	NA	2	U	NA	0.9
Pesticides (in µg/Kg)												
4,4'-DDD	6 U	8 U	NA	NA	NA	NA	4 U	10 U	NA	NA	NA	NA
4,4'-DDE	6 U	8 U	NA	NA	NA	NA	4 U	10 U	NA	NA	NA	NA
4,4'-DDT	6 U	8 U	NA	NA	NA	NA	4 U	10 U	NA	NA	NA	NA
ALDRIN	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
ALPHA-BHC	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
ALPHA-CHLORDANE	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
AROCLOR-1016	61 U	81 U	NA	NA	NA	NA	43 U	98 U	NA	NA	NA	NA
AROCLOR-1221	120 U	160 U	NA	NA	NA	NA	85 U	200 U	NA	NA	NA	NA
AROCLOR-1232	61 U	81 U	NA	NA	NA	NA	43 U	98 U	NA	NA	NA	NA
AROCLOR-1242	61 U	81 U	NA	NA	NA	NA	43 U	98 U	NA	NA	NA	NA
AROCLOR-1248	61 U	81 U	NA	NA	NA	NA	43 U	98 U	NA	NA	NA	NA
AROCLOR-1254	61 U	81 U	NA	NA	NA	NA	43 U	98 U	NA	NA	NA	NA

Notes:

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBG04	RADSBG04	RADSBG05	RADSBG06	RADSBG07	RADSBG08	RADSBG08	RADSBG08	RADSBH02	RADSBH03	RADSBH04	RADSBH05
Sample ID	281RADSS079	281RADSS080	281RADSS100	281RADSS099	281RADSS092	281RADSS085	281RADSS086	281RADSS087	281RADSS129	281RADSS128	281RADSS133	281RADSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	1.00 - 2.00	4.50 - 5.80	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.70 - 2.00	4.00 - 5.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1260	61 U	81 U	NA	NA	NA	NA	43 U	98 U	NA	NA	NA	NA
BETA-BHC	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
DELTA-BHC	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
DIELDRIN	6 U	8 U	NA	NA	NA	NA	4 U	10 U	NA	NA	NA	NA
ENDOSULFAN I	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
ENDOSULFAN II	6 U	8 U	NA	NA	NA	NA	4 U	10 U	NA	NA	NA	NA
ENDOSULFAN SULFATE	6 U	8 U	NA	NA	NA	NA	4 U	10 U	NA	NA	NA	NA
ENDRIN	6 U	8 U	NA	NA	NA	NA	4 U	10 U	NA	NA	NA	NA
ENDRIN ALDEHYDE	6 U	8 U	NA	NA	NA	NA	4 U	10 U	NA	NA	NA	NA
ENDRIN KETONE	6 U	8 U	NA	NA	NA	NA	4 U	10 U	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
GAMMA-CHLORDANE	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
HEPTACHLOR	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	3 U	4 U	NA	NA	NA	NA	2 U	5 U	NA	NA	NA	NA
METHOXYCHLOR	30 U	41 U	NA	NA	NA	NA	21 U	49 U	NA	NA	NA	NA
TOXAPHENE	300 U	410 U	NA	NA	NA	NA	210 U	490 U	NA	NA	NA	NA
TOTAL BHCS	U	U	NA	NA	NA	NA	U	U	NA	NA	NA	NA
TOTAL CHLORDANES	U	U	NA	NA	NA	NA	U	U	NA	NA	NA	NA
TOTAL DDTS	U	U	NA	NA	NA	NA	U	U	NA	NA	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	26,700	16,600	13,000	32,700	28,000	10,600	19,700	10,200	10,400	26,200	20,100	10,400
ANTIMONY	1.6 U	1.0 UJ	0.90 J	1.7 J	2.0 J	0.97 J	1.5 J	1.2 UJ	0.45 UJ	1.1 J	0.87 J	2.6 J
ARSENIC	12.6 *	13.6 *	22.0 *	16.8 *	13.5 *	5.2 U	10.3 *	25.7 *	5.9 *	8.6 *	10.2 *	6.3 *
BARIUM	47.5	54.8	90.7	58.7	140	140	185	40.8	132	95.1	93.9	42.5
BERYLLIUM	0.040 U	0.050 U	0.11 U	0.18 U	0.24 U	0.020 U	0.15 U	0.060 U	0.070 U	0.040 U	0.090 U	0.39
CADMIUM	0.070 U	0.10 UJ	0.080 U	0.060 U	0.090 U	0.050 U	0.050 U	0.12 U	0.040 U	0.060 U	0.060 U	0.050 U

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBG04	RADSBG04	RADSBG05	RADSBG06	RADSBG07	RADSBG08	RADSBG08	RADSBG08	RADSBH02	RADSBH03	RADSBH04	RADSBH05
Sample ID	281RADSS079	281RADSS080	281RADSS100	281RADSS099	281RADSS092	281RADSS085	281RADSS086	281RADSS087	281RADSS129	281RADSS128	281RADSS133	281RADSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/23/1995	08/23/1995	08/22/1995	08/22/1995	08/21/1995	08/21/1995	08/21/1995	08/21/1995	08/23/1995	08/23/1995	08/23/1995	08/22/1995
Sample Depth (in feet)	1.00 - 2.00	4.50 - 5.80	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.70 - 2.00	4.00 - 5.30	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
CLP Metals (in mg/kg)												
CALCIUM	3,180	4,160	11,300	2,910	4,330	6,200	6,830	13,800	2,540	3,700	3,860	7,050
CHROMIUM	95.1 J	61.7 J	45.2	93.8	76.7	24.7 U	48.6	30.2 U	27.6	82.8	69.5	35.9
COBALT	18.0	11.6	15.2	14.6	13.3	12.1	12.7	5.9	14.1	13.0	12.8	11.0
COPPER	36.4 J	23.0 J	26.0	44.4	47.4	24.6	80.4	24.7	28.7	40.6	36.0	48.8
IRON	33,300 *	45,300 *	73,200 *	36,400 *	23,500 *	16,500	27,700 *	17,800	22,700	33,700 *	32,200 *	16,700
LEAD	16.0	9.5 J	46.6 J	26.3 J	51.6 J	39.2 J	1,160 J *	11.8 J	7.7 J	14.6 J	21.6 J	172 J *
MAGNESIUM	13,200	12,600	11,700	10,900	10,100	7,620	8,470	7,900	7,440	13,600	13,000	9,320
MANGANESE	310	408	301	294	325	443	303	207	669	278	302	226
MERCURY	0.10	0.12 U	0.46	0.13	0.13	0.12	0.15	0.15 U	0.050	0.070 U	0.11	0.070 U
MOLYBDENUM	1.5	2.0	3.1 U	2.8 U	3.1 U	0.32 U	0.23 U	6.2	0.19 U	0.26 U	0.46 U	1.1 U
NICKEL	62.1	50.7	56.2	78.9	79.5	44.6	51.0	49.3	60.4	67.4	60.7	84.4
POTASSIUM	6,310 J	5,050 J	6,160 J	5,910 J	6,690 J	3,450 J	3,270 J	2,020 J	1,980 J	5,200 J	4,860 J	3,340 J
SELENIUM	1.2 U	1.7 U	1.3 U	1.0 U	1.5 U	0.78 U	0.87 U	2.8	0.73 U	0.99 U	0.97 U	0.91 U
SILVER	0.22 U	0.29 U	0.23 U	0.18 U	0.27 U	0.14 U	0.15 U	0.35 U	0.13 U	0.17 U	0.17 U	0.47
SODIUM	17,000 J	22,900 J	42,500 J	5,120 J	3,930 J	6,800 J	3,750 J	15,800 J	3,560 J	11,700 J	15,800 J	13,400 J
THALLIUM	0.73 U	0.98 UJ	0.76 U	0.60 U	0.89 U	0.46 U	0.51 U	1.2 U	0.43 U	0.58 U	0.57 U	0.54 U
VANADIUM	91.3	82.7	57.6	107	91.8	47.5	56.5	51.0	50.1	71.2	64.0	46.8
ZINC	81.6	70.3	92.2	127	142	115	488	56.5	64.5	96.7	83.5	119
Hexavalent Chromium (in mg/kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	250 UJ	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	18.2 UJ	18.8 UJ	15.8 UJ	14.4 UJ	NA	11.5 UJ	12.1 UJ	12.4 UJ	10.1 UJ	13.7 UJ	NA	14.2 U
TOTAL ORGANIC CARBON	39,800	20,900	35,900 J	63,000 J	NA	1,640 J	12,600 J	319,000 J	106 UJ	14,500 J	NA	32,300 J
Percent Moisture (percent)												
PERCENT MOISTURE	NA	NA	38.0	34.0	NA	15.0	22.0	66.0	5.0	31.0	NA	32.0
Miscellaneous												
PH	4.6	7.4	4.7	5.2	6.2	7.7	7.6	6.7	7.1	4.7	4.7	4.9

Notes:

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBH06	RADSBH06	RADSBH06	RADSBH07	RADSBH08	RADSBI01	RADSBI02	RADSBI03	RADSBI04	RADSBI04	RADSBI05	RADSBI06
Sample ID	281RADSS003	281RADSS004	281RADSS152	281RADSS112	281RADSS113	281RADSS131	281RADSS130	281RADSS135	281RADSS001	281RADSS002	281RADSS105	281RADSS106
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	07/27/1995	09/18/1995	08/22/1995	08/22/1995	08/23/1995	08/23/1995	08/23/1995	07/27/1995	07/27/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50
Volatiles (in µg/kg)												
1,1,1-TRICHLOROETHANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
1,1,2-TRICHLOROETHANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
1,1-DICHLOROETHANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
1,1-DICHLOROETHENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
1,2-DICHLOROETHANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
1,2-DICHLOROPROPANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
2-BUTANONE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	110 U	NA	NA
2-HEXANONE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
4-METHYL-2-PENTANONE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
ACETONE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	360 U	NA	NA
BENZENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
BROMODICHLOROMETHANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
BROMOFORM	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
BROMOMETHANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
CARBON DISULFIDE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
CARBON TETRACHLORIDE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
CHLOROBENZENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
CHLOROETHANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
CHLOROFORM	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
CHLOROMETHANE	NA	14 J	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
DIBROMOCHLOROMETHANE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
ETHYLBENZENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
METHYLENE CHLORIDE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	36 U	NA	NA
STYRENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
TETRACHLOROETHENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
TOLUENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
TRICHLOROETHENE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
VINYL CHLORIDE	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
XYLENE (TOTAL)	NA	26 U	NA	NA	NA	NA	NA	NA	NA	33 U	NA	NA
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
1,2,4-TRICHLOROBENZENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
1,2-DICHLOROBENZENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
1,3-DICHLOROBENZENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBH05	RADSBH06	RADSBH06	RADSBH07	RADSBH08	RADSBI01	RADSBI02	RADSBI03	RADSBI04	RADSBI04	RADSBI05	RADSBI06
Sample ID	281RADSS003	281RADSS004	281RADSS152	281RADSS112	281RADSS113	281RADSS131	281RADSS130	281RADSS135	281RADSS001	281RADSS002	281RADSS105	281RADSS106
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	07/27/1995	09/18/1995	08/22/1995	08/22/1995	08/23/1995	08/23/1995	08/23/1995	07/27/1995	07/27/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
1-METHYLNAPHTHALENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
1-METHYLPHENANTHRENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2,3,5-TRIMETHYLNAPHTHALENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2,4,5-TRICHLOROPHENOL	1,300 U	NA	NA	520 U	NA	88 U	110 U	NA	130 U	NA	120 U	NA
2,4,6-TRICHLOROPHENOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2,4-DICHLOROPHENOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2,4-DIMETHYLPHENOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	24 J	NA	46 U	NA
2,4-DINITROPHENOL	1,300 U	NA	NA	520 U	NA	88 U	110 U	NA	130 U	NA	120 U	NA
2,4-DINITROTOLUENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2,6-DIMETHYLNAPHTHALENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2,6-DINITROTOLUENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2-CHLORONAPHTHALENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2-CHLOROPHENOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2-METHYLNAPHTHALENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2-METHYLPHENOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
2-NITROANILINE	1,300 U	NA	NA	520 U	NA	88 U	110 U	NA	130 U	NA	120 U	NA
2-NITROPHENOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
3,3'-DICHLOROBENZIDINE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
3-NITROANILINE	1,300 U	NA	NA	520 U	NA	88 U	110 U	NA	130 U	NA	120 U	NA
4,6-DINITRO-2-METHYLPHENOL	1,300 U	NA	NA	520 U	NA	88 U	110 U	NA	130 U	NA	120 U	NA
4-BROMOPHENYL-PHENYLETHER	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
4-CHLORO-3-METHYLPHENOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
4-CHLOROANILINE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
4-CHLOROPHENYL-PHENYLETHER	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
4-METHYLPHENOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
4-NITROANILINE	1,300 U	NA	NA	520 U	NA	88 U	110 U	NA	130 U	NA	120 U	NA
4-NITROPHENOL	1,300 U	NA	NA	520 U	NA	88 U	110 U	NA	130 U	NA	120 U	NA
ACENAPHTHENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
ACENAPHTHYLENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
ANTHRACENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BENZO(A)ANTHRACENE	61 J	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BENZO(A)PYRENE	59 J	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BENZO(B)FLUORANTHENE	84 J	NA	NA	210 U	NA	35 U	42 U	NA	6 J	NA	46 U	NA
BENZO(E)PYRENE	62 J	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BENZO(G,H,I)PERYLENE	61 J	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BENZO(K)FLUORANTHENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BENZOIC ACID	1,300 U	NA	NA	520 U	NA	88 U	110 U	NA	59 J	NA	120 U	NA

Notes:

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBH06	RADSBH06	RADSBH06	RADSBH07	RADSBH08	RADSBI01	RADSBI02	RADSBI03	RADSBI04	RADSBI04	RADSBI05	RADSBI06
Sample ID	281RADSS003	281RADSS004	281RADSS152	281RADSS112	281RADSS113	281RADSS131	281RADSS130	281RADSS135	281RADSS001	281RADSS002	281RADSS105	281RADSS106
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	07/27/1995	09/18/1995	08/22/1995	08/22/1995	08/23/1995	08/23/1995	08/23/1995	07/27/1995	07/27/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BIS(2-CHLOROETHOXY)METHANE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BIS(2-CHLOROETHYL)ETHER	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	500 U	NA	NA	320 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
BUTYLBENZYLPHTHALATE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
CARBAZOLE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
CHRYSENE	96 J	NA	NA	210 U	NA	35 U	42 U	NA	6 J	NA	46 U	NA
DI-N-BUTYLPHTHALATE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
DI-N-OCTYLPHTHALATE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
DIBENZ(A,H)ANTHRACENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
DIBENZOFURAN	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
DIBENZOTHIOPHENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
DIETHYLPHTHALATE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
DIMETHYLPHTHALATE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
FLUORANTHENE	140 J	NA	NA	210 U	NA	35 U	42 U	NA	17 J	NA	46 U	NA
FLUORENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
HEXACHLOROBENZENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
HEXACHLOROBUTADIENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
HEXACHLOROCYCLOPENTADIENE	500 UJ	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
HEXACHLOROETHANE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
INDENO(1,2,3-CD)PYRENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
ISOPHORONE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	38 J	NA	46 U	NA
N-NITROSO-DI-N-PROPYLAMINE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
N-NITROSODIPHENYLAMINE (1)	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
NAPHTHALENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
NITROBENZENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
PENTACHLOROPHENOL	1,300 U	NA	NA	520 U	NA	88 U	110 U	NA	130 U	NA	120 U	NA
PERYLENE	500 U	NA	NA	210 U	NA	35 U	42 U	NA	9 J	NA	46 U	NA
PHENANTHRENE	52 J	NA	NA	210 U	NA	35 U	42 U	NA	7 J	NA	46 U	NA
PHENOL	500 U	NA	NA	210 U	NA	35 U	42 U	NA	52 U	NA	46 U	NA
PYRENE	110 J	NA	NA	210 U	NA	35 U	42 U	NA	6 J	NA	46 U	NA
TOTAL HIGH MOLECULAR PAHS	670	NA	NA	U	NA	U	U	NA	44	NA	U	NA
TOTAL LOW MOLECULAR PAHS	52	NA	NA	U	NA	U	U	NA	7	NA	U	NA
TOTAL PAHS	730	NA	NA	U	NA	U	U	NA	51	NA	U	NA
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
1,2-DICHLOROBENZENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
1,3-DICHLOROBENZENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
1,4-DICHLOROBENZENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBH06	RADSBH06	RADSBH06	RADSBH07	RADSBH08	RADSBI01	RADSBI02	RADSBI03	RADSBI04	RADSBI04	RADSBI05	RADSBI06
Sample ID	281RADSS003	281RADSS004	281RADSS152	281RADSS112	281RADSS113	281RADSS131	281RADSS130	281RADSS135	281RADSS001	281RADSS002	281RADSS105	281RADSS106
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	07/27/1995	09/18/1995	08/22/1995	08/22/1995	08/23/1995	08/23/1995	08/23/1995	07/27/1995	07/27/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	800 U	NA	NA	NA	NA	NA	NA	2,800 U	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2,4-DICHLOROPHENOL	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2,4-DINITROPHENOL	NA	NA	800 U	NA	NA	NA	NA	NA	NA	2,800 U	NA	NA
2,4-DINITROTOLUENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2,6-DINITROTOLUENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2-CHLORONAPHTHALENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2-CHLOROPHENOL	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2-METHYLNAPHTHALENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2-METHYLPHENOL	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
2-NITROANILINE	NA	NA	800 U	NA	NA	NA	NA	NA	NA	2,800 U	NA	NA
2-NITROPHENOL	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
3-NITROANILINE	NA	NA	800 U	NA	NA	NA	NA	NA	NA	2,800 U	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	800 U	NA	NA	NA	NA	NA	NA	2,800 U	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
4-CHLOROANILINE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
4-METHYLPHENOL	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
4-NITROANILINE	NA	NA	800 U	NA	NA	NA	NA	NA	NA	2,800 U	NA	NA
4-NITROPHENOL	NA	NA	800 U	NA	NA	NA	NA	NA	NA	2,800 U	NA	NA
ACENAPHTHENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
ACENAPHTHYLENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
ANTHRACENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
BENZO(A)ANTHRACENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
BENZO(A)PYRENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
CARBAZOLE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
CHRYSENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA

Notes:

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Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBH06	RADSBH06	RADSBH06	RADSBH07	RADSBH08	RADSBI01	RADSBI02	RADSBI03	RADSBI04	RADSBI04	RADSBI05	RADSBI06
Sample ID	281RADSS003	281RADSS004	281RADSS152	281RADSS112	281RADSS113	281RADSS131	281RADSS130	281RADSS135	281RADSS001	281RADSS002	281RADSS105	281RADSS106
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	07/27/1995	09/18/1995	08/22/1995	08/22/1995	08/23/1995	08/23/1995	08/23/1995	07/27/1995	07/27/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
DIBENZOFURAN	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
DIETHYLPHTHALATE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
DIMETHYLPHTHALATE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
FLUORANTHENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
FLUORENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
HEXACHLOROBENZENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
HEXACHLOROBUTADIENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
HEXACHLOROETHANE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
ISOPHORONE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
NAPHTHALENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
NITROBENZENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
PENTACHLOROPHENOL	NA	NA	800 U	NA	NA	NA	NA	NA	NA	2,800 U	NA	NA
PHENANTHRENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
PHENOL	NA	NA	600	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
PYRENE	NA	NA	330 U	NA	NA	NA	NA	NA	NA	1,100 U	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	U	NA	NA	NA	NA	NA	NA	U	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	U	NA	NA	NA	NA	NA	NA	U	NA	NA
TOTAL PAHS	NA	NA	U	NA	NA	NA	NA	NA	NA	U	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	3 J	NA	NA	0.3	NA	0.1 U	0.6 J	NA	3 J	NA	0.1 U	NA
2,4'-DDE	0.3 U	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.4	NA	0.1 U	NA
2,4'-DDT	0.3 U	NA	NA	0.2 U	NA	0.1 U	0.3	NA	0.2 U	NA	0.1 U	NA
4,4'-DDD	6	NA	NA	0.8	NA	0.4	0.8	NA	8	NA	0.1 U	NA
4,4'-DDE	4	NA	NA	0.4	NA	0.2	0.3 J	NA	1 J	NA	0.1 U	NA
4,4'-DDT	0.3 U	NA	NA	0.4	NA	0.2	0.2 J	NA	0.7 U	NA	0.1 U	NA
ALDRIN	0.3 U	NA	NA	0.8	NA	0.1 U	0.3 J	NA	0.2 U	NA	0.4 J	NA
ALPHA-CHLORDANE	2	NA	NA	0.2 U	NA	0.1 U	0.2 J	NA	1	NA	0.1 U	NA
DIELDRIN	1	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.6	NA	0.1 U	NA
GAMMA-BHC (LINDANE)	0.7 J	NA	NA	0.2 U	NA	0.3	0.1 U	NA	0.2 U	NA	0.1 U	NA
HEPTACHLOR	0.3 U	NA	NA	0.2 U	NA	0.4 U	0.1 U	NA	0.2 U	NA	0.1 U	NA
HEPTACHLOR EPOXIDE	0.3 U	NA	NA	0.2 U	NA	0.2	1	NA	0.2 U	NA	0.1 U	NA
HEXACHLOROBENZENE	0.3 U	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.2 U	NA	0.1 U	NA
MIREX	0.3	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.2 U	NA	0.1 U	NA

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBH06	RADSBH06	RADSBH06	RADSBH07	RADSBH08	RADSBI01	RADSBI02	RADSBI03	RADSBI04	RADSBI04	RADSBI05	RADSBI06
Sample ID	281RADSS003	281RADSS004	281RADSS152	281RADSS112	281RADSS113	281RADSS131	281RADSS130	281RADSS135	281RADSS001	281RADSS002	281RADSS105	281RADSS106
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	07/27/1995	09/18/1995	08/22/1995	08/22/1995	08/23/1995	08/23/1995	08/23/1995	07/27/1995	07/27/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	0.8 J	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.6 J	NA	0.1 U	NA
PCB-105 (2,3,3',4,4')	0.5 J	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.3 J	NA	0.1 U	NA
PCB-118 (2,3',4,4',5)	0.9	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.6	NA	0.1 U	NA
PCB-126 (3,3',4,4',5)	2 J	NA	NA	0.6	NA	0.4	0.1 U	NA	0.2 U	NA	0.2 J	NA
PCB-128 (2,2',3,3',4,4')	0.3 U	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.2 J	NA	0.1 U	NA
PCB-138 (2,2',3,4,4',5')	1 J	NA	NA	0.2 U	NA	0.2	0.1 U	NA	0.8 J	NA	0.1 U	NA
PCB-153 (2,2',4,4',5,5')	1	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.6	NA	0.1 U	NA
PCB-170 (2,2',3,3',4,4',5)	0.3 U	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.2 U	NA	0.1 U	NA
PCB-18 (2,2',5)	0.3 J	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.2 U	NA	0.1 U	NA
PCB-180 (2,2',3,4,4',5,5')	0.3 U	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.5 J	NA	0.1 U	NA
PCB-187 (2,2',3,4',5,5',6)	0.2 J	NA	NA	0.2 U	NA	0.6	0.1 U	NA	0.09 J	NA	0.1 U	NA
PCB-195 (2,2',3,3',4,4',5,6)	0.3 U	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.2 U	NA	0.1 U	NA
PCB-206 (2,2',3,3',4,4',5,5',6	0.3 U	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.2 J	NA	0.1 U	NA
PCB-209 (2,2',3,3',4,4',5,5',6	0.3 U	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.2 U	NA	0.1 U	NA
PCB-28 (2,4,4')	0.3 U	NA	NA	0.2 U	NA	0.5	0.1 U	NA	0.2 U	NA	0.1 U	NA
PCB-44 (2,2',3,5')	0.3 U	NA	NA	0.2 U	NA	0.3 U	0.1 U	NA	0.2 U	NA	0.1 U	NA
PCB-52 (2,2',5,5')	0.3 U	NA	NA	0.3	NA	0.2	0.1 U	NA	0.2 J	NA	0.1 U	NA
PCB-66 (2,3',4,4')	0.8	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.5	NA	0.1 U	NA
PCB-77 (3,3',4,4')	0.3 U	NA	NA	0.7	NA	0.1 U	0.4 J	NA	0.2 U	NA	0.1 U	NA
PCB-8 (2,4')	0.3 U	NA	NA	2	NA	0.1 U	0.1 U	NA	0.2 U	NA	0.1 U	NA
TRANS-NONACHLOR	2	NA	NA	0.2 U	NA	0.1 U	0.1 U	NA	0.6 J	NA	0.1 U	NA
TOTAL BHCS	0.7	NA	NA	U	NA	0.3	U	NA	U	NA	U	NA
TOTAL CHLORDANES	2	NA	NA	U	NA	U	0.2	NA	1	NA	U	NA
TOTAL DDTS	13	NA	NA	2	NA	0.8	2	NA	13	NA	U	NA
TOTAL PCBS	11	NA	NA	5	NA	3	U	NA	9	NA	U	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	9 U	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA
4,4'-DDE	NA	9 U	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA
4,4'-DDT	NA	9 U	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA
ALDRIN	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
ALPHA-BHC	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
ALPHA-CHLORDANE	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
AROCLOR-1016	NA	88 U	NA	NA	NA	NA	NA	NA	NA	110 U	NA	NA
AROCLOR-1221	NA	180 U	NA	NA	NA	NA	NA	NA	NA	220 U	NA	NA
AROCLOR-1232	NA	88 U	NA	NA	NA	NA	NA	NA	NA	110 U	NA	NA
AROCLOR-1242	NA	88 U	NA	NA	NA	NA	NA	NA	NA	110 U	NA	NA
AROCLOR-1248	NA	88 U	NA	NA	NA	NA	NA	NA	NA	110 U	NA	NA
AROCLOR-1254	NA	88 U	NA	NA	NA	NA	NA	NA	NA	110 U	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBH06	RADSBH06	RADSBH06	RADSBH07	RADSBH08	RADSBI01	RADSBI02	RADSBI03	RADSBI04	RADSBI04	RADSBI05	RADSBI06
Sample ID	281RADSS003	281RADSS004	281RADSS152	281RADSS112	281RADSS113	281RADSS131	281RADSS130	281RADSS135	281RADSS001	281RADSS002	281RADSS105	281RADSS106
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	07/27/1995	09/18/1995	08/22/1995	08/22/1995	08/23/1995	08/23/1995	08/23/1995	07/27/1995	07/27/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1260	NA	88 U	NA	NA	NA	NA	NA	NA	NA	110 U	NA	NA
BETA-BHC	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
DELTA-BHC	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
DIELDRIN	NA	9 U	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA
ENDOSULFAN I	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
ENDOSULFAN II	NA	9 U	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA
ENDOSULFAN SULFATE	NA	9 U	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA
ENDRIN	NA	9 U	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA
ENDRIN ALDEHYDE	NA	9 U	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA
ENDRIN KETONE	NA	9 U	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA
GAMMA-BHC (LINDANE)	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
GAMMA-CHLORDANE	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
HEPTACHLOR	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
HEPTACHLOR EPOXIDE	NA	4 U	NA	NA	NA	NA	NA	NA	NA	6 U	NA	NA
METHOXYCHLOR	NA	44 U	NA	NA	NA	NA	NA	NA	NA	56 U	NA	NA
TOXAPHENE	NA	440 U	NA	NA	NA	NA	NA	NA	NA	560 U	NA	NA
TOTAL BHCS	NA	U	NA	NA	NA	NA	NA	NA	NA	U	NA	NA
TOTAL CHLORDANES	NA	U	NA	NA	NA	NA	NA	NA	NA	U	NA	NA
TOTAL DDTS	NA	U	NA	NA	NA	NA	NA	NA	NA	U	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	26,400	20,700	NA	14,400	17,000	9,450	17,100	16,300	25,100	17,900	25,600	12,500
ANTIMONY	1.0 J	1.1 UJ	NA	2.8 J	0.98 J	0.43 UJ	0.98 J	1.1 J	1.2 J	1.4 UJ	1.2 J	2.5 J
ARSENIC	8.6 *	40.1 *	NA	30.9 *	8.3 *	4.5 *	7.1 *	6.4 *	10.8 *	6.5 U	5.9 *	23.4 *
BARIUM	44.4	45.1	NA	158	273	124	76.2	117	98.3	40.4	96.2	347
BERYLLIUM	0.030 U	0.050 U	NA	0.040 U	0.050 U	0.070 U	0.020 U	0.12	0.030 U	0.070 U	0.030 U	0.040 U
CADMIUM	0.070 U	0.40	NA	0.070 U	0.040 U	0.040 U	0.050 U	0.040 U	0.060 U	0.13 U	0.060 U	0.080 U

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBH06	RADSBH06	RADSBH06	RADSBH07	RADSBH08	RADSBI01	RADSBI02	RADSBI03	RADSBI04	RADSBI04	RADSBI05	RADSBI06
Sample ID	281RADSS003	281RADSS004	281RADSS152	281RADSS112	281RADSS113	281RADSS131	281RADSS130	281RADSS135	281RADSS001	281RADSS002	281RADSS105	281RADSS106
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/27/1995	07/27/1995	09/18/1995	08/22/1995	08/22/1995	08/23/1995	08/23/1995	08/23/1995	07/27/1995	07/27/1995	08/22/1995	08/22/1995
Sample Depth (in feet)	0.00 - 0.50	1.50 - 2.00	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50
CLP Metals (in mg/kg)												
CALCIUM	3,330	3,810	NA	5,610	45,900	5,370	3,990	3,360	3,470	10,400	4,470	8,990
CHROMIUM	92.5	81.0	NA	52.4	35.8	25.1	61.2	39.0	81.9	62.2	80.7	40.9
COBALT	15.2	108	NA	12.2	13.5	10.2	11.5	18.1	14.2	9.3	13.5	12.3
COPPER	30.1	80.6	NA	77.3	29.6	27.5	20.6	17.3	43.8	28.3	33.4	74.0
IRON	34,600 *	27,000 *	NA	31,600 *	24,300 *	15,500	29,100 *	21,000	35,200 *	14,500	35,300 *	33,300 *
LEAD	25.0	22.0	NA	101 J	12.3 J	23.5 J	7.7 J	11.4	51.7	5.8 U	18.0 J	285 J *
MAGNESIUM	13,100	9,930	NA	11,300	8,310	4,670	10,500	9,790	13,000	17,000	13,800	16,000
MANGANESE	320	266	NA	258	581	384	285	537	276	385	304	317
MERCURY	0.20 U	0.13 UJ	NA	0.41	0.090	0.070	0.060 U	0.050 U	0.13 U	0.17 U	0.070 U	0.40
MOLYBDENUM	1.2	17.8	NA	10.3	0.19 U	0.53 U	0.22 U	0.51 J	0.29 U	5.1	0.26 U	5.7
NICKEL	78.0	242	NA	71.6	54.2	36.1	54.0	69.4	72.9	45.1	69.2	57.6
POTASSIUM	5,920 J	5,300 J	NA	8,040 J	2,800 J	3,350 J	2,870 J	5,120 J	5,390 J	6,500 J	5,340 J	7,380 J
SELENIUM	1.1 U	1.8 U	NA	1.2 U	0.73 U	0.70 U	0.82 U	0.74 U	1.1 U	2.3 U	0.98 U	1.4 U
SILVER	0.20 U	0.31 U	NA	0.22 U	0.13 U	0.12 U	0.14 U	0.13 U	0.19 U	0.40 U	0.17 U	0.54
SODIUM	4,860 J	21,800 J	NA	47,500 J	322 J	59.7 J	3,040 J	20,700	12,200 J	49,600 J	12,600 J	51,500 J
THALLIUM	0.66 U	1.0 U	NA	0.72 U	0.43 U	0.41 U	0.48 U	0.43 U	0.64 U	1.3 U	0.58 U	0.85 U
VANADIUM	86.5	85.4	NA	85.6	61.4	36.5	54.6	49.4	79.1	65.0	70.3	71.1
ZINC	138	61.4	NA	93.5	67.6	94.0	71.3	67.6	111	74.8	104	87.3
Hexavalent Chromium (in mg/kg)												
HEXAVALENT CHROMIUM	50.0 UJ	NA	NA	NA	NA	NA	NA	NA	50.0 UJ	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	29.9 U	17.0 U	NA	18.3 U	NA	10.4 UJ	12.4 UJ	NA	15.7 U	32.9 U	13.7 U	NA
TOTAL ORGANIC CARBON	237,000	12,200	NA	143,000 J	NA	28,300 J	3,570 J	NA	13,300	323,000	22,800 J	NA
Percent Moisture (percent)												
PERCENT MOISTURE	67.0	NA	NA	47.0	NA	6.0	22.0	NA	37.0	NA	29.0	NA
Miscellaneous												
PH	5.4	5	NA	3.9	8.5	7.1	5.4	6.2	4.9	6.2	5	4.5

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBI07	RADSBI08	RADSBI08	RADSBJ01	RADSBJ02	RADSBJ02	RADSBJ02	RADSBJ03	RADSBJ04	RADSBJ06	RADSBJ07	RADSBJ08
Sample ID	281RADSS111	281RADSS005	281RADSS006	281RADSS132	281RADSS081	281RADSS082	281RADSS083	281RADSS142	281RADSS138	281RADSS107	281RADSS108	281RADSS143
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/22/1995	07/27/1995	07/27/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/28/1995	08/28/1995	08/22/1995	08/22/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	1.00 - 2.20	4.70 - 6.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Volatiles (in µg/kg)												
1,1,1-TRICHLOROETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
ACETONE	NA	NA	130 U	NA	NA	12 U	34 U	NA	NA	NA	NA	NA
BENZENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	45	NA	NA	12 U	7 J	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	32 U	NA	NA	18 U	16 U	NA	NA	NA	NA	NA
STYRENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
TOLUENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	32 U	NA	NA	12 U	13 U	NA	NA	NA	NA	NA
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
1,2,4-TRICHLOROBENZENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
1,2-DICHLOROBENZENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
1,3-DICHLOROBENZENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBI07	RADSBI08	RADSBI08	RADSBJ01	RADSBJ02	RADSBJ02	RADSBJ02	RADSBJ03	RADSBJ04	RADSBJ06	RADSBJ07	RADSBJ08
Sample ID	281RADSS111	281RADSS005	281RADSS006	281RADSS132	281RADSS081	281RADSS082	281RADSS083	281RADSS142	281RADSS138	281RADSS107	281RADSS108	281RADSS143
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/22/1995	07/27/1995	07/27/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/28/1995	08/28/1995	08/22/1995	08/22/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	1.00 - 2.20	4.70 - 6.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
1,4-DICHLOROBENZENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
1-METHYLNAPHTHALENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
1-METHYLPHENANTHRENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2,4,5-TRICHLOROPHENOL	NA	260 U	NA	NA	99 U	NA	NA	580 U	NA	NA	220 U	NA
2,4,6-TRICHLOROPHENOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2,4-DICHLOROPHENOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2,4-DIMETHYLPHENOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2,4-DINITROPHENOL	NA	260 U	NA	NA	99 U	NA	NA	580 U	NA	NA	220 U	NA
2,4-DINITROTOLUENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2,6-DIMETHYLNAPHTHALENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2,6-DINITROTOLUENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2-CHLORONAPHTHALENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2-CHLOROPHENOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2-METHYLNAPHTHALENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2-METHYLPHENOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
2-NITROANILINE	NA	260 U	NA	NA	99 U	NA	NA	580 U	NA	NA	220 U	NA
2-NITROPHENOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
3,3'-DICHLOROBENZIDINE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
3-NITROANILINE	NA	260 U	NA	NA	99 U	NA	NA	580 U	NA	NA	220 U	NA
4,6-DINITRO-2-METHYLPHENOL	NA	260 U	NA	NA	99 U	NA	NA	580 U	NA	NA	220 U	NA
4-BROMOPHENYL-PHENYLETHER	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
4-CHLORO-3-METHYLPHENOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
4-CHLOROANILINE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
4-CHLOROPHENYL-PHENYLETHER	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
4-METHYLPHENOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
4-NITROANILINE	NA	260 U	NA	NA	99 U	NA	NA	580 U	NA	NA	220 U	NA
4-NITROPHENOL	NA	260 U	NA	NA	99 UJ	NA	NA	580 U	NA	NA	220 U	NA
ACENAPHTHENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
ACENAPHTHYLENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
ANTHRACENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BENZO(A)ANTHRACENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BENZO(A)PYRENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BENZO(B)FLUORANTHENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BENZO(E)PYRENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BENZO(G,H,I)PERYLENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BENZO(K)FLUORANTHENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BENZOIC ACID	NA	53 J	NA	NA	68 J	NA	NA	410 J	NA	NA	220 U	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBI07	RADSBI08	RADSBI08	RADSBJ01	RADSBJ02	RADSBJ02	RADSBJ02	RADSBJ03	RADSBJ04	RADSBJ06	RADSBJ07	RADSBJ08
Sample ID	281RADSS111	281RADSS005	281RADSS006	281RADSS132	281RADSS081	281RADSS082	281RADSS083	281RADSS142	281RADSS138	281RADSS107	281RADSS108	281RADSS143
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/22/1995	07/27/1995	07/27/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/28/1995	08/28/1995	08/22/1995	08/22/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	1.00 - 2.20	4.70 - 6.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BIS(2-CHLOROETHOXY)METHANE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BIS(2-CHLOROETHYL)ETHER	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
BUTYLBENZYLPHTHALATE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
CARBAZOLE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
CHRYSENE	NA	23 J	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
DI-N-BUTYLPHTHALATE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
DI-N-OCTYLPHTHALATE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
DIBENZ(A,H)ANTHRACENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
DIBENZOFURAN	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
DIBENZOTHIOPHENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
DIETHYLPHTHALATE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
DIMETHYLPHTHALATE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
FLUORANTHENE	NA	11 J	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
FLUORENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
HEXACHLOROBENZENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
HEXACHLOROBUTADIENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
HEXACHLOROCYCLOPENTADIENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
HEXACHLOROETHANE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
INDENO(1,2,3-CD)PYRENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
ISOPHORONE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
N-NITROSODIPHENYLAMINE (1)	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
NAPHTHALENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
NITROBENZENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
PENTACHLOROPHENOL	NA	260 U	NA	NA	99 U	NA	NA	580 U	NA	NA	220 U	NA
PERYLENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
PHENANTHRENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
PHENOL	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
PYRENE	NA	100 U	NA	NA	40 U	NA	NA	230 U	NA	NA	88 U	NA
TOTAL HIGH MOLECULAR PAHS	NA	34	NA	NA	U	NA	NA	U	NA	NA	U	NA
TOTAL LOW MOLECULAR PAHS	NA	U	NA	NA	U	NA	NA	U	NA	NA	U	NA
TOTAL PAHS	NA	34	NA	NA	U	NA	NA	U	NA	NA	U	NA
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA

Notes:

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBI07	RADSBI08	RADSBI08	RADSBJ01	RADSBJ02	RADSBJ02	RADSBJ02	RADSBJ03	RADSBJ04	RADSBJ06	RADSBJ07	RADSBJ08
Sample ID	281RADSS111	281RADSS005	281RADSS006	281RADSS132	281RADSS081	281RADSS082	281RADSS083	281RADSS142	281RADSS138	281RADSS107	281RADSS108	281RADSS143
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/22/1995	07/27/1995	07/27/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/28/1995	08/28/1995	08/22/1995	08/22/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	1.00 - 2.20	4.70 - 6.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	2,700 U	NA	NA	1,000 U	1,100 U	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	2,700 U	NA	NA	1,000 U	1,100 U	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	2,700 U	NA	NA	1,000 U	1,100 U	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	2,700 U	NA	NA	1,000 U	1,100 U	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	2,700 U	NA	NA	1,000 U	1,100 U	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	2,700 U	NA	NA	1,000 U	1,100 U	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	2,700 U	NA	NA	1,000 U	1,100 U	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA

Notes:

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBI07	RADSBI08	RADSBI08	RADSBJ01	RADSBJ02	RADSBJ02	RADSBJ02	RADSBJ03	RADSBJ04	RADSBJ06	RADSBJ07	RADSBJ08
Sample ID	281RADSS111	281RADSS005	281RADSS006	281RADSS132	281RADSS081	281RADSS082	281RADSS083	281RADSS142	281RADSS138	281RADSS107	281RADSS108	281RADSS143
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/22/1995	07/27/1995	07/27/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/28/1995	08/28/1995	08/22/1995	08/22/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	1.00 - 2.20	4.70 - 6.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)												
DI-N-OCTYLPHTHALATE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
FLUORENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	2,700 U	NA	NA	1,000 U	1,100 U	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
PHENOL	NA	NA	1,100 U	NA	NA	470	430 U	NA	NA	NA	NA	NA
PYRENE	NA	NA	1,100 U	NA	NA	400 U	430 U	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	U	NA	NA	U	U	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	U	NA	NA	U	U	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	U	NA	NA	U	U	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	0.2 U	NA	NA	0.4	NA	NA	0.6	NA	NA	0.5	NA
2,4'-DDE	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.3	NA
2,4'-DDT	NA	0.2 U	NA	NA	3	NA	NA	0.2	NA	NA	0.4	NA
4,4'-DDD	NA	0.4 U	NA	NA	0.8	NA	NA	1	NA	NA	0.9	NA
4,4'-DDE	NA	0.8	NA	NA	2	NA	NA	0.6	NA	NA	0.7	NA
4,4'-DDT	NA	0.2 U	NA	NA	11	NA	NA	0.6	NA	NA	2	NA
ALDRIN	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
ALPHA-CHLORDANE	NA	0.3 J	NA	NA	0.2 U	NA	NA	0.2	NA	NA	0.2	NA
DIELDRIN	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.4	NA
GAMMA-BHC (LINDANE)	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.6	NA	NA	0.1 U	NA
HEPTACHLOR	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.3 U	NA
HEPTACHLOR EPOXIDE	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
HEXACHLOROBENZENE	NA	0.2 U	NA	NA	0.6	NA	NA	0.6	NA	NA	0.5	NA
MIREX	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.3	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBI07	RADSBI08	RADSBI08	RADSBJ01	RADSBJ02	RADSBJ02	RADSBJ02	RADSBJ03	RADSBJ04	RADSBJ06	RADSBJ07	RADSBJ08
Sample ID	281RADSS111	281RADSS005	281RADSS006	281RADSS132	281RADSS081	281RADSS082	281RADSS083	281RADSS142	281RADSS138	281RADSS107	281RADSS108	281RADSS143
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/22/1995	07/27/1995	07/27/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/28/1995	08/28/1995	08/22/1995	08/22/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	1.00 - 2.20	4.70 - 6.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.3	NA
PCB-105 (2,3,3',4,4')	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.2	NA
PCB-118 (2,3',4,4',5)	NA	0.1 J	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-126 (3,3',4,4',5)	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	2	NA
PCB-128 (2,2',3,3',4,4')	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-138 (2,2',3,4,4',5')	NA	0.2 J	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-153 (2,2',4,4',5,5')	NA	0.1 J	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 J	NA
PCB-170 (2,2',3,3',4,4',5)	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-18 (2,2',5)	NA	0.2 J	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.2 U	NA
PCB-180 (2,2',3,4,4',5,5')	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-187 (2,2',3,4',5,5',6)	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-195 (2,2',3,3',4,4',5,6)	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-206 (2,2',3,3',4,4',5,5',6	NA	0.09 J	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.2	NA
PCB-209 (2,2',3,3',4,4',5,5',6	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-28 (2,4,4')	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-44 (2,2',3,5')	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-52 (2,2',5,5')	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.1 U	NA
PCB-66 (2,3',4,4')	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.2	NA
PCB-77 (3,3',4,4')	NA	0.2 U	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	1	NA
PCB-8 (2,4')	NA	0.2 U	NA	NA	0.8	NA	NA	0.9	NA	NA	1	NA
TRANS-NONACHLOR	NA	0.4 J	NA	NA	0.2 U	NA	NA	0.1 U	NA	NA	0.2	NA
TOTAL BHCS	NA	U	NA	NA	U	NA	NA	0.6	NA	NA	U	NA
TOTAL CHLORDANES	NA	0.3	NA	NA	U	NA	NA	0.2	NA	NA	0.2	NA
TOTAL DDTS	NA	0.8	NA	NA	17	NA	NA	3	NA	NA	4	NA
TOTAL PCBS	NA	1	NA	NA	2	NA	NA	2	NA	NA	4	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	11 U	NA	NA	4 U	4 U	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	11 U	NA	NA	4 U	4 U	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	11 U	NA	NA	4 U	4 U	NA	NA	NA	NA	NA
ALDRIN	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	110 U	NA	NA	40 U	43 U	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	220 U	NA	NA	80 U	87 U	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	110 U	NA	NA	40 U	43 U	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	110 U	NA	NA	40 U	43 U	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	110 U	NA	NA	40 U	43 U	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	110 U	NA	NA	40 U	43 U	NA	NA	NA	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBI07	RADSBI08	RADSBI08	RADSBJ01	RADSBJ02	RADSBJ02	RADSBJ02	RADSBJ03	RADSBJ04	RADSBJ06	RADSBJ07	RADSBJ08
Sample ID	281RADSS111	281RADSS005	281RADSS006	281RADSS132	281RADSS081	281RADSS082	281RADSS083	281RADSS142	281RADSS138	281RADSS107	281RADSS108	281RADSS143
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/22/1995	07/27/1995	07/27/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/28/1995	08/28/1995	08/22/1995	08/22/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	1.00 - 2.20	4.70 - 6.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1260	NA	NA	110 U	NA	NA	40 U	43 U	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	11 U	NA	NA	4 U	4 U	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	11 U	NA	NA	4 U	4 U	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	11 U	NA	NA	4 U	4 U	NA	NA	NA	NA	NA
ENDRIN	NA	NA	11 U	NA	NA	4 U	4 U	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	11 U	NA	NA	4 U	4 U	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	11 U	NA	NA	4 U	4 U	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	5 U	NA	NA	2 U	2 U	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	54 U	NA	NA	20 U	22 U	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	540 U	NA	NA	200 U	220 U	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	U	NA	NA	U	U	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	U	NA	NA	U	U	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	U	NA	NA	U	U	NA	NA	NA	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/kg)												
ALUMINUM	29,400	8,410	18,800	12,200	13,000	19,900	16,600	14,500	30,400	25,000	25,900	13,900
ANTIMONY	2.1 J	0.71 UJ	1.4 UJ	0.71 J	0.74 U	1.0 UJ	0.55 UJ	0.97 J	2.7 J	0.78 J	1.4 J	1.9 J
ARSENIC	17.8 *	11.6 *	25.6 *	6.0 *	5.7 *	6.6 *	2.3 *	10.9 *	42.0 *	9.6 *	13.5 *	11.8 *
BARIUM	165	115	318	176	63.8	79.9	114	79.4	82.4	108	67.9	173
BERYLLIUM	0.14	0.030 U	0.060 U	0.020 U	0.020 U	0.020 U	0.19 U	0.15	0.26	3.0 U	0.34	0.030 U
CADMIUM	0.080 U	0.070 U	0.13 U	0.040 U	0.050 U	0.050 U	0.050 U	0.060 U	0.050 U	0.060 U	0.060 U	0.55

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBI07	RADSBI08	RADSBI08	RADSBJ01	RADSBJ02	RADSBJ02	RADSBJ02	RADSBJ03	RADSBJ04	RADSBJ06	RADSBJ07	RADSBJ08
Sample ID	281RADSS111	281RADSS005	281RADSS006	281RADSS132	281RADSS081	281RADSS082	281RADSS083	281RADSS142	281RADSS138	281RADSS107	281RADSS108	281RADSS143
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/22/1995	07/27/1995	07/27/1995	08/23/1995	08/23/1995	08/23/1995	08/23/1995	08/28/1995	08/28/1995	08/22/1995	08/22/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	0.00 - 0.50	0.00 - 0.50	1.00 - 2.20	4.70 - 6.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
CLP Metals (in mg/Kg)												
CALCIUM	4,260	19,100	41,000	4,850	2,520	3,680	2,040	6,990	2,160	4,000	3,350	5,130
CHROMIUM	82.6	23.8	51.2	41.6	51.2 J	69.2 J	40.3 J	49.1	62.9	88.2	74.8	38.3
COBALT	16.3	19.4	49.1	20.5	11.5	12.6	5.7	11.1	13.2	13.3	10.7	22.9
COPPER	59.8	21.1	51.7	31.4	18.5 J	23.5 J	26.2 J	34.5	75.7	39.6	70.4	47.5
IRON	47,000 *	25,800 *	58,600 *	22,900	25,500 *	31,900 *	19,800	25,700 *	25,500 *	40,000 *	28,500 *	27,200 *
LEAD	63.7 J	10.3	28.3	25.4 J	7.8	7.7	9.6	19.3	196 *	14.6 J	45.3 J	86.1
MAGNESIUM	14,400	6,840	15,300	7,590	10,100	12,200	5,590	8,420	6,210	14,200	10,300	10,100
MANGANESE	293	2,090 *	6,300 *	658	297	318	1,450	264 J	177 J	395	257	908 J
MERCURY	0.28	0.090 U	0.17 U	0.070	0.060	0.070	0.070	0.12	0.19	0.070 U	0.20	0.17
MOLYBDENUM	1.0 U	0.30 U	0.58 U	0.19 U	0.21 U	0.22 U	0.23 U	4.3	5.1	0.35 U	2.2	0.76 U
NICKEL	82.1	54.6	115	73.4	51.8	60.9	31.5	54.3	126	69.8	74.5	76.0
POTASSIUM	7,370 J	1,950 J	4,890 J	3,080 J	2,720 J	3,700 J	6,150 J	4,410 J	4,810 J	5,300 J	5,750 J	4,290 J
SELENIUM	1.4 U	1.1 U	2.2 U	0.72 U	0.78 U	0.82 U	0.89 U	0.98 U	0.88 U	1.0 U	0.95 U	0.88 U
SILVER	0.24 U	0.20 U	0.39 U	0.13 U	0.14 U	0.14 U	0.16 U	0.17 U	0.39	0.18 U	0.17 U	0.15 U
SODIUM	17,500 J	3,340 J	11,200 J	281 J	4,960 J	7,110 J	8,200 J	26,100	7,920	5,100 J	10,200 J	8,960
THALLIUM	0.81 U	0.67 U	5.4 *	0.43 U	0.46 U	0.48 U	0.74	0.58 U	0.52 U	0.60 U	0.56 U	0.52 U
VANADIUM	96.3	40.3	84.8	60.6	47.4	62.0	63.6	57.1	79.3	75.3	72.7	61.8
ZINC	215	67.6	188	75.7	61.5	74.3	42.0	70.1	95.8	115	100	249
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	50.0 UJ	NA	NA	50.0 UJ	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	100	33.3 U	NA	11.7 UJ	10.1 UJ	12.6 UJ	13.7 U	NA	NA	13.0 U	NA
TOTAL ORGANIC CARBON	NA	6,200	141,000	NA	8,050	104 U	1,730	17,100	NA	NA	23,500 J	NA
Percent Moisture (percent)												
PERCENT MOISTURE	NA	36.0	NA	NA	17.0	NA	NA	29.0	NA	NA	25.0	NA
Miscellaneous												
PH	4.3	7.8	7.6	6.5	4.6	4.7	8.5	4.7	4.6	7.1	5.1	6.5

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBK01	RADSBK02	RADSBK03	RADSBK04	RADSBK07	RADSBK08	RADSBK08	RADSBL03	RADSBL08	RADSBM08	RADSBM08	RADSBN08
Sample ID	281RADSS140	281RADSS141	281RADSS137	281RADSS139	281RADSS110	281RADSS008	281RADSS009	281RADSS144	281RADSS145	281RADSS010	281RADSS011	281RADSS146
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/28/1995	08/28/1995	08/28/1995	08/28/1995	08/22/1995	07/27/1995	07/27/1995	08/28/1995	08/28/1995	07/27/1995	07/27/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
ACETONE	NA	NA	NA	NA	NA	NA	15 U	NA	NA	NA	24 U	NA
BENZENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
STYRENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
TOLUENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	12 U	NA	NA	NA	12 U	NA
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
1,2,4-TRICHLOROBENZENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
1,2-DICHLOROBENZENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
1,3-DICHLOROBENZENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBK01	RADSBK02	RADSBK03	RADSBK04	RADSBK07	RADSBK08	RADSBK08	RADSBL03	RADSBL08	RADSBM08	RADSBM08	RADSBN08
Sample ID	281RADSS140	281RADSS141	281RADSS137	281RADSS139	281RADSS110	281RADSS008	281RADSS009	281RADSS144	281RADSS145	281RADSS010	281RADSS011	281RADSS146
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/28/1995	08/28/1995	08/28/1995	08/28/1995	08/22/1995	07/27/1995	07/27/1995	08/28/1995	08/28/1995	07/27/1995	07/27/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
1-METHYLNAPHTHALENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
1-METHYLPHENANTHRENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2,4,5-TRICHLOROPHENOL	NA	86 U	210 U	NA	96 U	200 U	NA	87 U	89 U	680 U	NA	NA
2,4,6-TRICHLOROPHENOL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2,4-DICHLOROPHENOL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2,4-DIMETHYLPHENOL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2,4-DINITROPHENOL	NA	86 U	210 U	NA	96 U	200 U	NA	87 U	89 U	680 U	NA	NA
2,4-DINITROTOLUENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2,6-DINITROTOLUENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2-CHLORONAPHTHALENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2-CHLOROPHENOL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2-METHYLNAPHTHALENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2-METHYLPHENOL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
2-NITROANILINE	NA	86 U	210 U	NA	96 U	200 U	NA	87 U	89 U	680 U	NA	NA
2-NITROPHENOL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
3,3'-DICHLOROBENZIDINE	NA	34 UJ	85 UJ	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
3-NITROANILINE	NA	86 UJ	210 UJ	NA	96 U	200 U	NA	87 U	89 U	680 U	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	86 U	210 U	NA	96 U	200 U	NA	87 U	89 U	680 U	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
4-CHLOROANILINE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
4-METHYLPHENOL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
4-NITROANILINE	NA	86 UJ	210 UJ	NA	96 U	200 U	NA	87 U	89 U	680 U	NA	NA
4-NITROPHENOL	NA	86 U	210 U	NA	96 U	200 U	NA	87 U	89 U	680 U	NA	NA
ACENAPHTHENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
ACENAPHTHYLENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
ANTHRACENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 J	35 U	270 U	NA	NA
BENZO(A)ANTHRACENE	NA	34 U	85 U	NA	39 U	12 J	NA	26 J	35 U	49 J	NA	NA
BENZO(A)PYRENE	NA	34 U	85 U	NA	39 U	13 J	NA	26 J	35 U	83 J *	NA	NA
BENZO(B)FLUORANTHENE	NA	34 U	85 U	NA	39 U	17 J	NA	41	35 U	120 J	NA	NA
BENZO(E)PYRENE	NA	34 U	85 U	NA	39 U	78 U	NA	30 J	35 U	64 J	NA	NA
BENZO(G,H,I)PERYLENE	NA	34 U	85 U	NA	39 U	15 J	NA	27 J	35 U	270 U	NA	NA
BENZO(K)FLUORANTHENE	NA	34 U	85 U	NA	39 U	11 J	NA	33 J	35 U	43 J	NA	NA
BENZOIC ACID	NA	86 U	210 U	NA	96 U	200 UJ	NA	87 U	89 U	680 UJ	NA	NA

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Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBK01	RADSBK02	RADSBK03	RADSBK04	RADSBK07	RADSBK08	RADSBK08	RADSBL03	RADSBL08	RADSBM08	RADSBM08	RADSBN08
Sample ID	281RADSS140	281RADSS141	281RADSS137	281RADSS139	281RADSS110	281RADSS008	281RADSS009	281RADSS144	281RADSS145	281RADSS010	281RADSS011	281RADSS146
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/28/1995	08/28/1995	08/28/1995	08/28/1995	08/22/1995	07/27/1995	07/27/1995	08/28/1995	08/28/1995	07/27/1995	07/27/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	NA	34 UJ	85 UJ	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	55 U	85 U	NA	87	78 U	NA	35 U	35 U	270 U	NA	NA
BUTYLBENZYLPHTHALATE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
CARBAZOLE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
CHRYSENE	NA	34 U	85 U	NA	39 U	13 J	NA	48	35 U	77 J	NA	NA
DI-N-BUTYLPHTHALATE	NA	40 U	85 U	NA	39 U	78 U	NA	35 U	54 U	270 U	NA	NA
DI-N-OCTYLPHTHALATE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	34 U	85 U	NA	39 U	10 J	NA	35 U	35 U	34 J	NA	NA
DIBENZOFURAN	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
DIBENZOTHIOPHENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
DIETHYLPHTHALATE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
DIMETHYLPHTHALATE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
FLUORANTHENE	NA	34 U	85 U	NA	39 U	78 U	NA	34 J	35 U	67 J	NA	NA
FLUORENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
HEXACHLOROBENZENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
HEXACHLOROBUTADIENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
HEXACHLOROETHANE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	34 U	85 U	NA	39 U	12 J	NA	22 J	35 U	67 J	NA	NA
ISOPHORONE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
NAPHTHALENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
NITROBENZENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
PENTACHLOROPHENOL	NA	86 U	210 U	NA	96 U	200 U	NA	87 U	89 U	680 U	NA	NA
PERYLENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
PHENANTHRENE	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	44 J	NA	NA
PHENOL	NA	34 U	85 U	NA	39 U	78 U	NA	35 U	35 U	270 U	NA	NA
PYRENE	NA	34 U	85 U	NA	39 U	78 U	NA	30 J	35 U	68 J	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	U	U	NA	U	100	NA	320	U	670	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	U	U	NA	U	U	NA	U	U	44	NA	NA
TOTAL PAHS	NA	U	U	NA	U	100	NA	320	U	720	NA	NA
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA

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Point ID	RADSBK01	RADSBK02	RADSBK03	RADSBK04	RADSBK07	RADSBK08	RADSBK08	RADSBL03	RADSBL08	RADSBM08	RADSBM08	RADSBN08
Sample ID	281RADSS140	281RADSS141	281RADSS137	281RADSS139	281RADSS110	281RADSS008	281RADSS009	281RADSS144	281RADSS145	281RADSS010	281RADSS011	281RADSS146
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/28/1995	08/28/1995	08/28/1995	08/28/1995	08/22/1995	07/27/1995	07/27/1995	08/28/1995	08/28/1995	07/27/1995	07/27/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50
Semivolatiles (in µg/Kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	1,000 U	NA	NA	NA	1,000 U	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	1,000 U	NA	NA	NA	1,000 U	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	1,000 U	NA	NA	NA	1,000 U	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	1,000 U	NA	NA	NA	1,000 U	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	1,000 U	NA	NA	NA	1,000 U	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	1,000 U	NA	NA	NA	1,000 U	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	1,000 U	NA	NA	NA	1,000 U	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA

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Point ID	RADSBK01	RADSBK02	RADSBK03	RADSBK04	RADSBK07	RADSBK08	RADSBK08	RADSBL03	RADSBL08	RADSBM08	RADSBM08	RADSBN08
Sample ID	281RADSS140	281RADSS141	281RADSS137	281RADSS139	281RADSS110	281RADSS008	281RADSS009	281RADSS144	281RADSS145	281RADSS010	281RADSS011	281RADSS146
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/28/1995	08/28/1995	08/28/1995	08/28/1995	08/22/1995	07/27/1995	07/27/1995	08/28/1995	08/28/1995	07/27/1995	07/27/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50
Semivolatiles (in µg/Kg)												
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
FLUORENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	1,000 U	NA	NA	NA	1,000 U	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
PHENOL	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
PYRENE	NA	NA	NA	NA	NA	NA	410 U	NA	NA	NA	410 U	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	U	NA	NA	NA	U	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	U	NA	NA	NA	U	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	U	NA	NA	NA	U	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	0.1 U	0.1 U	NA	2	0.1 U	NA	0.2 U	0.1 U	0.4 J	NA	NA
2,4'-DDE	NA	0.1 U	0.3	NA	0.6	0.1 U	NA	0.6	0.1 U	0.2 U	NA	NA
2,4'-DDT	NA	0.1 U	0.3	NA	4	0.3	NA	1	0.5	0.2 UJ	NA	NA
4,4'-DDD	NA	0.1 U	0.3	NA	4	0.2 U	NA	0.5	0.1 U	0.7 U	NA	NA
4,4'-DDE	NA	0.1 U	0.6	NA	2	1	NA	5	2	0.6	NA	NA
4,4'-DDT	NA	0.1 U	0.6	NA	14	1 U	NA	8	3	2	NA	NA
ALDRIN	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 U	NA	NA
ALPHA-CHLORDANE	NA	0.1 U	0.1 U	NA	0.7	0.1 U	NA	0.6	0.1 U	0.5	NA	NA
DIELDRIN	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 U	NA	NA
GAMMA-BHC (LINDANE)	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 U	NA	NA
HEPTACHLOR	NA	0.3 U	0.1 U	NA	0.5 U	0.1 U	NA	0.2 U	0.3 U	0.2 U	NA	NA
HEPTACHLOR EPOXIDE	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 U	NA	NA
HEXACHLOROBENZENE	NA	0.1 U	0.3	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 U	NA	NA
MIREX	NA	0.1 U	0.1 U	NA	0.4 J	0.1 U	NA	0.2 U	0.1 U	0.2 U	NA	NA

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07/12/03

Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBK01	RADSBK02	RADSBK03	RADSBK04	RADSBK07	RADSBK08	RADSBK08	RADSBL03	RADSBL08	RADSBM08	RADSBM08	RADSBN08
Sample ID	281RADSS140	281RADSS141	281RADSS137	281RADSS139	281RADSS110	281RADSS008	281RADSS009	281RADSS144	281RADSS145	281RADSS010	281RADSS011	281RADSS146
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/28/1995	08/28/1995	08/28/1995	08/28/1995	08/22/1995	07/27/1995	07/27/1995	08/28/1995	08/28/1995	07/27/1995	07/27/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
PCB-101 (2,2',3,5,5')	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.7	0.1 U	0.3 J	NA	NA
PCB-105 (2,3,3',4,4')	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	1	0.1 U	0.2 J	NA	NA
PCB-118 (2,3',4,4',5)	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	1	0.1 U	0.4 J	NA	NA
PCB-126 (3,3',4,4',5)	NA	0.1 U	0.1 U	NA	0.4 J	0.1 U	NA	0.2 U	0.1 U	0.2 UJ	NA	NA
PCB-128 (2,2',3,3',4,4')	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.5	0.1 U	0.2 UJ	NA	NA
PCB-138 (2,2',3,4,4',5')	NA	0.1 U	0.1 U	NA	0.5	0.1 U	NA	2	0.1 U	0.5 J	NA	NA
PCB-153 (2,2',4,4',5,5')	NA	0.1 U	0.1 U	NA	0.3 J	0.1 J	NA	2	0.1 U	0.3 J	NA	NA
PCB-170 (2,2',3,3',4,4',5)	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.9	0.1 U	0.2 UJ	NA	NA
PCB-18 (2,2',5)	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 J	NA	NA
PCB-180 (2,2',3,4,4',5,5')	NA	0.1 U	0.1 U	NA	0.5 U	0.2 J	NA	2	0.1 U	0.2 J	NA	NA
PCB-187 (2,2',3,4',5,5',6)	NA	0.1 U	0.1 U	NA	0.5 U	0.09 J	NA	0.8	0.1 U	0.2 UJ	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	NA	0.1 U	0.1	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 UJ	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	NA	0.1 U	0.1 U	NA	0.5	0.05 J	NA	1	0.1 U	0.2 J	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.4	0.1 U	0.2 UJ	NA	NA
PCB-28 (2,4,4')	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 UJ	NA	NA
PCB-44 (2,2',3,5')	NA	0.1 UJ	0.1 UJ	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 UJ	NA	NA
PCB-52 (2,2',5,5')	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.1 J	NA	NA
PCB-66 (2,3',4,4')	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	1	0.1 U	0.3 J	NA	NA
PCB-77 (3,3',4,4')	NA	0.09 J	0.1 U	NA	0.5 U	0.1 U	NA	0.4	0.1 U	0.2 UJ	NA	NA
PCB-8 (2,4')	NA	0.1 U	0.1 U	NA	0.5 U	0.1 U	NA	0.2 U	0.1 U	0.2 UJ	NA	NA
TRANS-NONACHLOR	NA	0.2	0.1 U	NA	0.6	0.2 J	NA	1	0.1 U	0.6 J	NA	NA
TOTAL BHCS	NA	U	U	NA	U	U	NA	U	U	U	NA	NA
TOTAL CHLORDANES	NA	U	U	NA	0.7	U	NA	0.6	U	0.5	NA	NA
TOTAL DDTS	NA	U	2	NA	26	1	NA	14	5	3	NA	NA
TOTAL PCBS	NA	U	0.3	NA	3	0.9	NA	26	U	5	NA	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA	4 U	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA	4 U	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA	4 U	NA
ALDRIN	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	41 U	NA	NA	NA	41 U	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	82 U	NA	NA	NA	82 U	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	41 U	NA	NA	NA	41 U	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	41 U	NA	NA	NA	41 U	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	41 U	NA	NA	NA	41 U	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	41 U	NA	NA	NA	41 U	NA

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Table C-1
Site 2 - R Area Disposal
Soil Analytical Results

Point ID	RADSBK01	RADSBK02	RADSBK03	RADSBK04	RADSBK07	RADSBK08	RADSBK08	RADSBL03	RADSBL08	RADSBM08	RADSBM08	RADSBN08
Sample ID	281RADSS140	281RADSS141	281RADSS137	281RADSS139	281RADSS110	281RADSS008	281RADSS009	281RADSS144	281RADSS145	281RADSS010	281RADSS011	281RADSS146
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/28/1995	08/28/1995	08/28/1995	08/28/1995	08/22/1995	07/27/1995	07/27/1995	08/28/1995	08/28/1995	07/27/1995	07/27/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1260	NA	NA	NA	NA	NA	NA	41 U	NA	NA	NA	41 U	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA	4 U	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA	4 U	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA	4 U	NA
ENDRIN	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA	4 U	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA	4 U	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA	4 U	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	2 U	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	21 U	NA	NA	NA	21 U	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	210 U	NA	NA	NA	210 U	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	U	NA	NA	NA	U	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	U	NA	NA	NA	U	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	U	NA	NA	NA	U	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	20,800	11,200	14,400	20,100	22,300	14,200	15,200	9,650	13,200	14,700	11,100	16,800
ANTIMONY	1.6 J	0.62 J	0.99 J	1.9 J	1.2 J	0.86 J	0.94 J	1.0 J	0.94 J	0.58 UJ	0.52 UJ	0.87 J
ARSENIC	6.8 *	4.2 *	7.9 *	12.8 *	5.4 *	7.4 *	7.1 *	7.2 *	6.5 *	10.1 *	3.0 U	4.3 *
BARIUM	277	229	67.1	122	213	203	276	91.1	177	237	107	174
BERYLLIUM	0.020 U	0.23	0.020 U	0.040 U	0.020 U	0.020 U	0.080 U	0.030 U	0.020 U	0.030 U	0.050 U	0.020 U
CADMIUM	0.040 U	0.040 U	0.050 U	0.040 U	0.050 U	0.050 U	0.050 U	0.040 U	0.040 U	0.050 U	0.050 U	0.050 U

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/28/1995	08/28/1995	08/28/1995	08/28/1995	08/22/1995	07/27/1995	07/27/1995	08/28/1995	08/28/1995	07/27/1995	07/27/1995	08/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	0.00 - 0.50
CLP Metals (in mg/Kg)												
CALCIUM	6,120	22,800	7,060	4,300	5,670	12,500	20,500	27,900	31,300	10,800	34,600	13,100
CHROMIUM	65.5	18.1	48.2	72.6	39.4	34.3	38.1	33.7	37.2	38.3	26.4	27.7
COBALT	20.4	15.4	14.3	18.7	20.0	16.2	15.8	12.9	14.6	20.1	11.7	15.3
COPPER	40.3	18.5	29.4	46.7	51.0	42.9	34.3	29.9	36.3	34.1	26.3	29.5
IRON	33,100 *	20,700	23,400	40,000 *	39,400 *	24,400 *	23,200	22,500	21,600	26,400 *	17,500	25,700 *
LEAD	51.7	12.7	36.2	35.0	11.7 J	25.6	8.5	25.5	31.2	11.0	6.9	31.4
MAGNESIUM	10,100	7,100	10,700	13,100	13,400	11,100	10,000	7,390	9,270	10,500	7,690	9,630
MANGANESE	669 J	650 J	562 J	412 J	910	667	567	710 J	671 J	446	673	859 J
MERCURY	0.050	0.050 U	0.18	0.11	0.090	0.14 U	0.10 U	0.18	0.11	0.12 U	0.060 U	0.060 U
MOLYBDENUM	0.19 U	0.26 U	0.69 U	0.20 U	0.21 U	0.21 U	0.22 U	0.98 U	0.18 U	0.25 U	0.22 U	0.21 U
NICKEL	83.4	30.6	66.3	73.8	37.3	86.1	62.9	73.1	70.4	86.5	47.1	29.0
POTASSIUM	3,870 J	2,650 J	4,350 J	5,780 J	3,420 J	3,270 J	2,890 J	1,720 J	2,770 J	3,660 J	2,160 J	2,150 J
SELENIUM	0.71 U	0.70 U	0.80 U	0.75 U	0.80 U	0.79 U	0.84 U	1.0	0.69 U	0.93 U	0.84 U	0.79 U
SILVER	0.13 U	0.12 U	0.14 U	0.13 U	0.14 U	0.14 U	0.15 U	0.13 U	0.12 U	0.16 U	0.15 U	0.14 U
SODIUM	71.1 U	128 U	20,300	12,000	5,470 J	3,240 J	3,900 J	910 U	325 U	4,410 J	4,180 J	2,070
THALLIUM	0.42 U	0.41 U	0.47 U	0.44 U	0.47 U	0.46 U	0.49 U	0.45 U	0.40 U	0.55 U	0.50 U	0.46 U
VANADIUM	99.3	32.3	51.5	70.2	75.1	58.8	54.1	41.1	56.5	61.5	44.5	76.4
ZINC	112	70.6	92.9	205	100	97.8	66.9	80.5	91.4	98.8	56.1	109
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	50.0 UJ	NA	NA	NA	50.0 UJ	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	10.1 U	12.6 U	NA	11.4 U	11.6 U	11.7 U	10.1 U	10.4 U	19.2	12.9 U	NA
TOTAL ORGANIC CARBON	NA	5,280	8,740	NA	67,300 J	64,100	120 U	17,600	3,540	56,800	10,600	NA
Percent Moisture (percent)												
PERCENT MOISTURE	NA	4.0	22.0	NA	15.0	16.0	NA	5.0	7.0	39.0	NA	NA
Miscellaneous												
PH	6.5	8.2	5.9	6.5	7.7	8.6	8.8	7.7	7.8	8.2	8.6	7.2

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07/12/03

TABLE C-2

ANALYTICAL RESULTS FOR SURFACE WATER
R AREA DISPOSAL (SITE 2)

R AREA SURFACE WATER DATASET FOR TABLE C-2
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT
SWATER	RADSW004	281RADSW005	11-Jul-95
SWATER	RADSW004	281RADSW104	17-Oct-95
SWATER	RADSW004	281RADSW204	30-Jan-96
SWATER	RADSW004	281RADSW304	29-Apr-96
SWATER	RADSW005	281RADSW006	11-Jul-95
SWATER	RADSW005	281RADSW106	18-Oct-95
SWATER	RADSW005	281RADSW206	30-Jan-96
SWATER	RADSW005	281RADSW306	29-Apr-96
SWATER	RADSW006	281RADSW007	11-Jul-95
SWATER	RADSW006	281RADSW107	17-Oct-95
SWATER	RADSW006	281RADSW107A	26-Oct-95
SWATER	RADSW006	281RADSW207	30-Jan-96
SWATER	RADSW006	281RADSW307	1-May-96
SWATER	RADSW007	281RADSW008	12-Jul-95
SWATER	RADSW007	281RADSW208	31-Jan-96
SWATER	RADSW008	281RADSW209	29-Jan-96
SWATER	RADSW008	281RADSW309	30-Apr-96
SWATER	RADSW009	281RADSW210	29-Jan-96
SWATER	RADSW009	281RADSW310	30-Apr-96
SWATER	RADSW010	281RADSW011	12-Jul-95
SWATER	RADSW010	281RADSW211	29-Jan-96
SWATER	RADSW010	281RADSW311	30-Apr-96
SWATER	RADSW011	281RADSW012	12-Jul-95
SWATER	RADSW011	281RADSW212	29-Jan-96
SWATER	RADSW011	281RADSW312	30-Apr-96
SWATER	RADSW012	281RADSW213	31-Jan-96
SWATER	RADSW013	281RADSW015	12-Jul-95
SWATER	RADSW013	281RADSW215	31-Jan-96
SWATER	RADSW015	281RADSW017	12-Jul-95
SWATER	RADSW015	281RADSW217	29-Jan-96
SWATER	RADSW015	281RADSW317	30-Apr-96
SWATER	RADSW016	281RADSW018	12-Jul-95
SWATER	RADSW016	281RADSW218	29-Jan-96
SWATER	RADSW016	281RADSW318	30-Apr-96
SWATER	RADSW017	281RADSW019	12-Jul-95
SWATER	RADSW017	281RADSW219	31-Jan-96
SWATER	RADSW017	281RADSW319	30-Apr-96

Notes:

MATRIX	Media Sampled
SWATER	Surface Water
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW004	RADSW004	RADSW004	RADSW004	RADSW005	RADSW005	RADSW005	RADSW005	RADSW006	RADSW006	RADSW006	RADSW006
Sample ID	281RADSW005	281RADSW104	281RADSW204	281RADSW304	281RADSW006	281RADSW106	281RADSW206	281RADSW306	281RADSW007	281RADSW107	281RADSW107A	281RADSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/11/1995	10/17/1995	01/30/1996	04/29/1996	07/11/1995	10/18/1995	01/30/1996	04/29/1996	07/11/1995	10/17/1995	10/26/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/L)												
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
ACETONE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U	NA	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
Semivolatiles (in µg/L)												
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	NA	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	NA	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U	5 U	NA	5 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW004	RADSW004	RADSW004	RADSW004	RADSW005	RADSW005	RADSW005	RADSW005	RADSW006	RADSW006	RADSW006	RADSW006
Sample ID	281RADSW005	281RADSW104	281RADSW204	281RADSW304	281RADSW006	281RADSW106	281RADSW206	281RADSW306	281RADSW007	281RADSW107	281RADSW107A	281RADSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/11/1995	10/17/1995	01/30/1996	04/29/1996	07/11/1995	10/18/1995	01/30/1996	04/29/1996	07/11/1995	10/17/1995	10/26/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (ug/L)												
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	NA	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2,4-DINITROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	NA	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	NA	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	NA	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	NA	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
4-CHLOROANILINE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	NA	10 U	10 U	NA	10 UJ
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	NA	25 U
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	NA	25 U
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 U	4 U	4 U	4 U	4 U	NA	4 U	4 U	NA	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW004	RADSW004	RADSW004	RADSW004	RADSW005	RADSW005	RADSW005	RADSW005	RADSW006	RADSW006	RADSW006	RADSW006
Sample ID	281RADSW005	281RADSW104	281RADSW204	281RADSW304	281RADSW006	281RADSW106	281RADSW206	281RADSW306	281RADSW007	281RADSW107	281RADSW107A	281RADSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/11/1995	10/17/1995	01/30/1996	04/29/1996	07/11/1995	10/18/1995	01/30/1996	04/29/1996	07/11/1995	10/17/1995	10/26/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
DIBENZ(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	NA	25 U	25 U	NA	25 U
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
PHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
TOTAL HIGH MOLECULAR PAHS	U	U	U	U	U	U	U	NA	U	U	NA	U
TOTAL LOW MOLECULAR PAHS	U	U	U	U	U	U	U	NA	U	U	NA	U
TOTAL PAHS	U	U	U	U	U	U	U	NA	U	U	NA	U
Pesticides (in µg/L)												
4,4'-DDD	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	NA	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	NA	0.1 U
4,4'-DDT	0.1 U	0.03 J	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	NA	0.1 U
ALDRIN	0.05 U	0.01 J	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	NA	0.05 U	0.05 U	NA	0.05 U
ALPHA-BHC	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	NA	0.05 U	0.05 U	NA	0.05 U
ALPHA-CHLORDANE	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	NA	0.05 U	0.05 U	NA	0.05 U
AROCLOR-1016	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA	0.5 U
AROCLOR-1221	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA	0.5 U
AROCLOR-1232	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA	0.5 U
AROCLOR-1242	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA	0.5 U
AROCLOR-1248	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA	0.5 U
AROCLOR-1254	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA	0.5 U
AROCLOR-1260	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA	0.5 U
BETA-BHC	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	NA	0.05 U	0.05 U	NA	0.05 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW004	RADSW004	RADSW004	RADSW004	RADSW005	RADSW005	RADSW005	RADSW005	RADSW006	RADSW006	RADSW006	RADSW006
Sample ID	281RADSW005	281RADSW104	281RADSW204	281RADSW304	281RADSW006	281RADSW106	281RADSW206	281RADSW306	281RADSW007	281RADSW107	281RADSW107A	281RADSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/11/1995	10/17/1995	01/30/1996	04/29/1996	07/11/1995	10/18/1995	01/30/1996	04/29/1996	07/11/1995	10/17/1995	10/26/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/L)												
DELTA-BHC	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	NA	0.05 U	0.05 U	NA	0.05 U
DIELDRIN	0.1 U	0.03 J	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	NA	0.1 U
ENDOSULFAN I	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	NA	0.05 U	0.05 U	NA	0.05 U
ENDOSULFAN II	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	NA	0.1 U
ENDOSULFAN SULFATE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	NA	0.1 U
ENDRIN	0.1 U	0.03 J	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	NA	0.1 U
ENDRIN ALDEHYDE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	NA	0.1 U
ENDRIN KETONE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	NA	0.1 U
GAMMA-BHC (LINDANE)	0.05 U	0.01 J	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	NA	0.05 U	0.05 U	NA	0.05 U
GAMMA-CHLORDANE	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	NA	0.05 U	0.05 U	NA	0.05 U
HEPTACHLOR	0.05 U	0.01 J	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 UJ	NA	0.05 U	0.05 U	NA	0.05 U
HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 UJ	NA	0.01 U	0.01 U	NA	0.01 U
METHOXYCHLOR	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	NA	0.5 U
TOXAPHENE	3 U	3 U	3 UJ	3 U	3 U	3 U	3 UJ	NA	3 U	3 U	NA	3 U
TOTAL BHCS	U	0.01	U	U	U	U	U	NA	U	U	NA	U
TOTAL CHLORDANES	U	U	U	U	U	U	U	NA	U	U	NA	U
TOTAL DDTS	U	0.03	U	U	U	U	U	NA	U	U	NA	U
Explosives (in µg/L)												
1,3,5-TRINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
1,3-DINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
2,4,6-TRINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
2,4-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
2,6-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
2-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
3-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
4-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
HMX	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
NITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
RDX	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U
TETRYL	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	NA	0.1 U	0.1 UJ	NA	0.1 U
CLP Metals (in µg/L)												
ALUMINUM	205	1,350	1,250	3,460 J	206	37,700	847	508 J	386	1,040	NA	1,330
ANTIMONY	2.5 U	3.0 U	1.6 U	2.3 U	2.9 U	3.5	1.6 U	2.3 U	2.1 U	3.0 U	NA	1.6 U
ARSENIC	3.8 U	2.8 U	1.8	8.5	3.6 U	9.7	2.6	5.6	3.0 U	2.8 U	NA	2.1
BARIUM	71.6	41.3	27.9	58.7	39.2	211	30.5	18.6	48.5	42.7	NA	26.2
BERYLLIUM	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	NA	0.10 U
CADMIUM	0.20 U	0.23 U	0.20 U	0.95	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	NA	0.20 U
CALCIUM	61,200	47,100	20,000	29,100	31,100	62,300	31,500	22,100	39,100	54,600	NA	18,500
CHROMIUM	1.8 U	4.2	4.2	8.0	1.8 U	102	2.8	1.7	1.8 U	2.7	NA	4.2

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW004	RADSW004	RADSW004	RADSW004	RADSW005	RADSW005	RADSW005	RADSW005	RADSW006	RADSW006	RADSW006	RADSW006
Sample ID	281RADSW005	281RADSW104	281RADSW204	281RADSW304	281RADSW006	281RADSW106	281RADSW206	281RADSW306	281RADSW007	281RADSW107	281RADSW107A	281RADSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/11/1995	10/17/1995	01/30/1996	04/29/1996	07/11/1995	10/18/1995	01/30/1996	04/29/1996	07/11/1995	10/17/1995	10/26/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
STP Metals (in µg/L)												
COBALT	0.98	1.6	1.0 U	2.2	0.50 U	27.6	1.2 U	1.1 U	0.50 U	1.1	NA	0.99 U
COPPER	5.3 U	8.2	8.3	9.0	9.7	82.0	5.1 U	4.3 U	6.8 U	6.1	NA	8.0
IRON	384	1,980	1,920	4,590 J	632	62,800	1,240	1,090 J	707	2,150	NA	1,940
LEAD	1.5 U	1.7 U	1.7 U	21.2	1.5	57.3	1.3 U	1.9 U	1.5 U	2.1 U	NA	1.9 U
MAGNESIUM	161,000	120,000	26,900	46,400	56,900	148,000	62,100	31,400	101,000	144,000	NA	24,000
MANGANESE	173	90.6	74.3	128	691	582	108	118	113	129	NA	62.8
MERCURY	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	0.66	0.10 U	NA	0.10 U	0.10 U	NA	0.10 U
MOLYBDENUM	1.2 U	1.9	0.68 U	4.2	1.1 U	2.5	1.5 U	3.2	0.90 U	1.4	NA	0.91 U
NICKEL	3.3 U	7.9	6.7	11.5 U	3.3 U	118	4.9	8.8 U	3.3 U	5.2	NA	7.2
POTASSIUM	49,100	32,700	7,950	18,700	18,600	45,000	19,300	12,600	30,500	39,300	NA	6,710
SELENIUM	3.4 U	3.9 U	2.3 U	3.5 U	3.4 U	3.9 U	2.3 U	3.5 U	3.4 U	3.9 U	NA	2.3 U
SILVER	0.60 U	0.70 U	0.50 U	1.3 U	0.60 U	0.70 U	0.69 U	1.3 U	0.60 U	0.70 U	NA	0.50 U
SODIUM	1,340,000	926,000	178,000	353,000	463,000	1,040,000	468,000	240,000	809,000	1,080,000	NA	147,000
THALLIUM	2.0 U	1.9 U	1.9 U	4.7 U	2.0 U	1.9 U	1.9 U	4.7 U	2.0 U	1.9 U	NA	1.9 U
VANADIUM	4.1 U	9.9	7.3	19.6	2.8 U	139	5.5	8.4	3.7 U	6.6	NA	7.0
ZINC	32.3 U	42.1 U	17.1 U	58.5	67.9	346	11.4 U	10.7	24.3 U	44.2 U	NA	24.2 U
Anions, Solids, Sulfides, and TOC (in mg/L)												
SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	NA
TOTAL ORGANIC CARBON	4.3	6.3	7.1	24.0	9.8	9.2	7.4	10.7	5.1	3.6	NA	6.1
TOTAL SUSPENDED SOLIDS	10.0 U	132	111	86.4	14.0	133	27.0	9.6	10.0 U	47.0	NA	27.0

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW006	RADSW007	RADSW007	RADSW008	RADSW008	RADSW009	RADSW009	RADSW010	RADSW010	RADSW010	RADSW011	RADSW011
Sample ID	281RADSW307	281RADSW008	281RADSW208	281RADSW209	281RADSW309	281RADSW210	281RADSW310	281RADSW011	281RADSW211	281RADSW311	281RADSW012	281RADSW212
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/12/1995	01/31/1996	01/29/1996	04/30/1996	01/29/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/L)												
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	21 UJ	16 U	14 UJ	19 U	10 U	10 U	16 U	10 U	22 UJ
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Semivolatiles (in µg/L)												
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW006	RADSW007	RADSW007	RADSW008	RADSW008	RADSW009	RADSW009	RADSW010	RADSW010	RADSW010	RADSW011	RADSW011
Sample ID	281RADSW307	281RADSW008	281RADSW208	281RADSW209	281RADSW309	281RADSW210	281RADSW310	281RADSW011	281RADSW211	281RADSW311	281RADSW012	281RADSW212
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/12/1995	01/31/1996	01/29/1996	04/30/1996	01/29/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 U	4 U	4 U	4 U	5 U	4 U	4 U	3 U	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW006	RADSW007	RADSW007	RADSW008	RADSW008	RADSW009	RADSW009	RADSW010	RADSW010	RADSW010	RADSW011	RADSW011
Sample ID	281RADSW307	281RADSW008	281RADSW208	281RADSW209	281RADSW309	281RADSW210	281RADSW310	281RADSW011	281RADSW211	281RADSW311	281RADSW012	281RADSW212
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/12/1995	01/31/1996	01/29/1996	04/30/1996	01/29/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZ(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOTAL HIGH MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL LOW MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL PAHS	U	U	U	U	U	U	U	U	U	U	U	U
Pesticides (in µg/L)												
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ
ALDRIN	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.3 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ
ALPHA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.04 J	0.05 U	0.05 U	0.3 U	0.05 UJ	0.07	0.05 UJ	0.05 UJ
ALPHA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.3 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ
AROCLOR-1016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
AROCLOR-1221	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
AROCLOR-1232	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
AROCLOR-1242	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
AROCLOR-1248	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
AROCLOR-1254	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
AROCLOR-1260	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
BETA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.03 J	0.05 U	0.05 U	0.3 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW006	RADSW007	RADSW007	RADSW008	RADSW008	RADSW009	RADSW009	RADSW010	RADSW010	RADSW010	RADSW011	RADSW011
Sample ID	281RADSW307	281RADSW008	281RADSW208	281RADSW209	281RADSW309	281RADSW210	281RADSW310	281RADSW011	281RADSW211	281RADSW311	281RADSW012	281RADSW212
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/12/1995	01/31/1996	01/29/1996	04/30/1996	01/29/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/L)												
DELTA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.3 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ
DIELDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ
ENDOSULFAN I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.3 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ
ENDOSULFAN II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ
ENDOSULFAN SULFATE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ
ENDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ
ENDRIN ALDEHYDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ
ENDRIN KETONE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.3 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ
GAMMA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.3 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ
HEPTACHLOR	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.3 U	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ
HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.04 J	0.01 U	0.01 U	0.05 U	0.01 UJ	0.01 U	0.01 UJ	0.01 UJ
METHOXYCHLOR	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
TOXAPHENE	3 U	3 U	3 U	3 U	3 U	3 U	3 U	15 U	3 UJ	3 U	3 UJ	3 UJ
TOTAL BHCS	U	U	U	U	0.07	U	U	U	U	0.07	U	U
TOTAL CHLORDANES	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL DDTS	U	U	U	U	U	U	U	U	U	U	U	U
Explosives (in µg/L)												
1,3,5-TRINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,3-DINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,4,6-TRINITROTOLUENE	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U
2,4-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
3-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
HMX	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U
NITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDX	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U
TETRYL	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U
CLP Metals (in µg/L)												
ALUMINUM	916	117 U	323	610	115 J	141	229 J	5,570	96.5 U	704 J	678	258
ANTIMONY	2.3 U	2.7 U	1.6 U	1.6 U	2.3 U	1.6 U	2.3 U	4.1 U	1.6 U	2.3 U	2.1 U	1.6 U
ARSENIC	3.6 U	3.6 U	2.6 J	3.6	5.1	2.0	6.4	22.0	1.5	22.9	23.9	3.2
BARIUM	49.6	22.9	52.8	39.8	65.6	47.5	91.2	109	87.8	114	133	40.2
BERYLLIUM	0.20 U	0.10 U	0.10 U	0.36 U	0.20 U	0.12 U	0.20 U	0.10 U	0.10 U	0.20 U	0.10 U	0.22 U
CADMIUM	0.40 U	0.20 U	0.44 UJ	1.3 U	2.4	0.20 U	2.8	0.20 U	0.20 U	8.3	0.20 UJ	0.97 U
CALCIUM	41,600	34,800	244,000	339,000	504,000	158,000	210,000	555,000	221,000	459,000	123,000	197,000
CHROMIUM	2.7	1.8 U	1.6 U	0.40 U	1.4 U	0.40 U	1.4	11.9 U	0.40 U	6.3	5.1 U	0.40 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW006	RADSW007	RADSW007	RADSW008	RADSW008	RADSW009	RADSW009	RADSW010	RADSW010	RADSW010	RADSW011	RADSW011
Sample ID	281RADSW307	281RADSW008	281RADSW208	281RADSW209	281RADSW309	281RADSW210	281RADSW310	281RADSW011	281RADSW211	281RADSW311	281RADSW012	281RADSW212
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/12/1995	01/31/1996	01/29/1996	04/30/1996	01/29/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
CLP Metals (in µg/L)												
COBALT	1.1 U	0.51	1.4 UJ	80.4	40.4	32.1	5.1	129	14.7	37.8	20.8	62.3
COPPER	3.4	7.3 U	13.1 J	17.0	5.8 U	10.1	3.3 U	32.0	4.8 U	17.9	10.6 J	12.8
IRON	1,540	601	755	10,900	62,300 J	7,040	6,770 J	239,000	2,810	221,000 J	53,300	8,340
LEAD	1.1 U	1.5 U	2.3 J	0.80 U	1.9 U	0.80 U	1.9 U	41.5	0.80 U	1.9 U	7.4 J	0.80 U
MAGNESIUM	87,700	59,400	196,000	543,000	910,000	240,000	381,000	1,540,000	300,000	991,000	290,000	351,000
MANGANESE	105 J	312	403	5,360	9,030	4,260	2,610	11,300	2,290	8,960	4,540	3,470
MERCURY	0.20 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	0.26	0.35	0.10 U	0.30	0.10 U	0.10 U
MOLYBDENUM	1.3 U	1.1 U	2.8 UJ	0.60 U	1.7 U	0.60 U	12.8	0.90 U	3.3 U	2.2	6.3 J	0.60 U
NICKEL	8.6	3.3 U	12.8 J	171	30.8	51.7	12.6 U	211	41.3	40.0	41.6 U	156
POTASSIUM	32,900	20,400	51,300	117,000	155,000	65,100	77,100	309,000	60,200	146,000	89,100	84,800
SELENIUM	3.5 U	5.1 U	2.4 J	2.3 U	3.9	2.3 U	3.5 U	3.4 U	2.3 U	4.1	3.4 UJ	2.3 U
SILVER	1.2 U	0.60 U	0.50 U	0.50 U	1.3 U	0.50 U	1.3 U	0.60 U	0.50 U	1.3 U	0.60 U	0.50 U
SODIUM	672,000	489,000	1,230,000	3,220,000	5,220,000	1,610,000	2,300,000	9,360,000	1,870,000	5,100,000	2,280,000	2,270,000
THALLIUM	3.6 U	2.0 U	1.9 UJ	2.1 U	4.7 U	6.0 U	4.7 U	2.0 U	1.9 U	4.7 U	2.0 U	2.6 U
VANADIUM	6.3	2.8 U	3.8 J	0.40 U	3.3	1.1 U	3.4	33.7	1.2 U	26.1	18.5 J	0.78 U
ZINC	9.0	63.1 J	33.1 J	234	17.9	81.0	11.2	265 J	29.4	51.8	101 J	169
Anions, Solids, Sulfides, and TOC (in mg/L)												
SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	19.4	12.4	23.8	37.1	29.2	39.1	71.4	50.2	28.8	56.7	65.8	30.3
TOTAL SUSPENDED SOLIDS	25.8	10.0 U	34.0	99.0	105	51.0	103	5,370	42.0	1,780	238	45.0

Notes:

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Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW011	RADSW012	RADSW013	RADSW013	RADSW014	RADSW014	RADSW014	RADSW015	RADSW015	RADSW015	RADSW016	RADSW016
Sample ID	281RADSW312	281RADSW213	281RADSW015	281RADSW215	281RADSW016	281RADSW216	281RADSW316	281RADSW017	281RADSW217	281RADSW317	281RADSW018	281RADSW218
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	01/31/1996	07/12/1995	01/31/1996	07/12/1995	01/31/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/L)												
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	14 U	10 U	10 UJ	10 U	10 UJ	10 U	11 U	10 UJ	10 U	10 U	10 UJ	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Semivolatiles (in µg/L)												
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW011	RADSW012	RADSW013	RADSW013	RADSW014	RADSW014	RADSW014	RADSW015	RADSW015	RADSW015	RADSW016	RADSW016
Sample ID	281RADSW312	281RADSW213	281RADSW015	281RADSW215	281RADSW016	281RADSW216	281RADSW316	281RADSW017	281RADSW217	281RADSW317	281RADSW018	281RADSW218
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	01/31/1996	07/12/1995	01/31/1996	07/12/1995	01/31/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 UJ
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
2,4-DINITROPHENOL	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 UJ
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 UJ
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
3,3'-DICHLOROBENZIDINE	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	100 UJ
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 UJ
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 UJ
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 UJ
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	40 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW011	RADSW012	RADSW013	RADSW013	RADSW014	RADSW014	RADSW014	RADSW015	RADSW015	RADSW015	RADSW016	RADSW016
Sample ID	281RADSW312	281RADSW213	281RADSW015	281RADSW215	281RADSW016	281RADSW216	281RADSW316	281RADSW017	281RADSW217	281RADSW317	281RADSW018	281RADSW218
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	01/31/1996	07/12/1995	01/31/1996	07/12/1995	01/31/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
DIBENZ(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 UJ
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	250 U
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
PHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U
TOTAL HIGH MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL LOW MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL PAHS	U	U	U	U	U	U	U	U	U	U	U	U
Pesticides (in µg/L)												
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ALDRIN	0.03 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ALPHA-BHC	0.03 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ALPHA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
AROCLOR-1016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1221	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1232	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1242	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1248	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1254	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1260	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BETA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW011	RADSW012	RADSW013	RADSW013	RADSW014	RADSW014	RADSW014	RADSW015	RADSW015	RADSW015	RADSW016	RADSW016
Sample ID	281RADSW312	281RADSW213	281RADSW015	281RADSW215	281RADSW016	281RADSW216	281RADSW316	281RADSW017	281RADSW217	281RADSW317	281RADSW018	281RADSW218
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	01/31/1996	07/12/1995	01/31/1996	07/12/1995	01/31/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/L)												
DELTA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DIELDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDOSULFAN I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ENDOSULFAN II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDOSULFAN SULFATE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN ALDEHYDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN KETONE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
GAMMA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HEPTACHLOR	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HEPTACHLOR EPOXIDE	0.01 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
METHOXYCHLOR	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOXAPHENE	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
TOTAL BHCS	0.03	U	U	U	U	U	U	U	U	U	U	U
TOTAL CHLORDANES	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL DDTS	U	U	U	U	U	U	U	U	U	U	U	U
Explosives (in µg/L)												
1,3,5-TRINITROBENZENE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
1,3-DINITROBENZENE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
2,4,6-TRINITROTOLUENE	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U
2,4-DINITROTOLUENE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
2,6-DINITROTOLUENE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
2-NITROTOLUENE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
3-NITROTOLUENE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
4-NITROTOLUENE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
HMX	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U
NITROBENZENE	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U
RDX	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U
TETRYL	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U
Site Metals (in mg/L)												
ALUMINUM	84.2 J	682	91.0 U	184	75.1 U	349	107 J	158	73.8 U	1,220 J	97.6 U	110 U
ANTIMONY	2.3 U	1.6 U	2.5 U	1.6 U	2.1 U	1.6 U	2.3 U	2.5 U	1.6 U	2.3 U	2.5 U	1.6 U
ARSENIC	5.6	2.7	9.9 U	1.4 U	13.9 U	3.3	5.6	12.1 U	1.6	5.4	10.6 U	3.2
BARIUM	50.0	43.0	80.0	49.3	161	118	172	247	222	282	316	230
BERYLLIUM	0.20 U	0.14 U	0.10 U	0.17 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U
CADMIUM	0.65	0.64 U	0.20 U	1.8	0.20 U	0.45 U	0.40 U	0.20 U	0.30 U	0.42	0.20 U	0.28 U
CALCIUM	341,000	118,000	324,000	192,000	385,000	240,000	353,000	330,000	262,000	274,000	314,000	269,000
CHROMIUM	1.4 U	1.4 U	1.8 U	0.40 U	1.8 U	0.40 U	1.4 U	1.8 U	0.40 U	3.2	1.8 U	0.67 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW011	RADSW012	RADSW013	RADSW013	RADSW014	RADSW014	RADSW014	RADSW015	RADSW015	RADSW015	RADSW016	RADSW016
Sample ID	281RADSW312	281RADSW213	281RADSW015	281RADSW215	281RADSW016	281RADSW216	281RADSW316	281RADSW017	281RADSW217	281RADSW317	281RADSW018	281RADSW218
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	01/31/1996	07/12/1995	01/31/1996	07/12/1995	01/31/1996	04/30/1996	07/12/1995	01/29/1996	04/30/1996	07/12/1995	01/29/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
CLP Metals (in µg/L)												
COBALT	12.2	17.0	56.0	27.9	3.1	7.5	2.8	2.8	3.5	5.3	3.4	3.8
COPPER	3.2 U	10.5	6.0 U	8.2	5.8 U	14.5	5.8	5.1 U	10.3	7.9	4.4 U	11.8
IRON	20,200 J	3,760	45,500	2,730	4,890	3,740	2,670 J	2,030	733	5,500 J	2,650	891
LEAD	1.9 U	0.80 U	3.9	0.80 U	2.3	0.80 U	1.9 U	1.5 U	0.80 U	1.9 U	1.5 U	0.80 U
MAGNESIUM	703,000	145,000	864,000	177,000	635,000	268,000	528,000	567,000	281,000	412,000	537,000	301,000
MANGANESE	2,140	1,820	7,020	3,020	1,420	1,750	749	1,520	1,100	2,620	1,650	1,180
MERCURY	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U
MOLYBDENUM	3.3	0.76 U	0.90 U	0.60 U	8.5	8.0 U	12.9	10.2	6.6	12.1	8.1	6.6
NICKEL	20.7	59.8	70.2 U	81.2	16.7 U	26.8	18.7	12.7 U	17.8	17.2	13.9 U	18.5
POTASSIUM	115,000	30,600	216,000	41,300	124,000	51,500	76,400	103,000	41,300	85,700	93,300	45,900
SELENIUM	3.5 U	2.3 U	3.4 U	2.3 U	3.6 U	2.3 U	3.5 U	3.4 U	2.3 U	3.5 U	3.7 U	2.3 U
SILVER	1.3 U	0.50 U	0.60 U	0.50 U	0.60 U	0.50 U	1.3 U	0.60 U	0.50 U	1.3 U	0.60 U	0.50 U
SODIUM	3,810,000	807,000	5,960,000	942,000	4,160,000	1,760,000	3,000,000	3,720,000	1,660,000	2,440,000	3,580,000	1,790,000
THALLIUM	4.7 U	1.9 U	8.1	4.4	2.0 U	1.9 U	4.7 U	2.0 U	1.9 U	4.7 U	2.0 U	1.9 U
VANADIUM	2.3	3.2 U	2.6 U	0.40 U	4.3 U	2.7 U	1.8	2.3 U	1.6 U	5.6	2.4 U	1.8 U
ZINC	15.7	55.4	57.6 J	111	35.9 U	48.0	11.8	41.7 U	18.2 U	25.4	37.2 U	16.7 U
Anions, Solids, Sulfides, and TOC (in mg/L)												
SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	56.5	20.6	59.9	25.5	79.3	22.8	38.6	65.2	32.5	25.7	60.6	28.5
TOTAL SUSPENDED SOLIDS	502	45.0	221	51.0	79.0	33.0	15.1	87.0	49.0	11.6	63.0	55.0

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/10/03

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW016	RADSW017	RADSW017	RADSW017
Sample ID	281RADSW318	281RADSW019	281RADSW219	281RADSW319
Matrix	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	07/12/1995	01/31/1996	04/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/L)				
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U
ACETONE	10 U	10 UJ	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 UJ	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U
Semivolatiles (in µg/L)				
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW016	RADSW017	RADSW017	RADSW017
Sample ID	281RADSW318	281RADSW019	281RADSW219	281RADSW319
Matrix	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	07/12/1995	01/31/1996	04/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)				
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	25 U	25 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 UJ	10 U
3-NITROANILINE	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	25 U	25 U
4-NITROPHENOL	25 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	10 U	10 U
CHRYSENE	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW016	RADSW017	RADSW017	RADSW017
Sample ID	281RADSW318	281RADSW019	281RADSW219	281RADSW319
Matrix	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	07/12/1995	01/31/1996	04/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)				
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U
DIBENZ(A,H)ANTHRACENE	10 U	10 U	10 U	10 U
DIBENZOFURAN	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U	10 U
FLUORENE	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 UJ	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	10 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	10 U
TOTAL HIGH MOLECULAR PAHS	U	U	U	U
TOTAL LOW MOLECULAR PAHS	U	U	U	U
TOTAL PAHS	U	U	U	U
Pesticides (in µg/L)				
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U
ALDRIN	0.05 U	0.05 U	0.05 U	0.05 U
ALPHA-BHC	0.05 U	0.05 U	0.05 U	0.05 U
ALPHA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U
AROCLOR-1016	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1221	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1232	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1242	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1248	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1254	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1260	0.5 U	0.5 U	0.5 U	0.5 U
BETA-BHC	0.05 U	0.05 U	0.05 U	0.05 U

Notes:

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Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW016	RADSW017	RADSW017	RADSW017
Sample ID	281RADSW318	281RADSW019	281RADSW219	281RADSW319
Matrix	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	07/12/1995	01/31/1996	04/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/L)				
DELTA-BHC	0.05 U	0.05 U	0.05 U	0.05 U
DIELDRIN	0.1 U	0.1 U	0.1 U	0.1 U
ENDOSULFAN I	0.05 U	0.05 U	0.05 U	0.05 U
ENDOSULFAN II	0.1 U	0.1 U	0.1 U	0.1 U
ENDOSULFAN SULFATE	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN ALDEHYDE	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN KETONE	0.1 U	0.1 U	0.1 U	0.1 U
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	0.05 U	0.05 U
GAMMA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U
HEPTACHLOR	0.05 U	0.05 U	0.05 U	0.05 U
HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U
METHOXYCHLOR	0.5 U	0.5 U	0.5 U	0.5 U
TOXAPHENE	3 U	3 U	3 U	3 U
TOTAL BHCS	U	U	U	U
TOTAL CHLORDANES	U	U	U	U
TOTAL DDTS	U	U	U	U
Explosives (in µg/L)				
1,3,5-TRINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U
1,3-DINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U
2,4,6-TRINITROTOLUENE	0.1 UJ	0.1 U	0.1 U	0.1 UJ
2,4-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U
2,6-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U
2-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U
3-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U
4-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U
HMX	0.1 UJ	0.1 U	0.1 U	0.1 UJ
NITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U
RDX	0.1 UJ	0.1 U	0.1 U	0.1 UJ
TETRYL	0.1 UJ	0.1 U	0.1 U	0.1 UJ
CLP Metals (in µg/L)				
ALUMINUM	1,370 J	52.8 U	149 U	47.6 J
ANTIMONY	2.3 U	2.2 U	1.6 U	2.3 U
ARSENIC	13.2	16.7	2.7	15.9
BARIUM	196	195	48.6	81.7
BERYLLIUM	0.20 U	0.10 U	0.11 U	0.20 U
CADMIUM	1.8	0.20 U	0.20 U	0.40 U
CALCIUM	268,000	321,000	85,600	129,000
CHROMIUM	5.5	1.8 U	0.59 U	1.4 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-2
Site 2 - R Area Disposal
Surface Water Analytical Results

Point ID	RADSW016	RADSW017	RADSW017	RADSW017
Sample ID	281RADSW318	281RADSW019	281RADSW219	281RADSW319
Matrix	SWATER	SWATER	SWATER	SWATER
Sample Date	04/30/1996	07/12/1995	01/31/1996	04/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
CLP Metals (in µg/L)				
COBALT	9.7	2.5	0.58 U	3.3
COPPER	9.2	2.5 U	11.3	4.1 U
IRON	23,200 J	5,830	292	8,120 J
LEAD	2.9	1.5 U	0.80 U	1.9 U
MAGNESIUM	345,000	488,000	87,700	148,000
MANGANESE	3,060	3,180	560	3,140
MERCURY	0.20 U	0.10 U	0.10 U	0.20 U
MOLYBDENUM	19.8	5.5 U	6.1 U	7.8
NICKEL	28.6	3.4 U	6.6	10.0 U
POTASSIUM	72,600	85,500	22,400	38,400
SELENIUM	3.5 U	3.4 U	2.5	3.5 U
SILVER	1.3 U	0.60 U	0.50 U	1.3 U
SODIUM	2,020,000	3,370,000	561,000	902,000
THALLIUM	4.7 U	2.0 U	1.9 U	4.7 U
VANADIUM	10.5	2.7 U	3.5 U	6.0
ZINC	35.0	26.3 U	13.4 U	7.4 U
Anions, Solids, Sulfides, and TOC (in mg/L)				
SULFIDE	NA	NA	NA	NA
TOTAL ORGANIC CARBON	36.6	49.6	16.7	23.4
TOTAL SUSPENDED SOLIDS	77.5	48.0	10.0 U	82.0

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

TABLE C-3

ANALYTICAL RESULTS FOR TISSUE
R AREA DISPOSAL (SITE 2)

R AREA TISSUE DATASET FOR TABLE C-3
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT
MOTISSUE	RADC001	217RAC1	7-Sep-98
MOTISSUE	RADC002	217RAC2	7-Sep-98
MOTISSUE	RADC003	217RAC3	6-Sep-98
PWTISSUE	RADSB007	217RADT1503	25-Jun-98
PWTISSUE	RADSB017	217RADT1502	25-Jun-98
PWTISSUE	RADSBI06	217RADT1501	25-Jun-98

Notes:

MATRIX	Media Sampled
MOTISSUE	Mouse Tissue
PWTISSUE	Pickleweed Tissue
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected

Table C-3
Site 2 - R Area Disposal
Tissue Analytical Results

Point ID	RADC001	RADC002	RADC003	RADSB007	RADSB017	RADSBI06
Sample ID	217RAC1	217RAC2	217RAC3	217RADT1503	217RADT1502	217RADT1501
Matrix	MOTISSUE	MOTISSUE	MOTISSUE	PWTISSUE	PWTISSUE	PWTISSUE
Sample Date	09/07/1998	09/07/1998	09/06/1998	06/25/1998	06/25/1998	06/25/1998
Low Level Pesticides (µg/Kg)						
2,4'-DDD	1 U	2 UJ	1 U	NA	NA	NA
2,4'-DDE	0.6 U	1 UJ	0.6 U	NA	NA	NA
2,4'-DDT	0.4 UJ	0.8 UJ	0.4 UJ	NA	NA	NA
4,4'-DDD	1 U	3 U	1 U	NA	NA	NA
4,4'-DDE	5 U	10 UJ	5 U	NA	NA	NA
4,4'-DDT	0.9 J	0.7 UJ	0.3 UJ	NA	NA	NA
ALDRIN	0.2 U	0.5 U	0.2 U	NA	NA	NA
ALPHA-BHC	0.5 U	1 J	0.8	NA	NA	NA
ALPHA-CHLORDANE	0.7 U	1 UJ	0.7 U	NA	NA	NA
BETA-BHC	0.3 U	0.5 UJ	0.2 U	NA	NA	NA
CIS-NONACHLOR	3 U	6 U	3 U	NA	NA	NA
DELTA-BHC	0.3 U	0.6 U	0.3 U	NA	NA	NA
DIELDRIN	0.3 U	0.5 UJ	0.2 U	NA	NA	NA
ENDOSULFAN I	0.2 U	0.4 UJ	0.2 U	NA	NA	NA
ENDOSULFAN II	2 U	3 U	2 U	NA	NA	NA
ENDOSULFAN SULFATE	0.3 UJ	0.5 UJ	0.3 UJ	NA	NA	NA
ENDRIN	0.2 UJ	0.4 UJ	0.2 UJ	NA	NA	NA
ENDRIN ALDEHYDE	0.2 U	0.4 U	0.2 U	NA	NA	NA
ENDRIN KETONE	0.3 U	0.6 U	0.3 U	NA	NA	NA
GAMMA-BHC (LINDANE)	0.2 U	0.4 UJ	0.2 U	NA	NA	NA
GAMMA-CHLORDANE	0.4 U	0.8 UJ	0.4 U	NA	NA	NA
HEPTACHLOR	0.3 UJ	0.6 UJ	0.3 UJ	NA	NA	NA
HEPTACHLOR EPOXIDE	0.2 U	0.4 UJ	0.2 U	NA	NA	NA
HEXACHLOROBENZENE	0.4 U	0.7 U	0.4 U	NA	NA	NA
METHOXYCHLOR	0.7 UJ	16 J	2 J	NA	NA	NA
MIREX	0.4 U	0.7 U	0.4 U	NA	NA	NA
OXYCHLORDANE	0.4 U	0.8 UJ	0.4 U	NA	NA	NA
PCB-101 (2,2',3,5,5')	2 UJ	5 UJ	2 UJ	NA	NA	NA
PCB-105 (2,3,3',4,4')	0.5 U	1 U	0.5 U	NA	NA	NA
PCB-114 (2,3,4,4',5)	1 J	0.8 J	0.4 UJ	NA	NA	NA
PCB-118 (2,3',4,4',5)	2 U	3 UJ	2 U	NA	NA	NA
PCB-123 (2',3,4,4',5)	0.8 UJ	2 UJ	0.8 UJ	NA	NA	NA
PCB-126 (3,3',4,4',5)	0.6 U	1 U	0.6 U	NA	NA	NA
PCB-128 (2,2',3,3',4,4')	0.5 J	0.7 UJ	0.3 UJ	NA	NA	NA
PCB-138 (2,2',3,4,4',5')	5 J	6 UJ	3 UJ	NA	NA	NA
PCB-153 (2,2',4,4',5,5')	3 UJ	5 UJ	3 UJ	NA	NA	NA
PCB-156 (2,3,3',4,4',5)	0.6 J	0.4 U	0.2 U	NA	NA	NA
PCB-157 (2,3,3',4,4',5')	0.4 U	0.8 U	0.4 U	NA	NA	NA
PCB-167 (2,3',4,4',5,5')	0.9 UJ	2 UJ	0.9 UJ	NA	NA	NA
PCB-169 (3,3',4,4',5,5')	0.2 U	0.4 U	0.2 U	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-3
Site 2 - R Area Disposal
Tissue Analytical Results

Point ID	RADC001	RADC002	RADC003	RADSB007	RADSB017	RADSBI06
Sample ID	217RAC1	217RAC2	217RAC3	217RADT1503	217RADT1502	217RADT1501
Matrix	MOTISSUE	MOTISSUE	MOTISSUE	PWTISSUE	PWTISSUE	PWTISSUE
Sample Date	09/07/1998	09/07/1998	09/06/1998	06/25/1998	06/25/1998	06/25/1998
Low Level Pesticides (in µg/kg)						
PCB-170 (2,2',3,3',4,4',5)	10	2 U	0.8 U	NA	NA	NA
PCB-18 (2,2',5)	1 UJ	2 UJ	1 UJ	NA	NA	NA
PCB-180 (2,2',3,4,4',5,5')	7 J	1 U	0.6 U	NA	NA	NA
PCB-187 (2,2',3,4',5,5',6)	4 J	2 UJ	0.9 UJ	NA	NA	NA
PCB-189 (2,3,3',4,4',5,5')	0.2 U	0.4 U	0.2 U	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	1 J	0.5 UJ	0.2 UJ	NA	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	1 J	0.6 UJ	0.3 UJ	NA	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	0.5 UJ	1 UJ	0.5 UJ	NA	NA	NA
PCB-28 (2,4,4')	0.2 U	0.5 U	0.2 U	NA	NA	NA
PCB-44 (2,2',3,5')	0.8 UJ	2 UJ	0.8 UJ	NA	NA	NA
PCB-52 (2,2',5,5')	0.4 UJ	0.8 UJ	0.4 UJ	NA	NA	NA
PCB-66 (2,3',4,4')	0.6 U	1 UJ	0.6 U	NA	NA	NA
PCB-77 (3,3',4,4')	0.4 U	0.9 U	0.4 U	NA	NA	NA
PCB-8 (2,4')	0.7 U	1 U	1 J	NA	NA	NA
TOXAPHENE	98 U	200 U	96 U	NA	NA	NA
TRANS-NONACHLOR	0.6 U	1 UJ	0.6 U	NA	NA	NA
TOTAL BHCS	U	1	0.8	NA	NA	NA
TOTAL CHLORDANES	U	U	U	NA	NA	NA
TOTAL DDTS	0.9	U	U	NA	NA	NA
TOTAL PCBS	57	U	2	NA	NA	NA
SIP Metals (in mg/kg)						
ALUMINUM	17.7	46.2	17.7	14.3	2.2 U	2.2 U
ANTIMONY	0.24 U	0.24 U	0.23 U	0.19 U	0.18 U	0.18 U
ARSENIC	0.21 UJ	0.21 UJ	0.20 UJ	0.25 U	0.24 U	0.24 U
BARIUM	2.4 J	3.8 J	1.9 J	0.49 U	1.3 J	0.48 U
BERYLLIUM	0.0039 U	0.0039 U	0.0037 U	0.020 U	0.020 U	0.020 U
CADMIUM	0.020 UJ	0.030 UJ	0.030 UJ	0.020 U	0.020 J	0.020 U
CALCIUM	6,740	8,850	6,330	663	2,780	289
CHROMIUM	0.16 UJ	0.20 UJ	0.17 UJ	0.060 J	0.060 U	0.060 U
COBALT	0.080 UJ	0.080 UJ	0.070 UJ	0.11 J	0.11 U	0.13 J
COPPER	2.2	2.2	2.6	1.0 J	0.80 J	0.36 J
IRON	114 J	71.7 J	108 J	86.6	5.8	36.3
LEAD	0.39	1.2	0.25	0.14 U	0.14 U	0.14 U
MAGNESIUM	333	390	362	868	2,940	510
MANGANESE	1.6	2.2	2.1	14.4	2.0	12.4
MERCURY	0.020 U	0.020 U	0.020 UJ	0.010 U	0.010 U	0.010 U
MOLYBDENUM	0.21 J	0.16 J	0.21 J	0.10 U	0.10 U	0.10 U
NICKEL	0.10 J	0.15 J	0.87 J	0.15 U	0.17 J	0.15 U
POTASSIUM	2,800 J	2,510 J	2,810 J	3,380	1,760	1,390
SELENIUM	0.37 J	0.49 J	0.60 J	0.19 U	0.18 U	0.19 U
SILVER	0.050 U	0.050 U	0.040 U	0.070 U	0.070 U	0.070 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table C-3
Site 2 - R Area Disposal
Tissue Analytical Results

Point ID	RADC001	RADC002	RADC003	RADSB007	RADSB017	RADSBI06
Sample ID	217RAC1	217RAC2	217RAC3	217RADT1503	217RADT1502	217RADT1501
Matrix	MOTISSUE	MOTISSUE	MOTISSUE	PWTISSUE	PWTISSUE	PWTISSUE
Sample Date	09/07/1998	09/07/1998	09/06/1998	06/25/1998	06/25/1998	06/25/1998
GLP Metals (in mg/kg)						
SODIUM	1,150	1,050	1,060	8,520	9,660	11,400
THALLIUM	0.20 U	0.20 U	0.19 U	0.31 U	0.31 U	0.31 U
VANADIUM	0.22 J	0.24 J	0.18 J	0.39 J	0.25 J	0.38 J
ZINC	34.5 J	41.9 J	35.6 J	2.9	3.6	1.6

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/16/03

APPENDIX D

ANALYTICAL DATA TABLES – TIDAL AREA FROID AND TAYLOR SITE

LIST OF TABLES

Table

D-1 ANALYTICAL RESULTS FOR SOIL/SEDIMENT, FROID AND TAYLOR ROADS SITE (SITE 9)

D-2 ANALYTICAL RESULTS FOR SURFACE WATER, FROID AND TAYLOR ROADS SITE (SITE 9)

D-3 ANALYTICAL RESULTS FOR TISSUE, FROID AND TAYLOR ROADS SITE (SITE 9)

Notes:

Point ID	Location of the sample.
Sample ID	Number assigned before the sample is sent to the analytical laboratory. The sample ID is separate from the point (location) ID to ensure that samples are sent blind to the laboratory.
Matrix	Sample media (soil, sediment, surface water, tissue).
Sample Date	Date of sample collection.
Sample Depth	Depth, in feet below ground surface (bgs). Soil or sediment samples collected from a depth of 0 to 0.5 feet bgs are considered surface soil or sediment, and samples collected below 0.5 feet bgs are considered subsurface samples. Surface water samples are collected at a depth of 0 feet bgs.
Result	Listed by analytical group; the concentration shown is the detected concentration. When the sample is not detected, the detection limit is shown.
Detection Limit	The detection limit achieved by the laboratory that is specific to the sample and analyte. The detection limit is different from the sample quantitation limit, which is not sample-specific and instead applies to the methodology.

TABLE D-1

ANALYTICAL RESULTS FOR SOIL/SEDIMENT
FROID AND TAYLOR ROADS (SITE 9)

FROID AND TAYLOR SOIL/SEDIMENT DATASET FOR TABLE D-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SOIL	FTSSB001	281FTSSS001	5-Jul-95	0	0.3
SOIL	FTSSB001	281FTSSS002	5-Jul-95	0.35	1.3
SOIL	FTSSB002	281FTSSS003	5-Jul-95	0	0.5
SOIL	FTSSB002	281FTSSS004	5-Jul-95	0.75	1.8
SOIL	FTSSB003	281FTSSS005	5-Jul-95	0	0.25
SOIL	FTSSB003	281FTSSS006	5-Jul-95	0.75	1.75
SOIL	FTSSB004	281FTSSS007	6-Jul-95	0	0.5
SOIL	FTSSB004	281FTSSS008	6-Jul-95	1.5	2.5
SOIL	FTSSB005	281FTSSS009	6-Jul-95	0	0.5
SOIL	FTSSB005	281FTSSS010	6-Jul-95	2	3
SOIL	FTSSB006	281FTSSS011	6-Jul-95	0	0.5
SOIL	FTSSB006	281FTSSS012	6-Jul-95	1.1	2
SOIL	FTSSB007	281FTSSS013	6-Jul-95	0	0.25
SOIL	FTSSB007	281FTSSS014	6-Jul-95	1.5	2.3
SOIL	FTSSB008	281FTSSS015	6-Jul-95	0	0.5
SOIL	FTSSB008	281FTSSS016	6-Jul-95	1.2	1.75
SOIL	FTSSB009	281FTSSS017	6-Jul-95	0	0.12
SOIL	FTSSB009	281FTSSS018	6-Jul-95	0.12	1.3
SOIL	FTSSB100	217FTSSS100	11-Jun-98	0	0
SOIL	FTSSB101	217FTSSS101	11-Jun-98	0	0
SEDIMENT	FTSSL102	217FTSSS102	11-Jun-98	0	0
SEDIMENT	FTSSL103	217FTSSS103	11-Jun-98	0	0
SEDIMENT	FTSSL104	217FTSSS104	11-Jun-98	0	0

Notes:

MATRIX Media Sampled
PT_ID Point ID
SMP_ID Sample ID
SMP_DT Date that sample was collected
TOPDEPTH Top depth of the sample
BOTDEPTH Bottom depth of the sample

Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB001	FTSSB001	FTSSB002	FTSSB002	FTSSB003	FTSSB003	FTSSB004	FTSSB004	FTSSB005	FTSSB005	FTSSB006	FTSSB006
Sample ID	281FTSSS001	281FTSSS002	281FTSSS003	281FTSSS004	281FTSSS005	281FTSSS006	281FTSSS007	281FTSSS008	281FTSSS009	281FTSSS010	281FTSSS011	281FTSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995
Sample Depth (in feet)	0.00 - 0.30	0.35 - 1.30	0.00 - 0.50	0.75 - 1.80	0.00 - 0.25	0.75 - 1.75	0.00 - 0.50	1.50 - 2.50	0.00 - 0.50	2.00 - 3.00	0.00 - 0.50	1.10 - 2.00
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
1,1,2,2-TETRACHLOROETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 UJ	NA	140 U
1,1,2-TRICHLOROETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
1,1-DICHLOROETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
1,1-DICHLOROETHENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
1,2-DICHLOROETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
1,2-DICHLOROETHENE (TOTAL)	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
1,2-DICHLOROPROPANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
2-BUTANONE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	160 U	NA	140 U
2-HEXANONE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
4-METHYL-2-PENTANONE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	27 J	NA	140 U
ACETONE	NA	11 U	NA	24 U	NA	28 U	NA	18 U	NA	870 U	NA	280 U
BENZENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
BROMODICHLOROMETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
BROMOFORM	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
BROMOMETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
CARBON DISULFIDE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
CARBON TETRACHLORIDE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
CHLOROBENZENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 UJ	NA	140 U
CHLOROETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
CHLOROFORM	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
CHLOROMETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
CIS-1,3-DICHLOROPROPENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
DIBROMOCHLOROMETHANE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
ETHYLBENZENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 UJ	NA	140 U
METHYLENE CHLORIDE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	90 U	NA	140 U
STYRENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 UJ	NA	140 U
TETRACHLOROETHENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 UJ	NA	140 U
TOLUENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 UJ	NA	140 U
TRANS-1,3-DICHLOROPROPENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
TRICHLOROETHENE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
VINYL CHLORIDE	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 U	NA	140 U
XYLENE (TOTAL)	NA	11 U	NA	22 U	NA	25 U	NA	18 U	NA	48 UJ	NA	140 U
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	41 U	NA	9 J	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
1,2,4-TRICHLOROBENZENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
1,2-DICHLOROBENZENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
1,3-DICHLOROBENZENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB001	FTSSB001	FTSSB002	FTSSB002	FTSSB003	FTSSB003	FTSSB004	FTSSB004	FTSSB005	FTSSB005	FTSSB006	FTSSB006
Sample ID	281FTSSS001	281FTSSS002	281FTSSS003	281FTSSS004	281FTSSS005	281FTSSS006	281FTSSS007	281FTSSS008	281FTSSS009	281FTSSS010	281FTSSS011	281FTSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995
Sample Depth (in feet)	0.00 - 0.30	0.35 - 1.30	0.00 - 0.50	0.75 - 1.80	0.00 - 0.25	0.75 - 1.75	0.00 - 0.50	1.50 - 2.50	0.00 - 0.50	2.00 - 3.00	0.00 - 0.50	1.10 - 2.00
Low-Level Semivolatiles (in µg/kg)												
1,4-DICHLOROBENZENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
1-METHYLNAPHTHALENE	5 J	NA	30 J	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
1-METHYLPHENANTHRENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2,3,5-TRIMETHYLNAPHTHALENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2,4,5-TRICHLOROPHENOL	100 U	NA	120 U	NA	160 U	NA	570 U	NA	700 U	NA	1,600 U	NA
2,4,6-TRICHLOROPHENOL	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2,4-DICHLOROPHENOL	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2,4-DIMETHYLPHENOL	5 J	NA	12 J	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2,4-DINITROPHENOL	100 U	NA	120 U	NA	160 U	NA	570 U	NA	700 U	NA	1,600 U	NA
2,4-DINITROTOLUENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2,6-DIMETHYLNAPHTHALENE	5 J	NA	24 J	NA	65 U	NA	230 U	NA	41 J	NA	660 U	NA
2,6-DINITROTOLUENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2-CHLORONAPHTHALENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2-CHLOROPHENOL	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2-METHYLNAPHTHALENE	9 J	NA	46 J	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2-METHYLPHENOL	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
2-NITROANILINE	100 U	NA	120 U	NA	160 U	NA	570 U	NA	700 U	NA	1,600 U	NA
2-NITROPHENOL	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
3,3'-DICHLOROBENZIDINE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
3-NITROANILINE	100 U	NA	120 U	NA	160 U	NA	570 U	NA	700 U	NA	1,600 U	NA
4,6-DINITRO-2-METHYLPHENOL	100 U	NA	120 U	NA	160 U	NA	570 U	NA	700 U	NA	1,600 U	NA
4-BROMOPHENYL-PHENYLETHER	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
4-CHLORO-3-METHYLPHENOL	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
4-CHLOROANILINE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
4-CHLOROPHENYL-PHENYLETHER	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
4-METHYLPHENOL	41 U	NA	5 J	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
4-NITROANILINE	100 U	NA	120 U	NA	160 U	NA	570 U	NA	700 U	NA	1,600 U	NA
4-NITROPHENOL	100 U	NA	120 U	NA	160 U	NA	570 U	NA	700 U	NA	1,600 U	NA
ACENAPHTHENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
ACENAPHTHYLENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
ANTHRACENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
BENZO(A)ANTHRACENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	54 J	NA	660 U	NA
BENZO(A)PYRENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	130 J *	NA	660 U	NA
BENZO(B)FLUORANTHENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	110 J	NA	660 U	NA
BENZO(E)PYRENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
BENZO(G,H,I)PERYLENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	210 J	NA	660 U	NA
BENZO(K)FLUORANTHENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	83 J	NA	660 U	NA
BENZOIC ACID	24 J	NA	91 J	NA	160 UJ	NA	570 UJ	NA	100 J	NA	530 J	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB001	FTSSB001	FTSSB002	FTSSB002	FTSSB003	FTSSB003	FTSSB004	FTSSB004	FTSSB005	FTSSB005	FTSSB006	FTSSB006
Sample ID	281FTSSS001	281FTSSS002	281FTSSS003	281FTSSS004	281FTSSS005	281FTSSS006	281FTSSS007	281FTSSS008	281FTSSS009	281FTSSS010	281FTSSS011	281FTSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995
Sample Depth (in feet)	0.00 - 0.30	0.35 - 1.30	0.00 - 0.50	0.75 - 1.80	0.00 - 0.25	0.75 - 1.75	0.00 - 0.50	1.50 - 2.50	0.00 - 0.50	2.00 - 3.00	0.00 - 0.50	1.10 - 2.00
Low Level Semivolatiles (in µg/kg)												
BENZYL ALCOHOL	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
BIS(2-CHLOROETHOXY)METHANE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
BIS(2-CHLOROETHYL)ETHER	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
BUTYLBENZYLPHTHALATE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
CARBAZOLE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
CHRYSENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	88 J	NA	660 U	NA
DI-N-BUTYLPHTHALATE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
DI-N-OCTYLPHTHALATE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
DIBENZ(A,H)ANTHRACENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
DIBENZOFURAN	41 U	NA	7 J	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
DIBENZOTHIOPHENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
DIETHYLPHTHALATE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
DIMETHYLPHTHALATE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
FLUORANTHENE	41 U	NA	49 U	NA	65 U	NA	61 J	NA	190 J	NA	660 U	NA
FLUORENE	41 U	NA	6 J	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
HEXACHLOROBENZENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
HEXACHLOROBUTADIENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
HEXACHLOROCYCLOPENTADIENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
HEXACHLOROETHANE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
INDENO(1,2,3-CD)PYRENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
ISOPHORONE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
N-NITROSO-DI-N-PROPYLAMINE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
N-NITROSODIPHENYLAMINE (1)	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
NAPHTHALENE	41 U	NA	14 J	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
NITROBENZENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
PENTACHLOROPHENOL	100 U	NA	120 U	NA	160 U	NA	570 U	NA	700 U	NA	1,600 U	NA
PERYLENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
PHENANTHRENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	49 J	NA	660 U	NA
PHENOL	41 U	NA	49 U	NA	65 U	NA	230 U	NA	280 U	NA	660 U	NA
PYRENE	41 U	NA	49 U	NA	65 U	NA	230 U	NA	200 J	NA	660 U	NA
TOTAL HIGH MOLECULAR PAHS	U	NA	U	NA	U	NA	61	NA	1,100	NA	U	NA
TOTAL LOW MOLECULAR PAHS	14	NA	96	NA	U	NA	U	NA	49	NA	U	NA
TOTAL PAHS	14	NA	96	NA	U	NA	61	NA	1,100	NA	U	NA
Semi-volatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
1,2-DICHLOROBENZENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
1,3-DICHLOROBENZENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
1,4-DICHLOROBENZENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB001	FTSSB001	FTSSB002	FTSSB002	FTSSB003	FTSSB003	FTSSB004	FTSSB004	FTSSB005	FTSSB005	FTSSB006	FTSSB006
Sample ID	281FTSSS001	281FTSSS002	281FTSSS003	281FTSSS004	281FTSSS005	281FTSSS006	281FTSSS007	281FTSSS008	281FTSSS009	281FTSSS010	281FTSSS011	281FTSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995
Sample Depth (in feet)	0.00 - 0.30	0.35 - 1.30	0.00 - 0.50	0.75 - 1.80	0.00 - 0.25	0.75 - 1.75	0.00 - 0.50	1.50 - 2.50	0.00 - 0.50	2.00 - 3.00	0.00 - 0.50	1.10 - 2.00
Semivolatiles (in µg/kg)												
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
2,4,5-TRICHLOROPHENOL	NA	1,800 UJ	NA	1,800 U	NA	2,100 U	NA	1,500 U	NA	4,000 U	NA	4,600 UJ
2,4,6-TRICHLOROPHENOL	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 UJ
2,4-DICHLOROPHENOL	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 UJ
2,4-DIMETHYLPHENOL	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 UJ
2,4-DINITROPHENOL	NA	1,800 UJ	NA	1,800 U	NA	2,100 U	NA	1,500 U	NA	4,000 U	NA	4,600 UJ
2,4-DINITROTOLUENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
2,6-DINITROTOLUENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
2-CHLORONAPHTHALENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
2-CHLOROPHENOL	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 UJ
2-METHYLNAPHTHALENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
2-METHYLPHENOL	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 UJ
2-NITROANILINE	NA	1,800 UJ	NA	1,800 U	NA	2,100 U	NA	1,500 U	NA	4,000 U	NA	4,600 U
2-NITROPHENOL	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 UJ
3,3'-DICHLOROBENZIDINE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 UJ	NA	1,900 U
3-NITROANILINE	NA	1,800 UJ	NA	1,800 U	NA	2,100 U	NA	1,500 U	NA	4,000 U	NA	4,600 U
4,6-DINITRO-2-METHYLPHENOL	NA	1,800 UJ	NA	1,800 U	NA	2,100 U	NA	1,500 U	NA	4,000 U	NA	4,600 UJ
4-BROMOPHENYL-PHENYLETHER	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
4-CHLORO-3-METHYLPHENOL	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 UJ
4-CHLOROANILINE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
4-CHLOROPHENYL-PHENYLETHER	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
4-METHYLPHENOL	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 UJ
4-NITROANILINE	NA	1,800 UJ	NA	1,800 U	NA	2,100 U	NA	1,500 U	NA	4,000 U	NA	4,600 U
4-NITROPHENOL	NA	1,800 UJ	NA	1,800 U	NA	2,100 U	NA	1,500 U	NA	4,000 U	NA	4,600 UJ
ACENAPHTHENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
ACENAPHTHYLENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
ANTHRACENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
BENZO(A)ANTHRACENE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 UJ	NA	1,900 U
BENZO(A)PYRENE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
BENZO(B)FLUORANTHENE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
BENZO(G,H,I)PERYLENE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
BENZO(K)FLUORANTHENE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
BIS(2-CHLOROETHOXY)METHANE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
BIS(2-CHLOROETHYL)ETHER	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 UJ	NA	1,900 U
BUTYLBENZYLPHTHALATE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 UJ	NA	1,900 U
CARBAZOLE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
CHRYSENE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 UJ	NA	1,900 U
DI-N-BUTYLPHTHALATE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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07/12/03

Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB001	FTSSB001	FTSSB002	FTSSB002	FTSSB003	FTSSB003	FTSSB004	FTSSB004	FTSSB005	FTSSB005	FTSSB006	FTSSB006
Sample ID	281FTSSS001	281FTSSS002	281FTSSS003	281FTSSS004	281FTSSS005	281FTSSS006	281FTSSS007	281FTSSS008	281FTSSS009	281FTSSS010	281FTSSS011	281FTSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995
Sample Depth (in feet)	0.00 - 0.30	0.35 - 1.30	0.00 - 0.50	0.75 - 1.80	0.00 - 0.25	0.75 - 1.75	0.00 - 0.50	1.50 - 2.50	0.00 - 0.50	2.00 - 3.00	0.00 - 0.50	1.10 - 2.00
Semivolatiles (in µg/kg)												
DI-N-OCTYLPHTHALATE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
DIBENZ(A,H)ANTHRACENE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
DIBENZOFURAN	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
DIETHYLPHTHALATE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
DIMETHYLPHTHALATE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
FLUORANTHENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
FLUORENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
HEXACHLOROBENZENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
HEXACHLOROBUTADIENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
HEXACHLOROCYCLOPENTADIENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
HEXACHLOROETHANE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
INDENO(1,2,3-CD)PYRENE	NA	720 UJ	NA	720 UJ	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
ISOPHORONE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
N-NITROSO-DI-N-PROPYLAMINE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
N-NITROSODIPHENYLAMINE (1)	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
NAPHTHALENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
NITROBENZENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
PENTACHLOROPHENOL	NA	1,800 UJ	NA	1,800 U	NA	2,100 U	NA	1,500 U	NA	4,000 U	NA	4,600 UJ
PHENANTHRENE	NA	720 UJ	NA	720 U	NA	830 U	NA	580 U	NA	1,600 U	NA	1,900 U
PHENOL	NA	720 UJ	NA	500 J	NA	830 U	NA	290 J	NA	1,600 U	NA	1,900 UJ
PYRENE	NA	720 UJ	NA	720 U	NA	830 U	NA	590 U	NA	1,600 UJ	NA	1,900 U
TOTAL HIGH MOLECULAR PAHS	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
TOTAL LOW MOLECULAR PAHS	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
TOTAL PAHS	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
Low Level Pesticides (in µg/kg)												
2,4'-DDD	0.3 J	NA	0.2 UJ	NA	5 J	NA	0.2 UJ	NA	0.8 J	NA	0.5 UJ	NA
2,4'-DDE	0.5	NA	0.2 UJ	NA	0.6 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
2,4'-DDT	2	NA	1 J	NA	2 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
4,4'-DDD	4	NA	2 J	NA	9 J	NA	0.2 UJ	NA	3 J	NA	0.5 UJ	NA
4,4'-DDE	15	NA	0.6 J	NA	2 J	NA	0.2 UJ	NA	0.6 J	NA	0.5 UJ	NA
4,4'-DDT	19	NA	4 J	NA	8 J	NA	0.2 UJ	NA	0.6 J	NA	0.5 UJ	NA
ALDRIN	0.4 U	NA	0.2 UJ	NA	0.4 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	3	NA	0.9 J	NA	2 J	NA	0.3 J	NA	0.7 J	NA	0.5 UJ	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CIS-NONACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	0.4 U	NA	0.4 J	NA	0.8 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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07/12/03

Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB001	FTSSB001	FTSSB002	FTSSB002	FTSSB003	FTSSB003	FTSSB004	FTSSB004	FTSSB005	FTSSB005	FTSSB006	FTSSB006
Sample ID	281FTSSS001	281FTSSS002	281FTSSS003	281FTSSS004	281FTSSS005	281FTSSS006	281FTSSS007	281FTSSS008	281FTSSS009	281FTSSS010	281FTSSS011	281FTSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995
Sample Depth (in feet)	0.00 - 0.30	0.35 - 1.30	0.00 - 0.50	0.75 - 1.80	0.00 - 0.25	0.75 - 1.75	0.00 - 0.50	1.50 - 2.50	0.00 - 0.50	2.00 - 3.00	0.00 - 0.50	1.10 - 2.00
Low Level Pesticides (in µg/Kg)												
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	0.4 U	NA	0.2 UJ	NA	0.4 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	0.4 U	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
HEPTACHLOR EPOXIDE	0.4 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
HEXACHLOROBENZENE	0.4 U	NA	0.5 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MIREX	0.4 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
OXYCHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-101 (2,2',3,5,5')	0.4 U	NA	0.1 J	NA	0.4 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-105 (2,3,3',4,4')	0.4 U	NA	0.2 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-114 (2,3,4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-118 (2,3',4,4',5)	0.4 U	NA	0.2 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.1 J	NA	0.5 UJ	NA
PCB-123 (2',3,4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-126 (3,3',4,4',5)	0.4 U	NA	0.2 UJ	NA	0.1 J	NA	0.2 UJ	NA	0.1 J	NA	0.5 UJ	NA
PCB-128 (2,2',3,3',4,4')	2	NA	0.2 UJ	NA	0.3 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-138 (2,2',3,4,4',5')	0.4 U	NA	0.3 J	NA	2 J	NA	0.2 UJ	NA	0.4 J	NA	0.5 UJ	NA
PCB-153 (2,2',4,4',5,5')	0.4 U	NA	0.1 J	NA	0.5 J	NA	0.2 UJ	NA	0.2 J	NA	0.5 UJ	NA
PCB-156 (2,3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-157 (2,3,3',4,4',5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-167 (2,3',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-169 (3,3',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-170 (2,2',3,3',4,4',5)	0.4 U	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-18 (2,2',5)	0.4 U	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-180 (2,2',3,4,4',5,5')	0.4 U	NA	0.1 J	NA	0.4 J	NA	0.2 UJ	NA	0.2 J	NA	0.5 UJ	NA
PCB-187 (2,2',3,4',5,5',6)	0.4 U	NA	0.07 J	NA	0.2 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-189 (2,3,3',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	0.4 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-206 (2,2',3,3',4,4',5,5',6	0.4 U	NA	0.2 J	NA	0.8 J	NA	0.2 UJ	NA	0.5 J	NA	0.5 UJ	NA
PCB-209 (2,2',3,3',4,4',5,5',6	0.4 UJ	NA	0.2 UJ	NA	0.3 J	NA	0.2 UJ	NA	0.08 J	NA	0.5 UJ	NA
PCB-28 (2,4,4')	0.4 U	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-44 (2,2',3,5')	0.4 U	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-52 (2,2',5,5')	0.4 U	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-66 (2,3',4,4')	0.4 U	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
PCB-77 (3,3',4,4')	0.4 U	NA	0.2 UJ	NA	0.3 J	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA

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07/12/03

Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB001	FTSSB001	FTSSB002	FTSSB002	FTSSB003	FTSSB003	FTSSB004	FTSSB004	FTSSB005	FTSSB005	FTSSB006	FTSSB006
Sample ID	281FTSSS001	281FTSSS002	281FTSSS003	281FTSSS004	281FTSSS005	281FTSSS006	281FTSSS007	281FTSSS008	281FTSSS009	281FTSSS010	281FTSSS011	281FTSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995
Sample Depth (in feet)	0.00 - 0.30	0.35 - 1.30	0.00 - 0.50	0.75 - 1.80	0.00 - 0.25	0.75 - 1.75	0.00 - 0.50	1.50 - 2.50	0.00 - 0.50	2.00 - 3.00	0.00 - 0.50	1.10 - 2.00
Low Level Pesticides (in µg/Kg)												
PCB-8 (2,4')	0.4 U	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.2 UJ	NA	0.5 UJ	NA
TECHNICAL CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-NONACHLOR	4	NA	0.6 J	NA	2 J	NA	0.2 J	NA	0.5 J	NA	0.5 UJ	NA
TOTAL BHCS	U	NA	U	NA	0.4	NA	U	NA	U	NA	U	NA
TOTAL CHLORDANES	3	NA	0.9	NA	2	NA	0.3	NA	0.7	NA	U	NA
TOTAL DDTS	41	NA	8	NA	27	NA	U	NA	5	NA	U	NA
TOTAL PCBS	4	NA	3	NA	10	NA	U	NA	3	NA	U	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	73 U	NA	7 UJ	NA	8 U	NA	6 U	NA	16 U	NA	19 U
4,4'-DDE	NA	10 J	NA	7 UJ	NA	8 U	NA	6 U	NA	16 U	NA	19 U
4,4'-DDT	NA	9 J	NA	7 UJ	NA	8 U	NA	6 U	NA	16 U	NA	19 U
ALDRIN	NA	36 U	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
ALPHA-BHC	NA	36 U	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
ALPHA-CHLORDANE	NA	35 J	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
AROCLOR-1016	NA	730 U	NA	72 U	NA	84 U	NA	58 U	NA	160 U	NA	190 U
AROCLOR-1221	NA	1,500 U	NA	140 U	NA	170 U	NA	120 U	NA	320 U	NA	380 U
AROCLOR-1232	NA	730 U	NA	72 U	NA	84 U	NA	58 U	NA	160 U	NA	190 U
AROCLOR-1242	NA	730 U	NA	72 U	NA	84 U	NA	58 U	NA	160 U	NA	190 U
AROCLOR-1248	NA	730 U	NA	72 U	NA	84 U	NA	58 U	NA	160 U	NA	190 U
AROCLOR-1254	NA	730 U	NA	72 U	NA	84 U	NA	58 U	NA	160 U	NA	190 U
AROCLOR-1260	NA	730 U	NA	72 UJ	NA	84 U	NA	58 U	NA	160 U	NA	190 U
BETA-BHC	NA	36 U	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
DELTA-BHC	NA	36 U	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
DIELDRIN	NA	73 U	NA	7 U	NA	8 U	NA	6 U	NA	16 U	NA	19 U
ENDOSULFAN I	NA	36 U	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
ENDOSULFAN II	NA	73 U	NA	7 UJ	NA	8 U	NA	6 U	NA	16 U	NA	19 U
ENDOSULFAN SULFATE	NA	73 U	NA	7 UJ	NA	8 U	NA	6 U	NA	16 U	NA	19 U
ENDRIN	NA	73 U	NA	7 UJ	NA	8 U	NA	6 U	NA	16 U	NA	19 U
ENDRIN ALDEHYDE	NA	73 U	NA	7 UJ	NA	8 U	NA	6 U	NA	16 U	NA	19 U
ENDRIN KETONE	NA	73 U	NA	7 UJ	NA	8 U	NA	6 U	NA	16 U	NA	19 U
GAMMA-BHC (LINDANE)	NA	36 U	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
GAMMA-CHLORDANE	NA	25 J	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
HEPTACHLOR	NA	36 U	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
HEPTACHLOR EPOXIDE	NA	36 U	NA	4 U	NA	4 U	NA	3 U	NA	8 U	NA	10 U
METHOXYCHLOR	NA	360 U	NA	36 UJ	NA	42 U	NA	29 U	NA	80 U	NA	95 U
TOXAPHENE	NA	3,600 U	NA	360 UJ	NA	420 U	NA	290 U	NA	800 U	NA	950 U
TOTAL BHCS	NA	U	NA	U	NA	U	NA	U	NA	U	NA	U
TOTAL CHLORDANES	NA	60	NA	U	NA	U	NA	U	NA	U	NA	U

Notes:

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07/12/03

Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB001	FTSSB001	FTSSB002	FTSSB002	FTSSB003	FTSSB003	FTSSB004	FTSSB004	FTSSB005	FTSSB005	FTSSB006	FTSSB006
Sample ID	281FTSSS001	281FTSSS002	281FTSSS003	281FTSSS004	281FTSSS005	281FTSSS006	281FTSSS007	281FTSSS008	281FTSSS009	281FTSSS010	281FTSSS011	281FTSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995
Sample Depth (in feet)	0.00 - 0.30	0.35 - 1.30	0.00 - 0.50	0.75 - 1.80	0.00 - 0.25	0.75 - 1.75	0.00 - 0.50	1.50 - 2.50	0.00 - 0.50	2.00 - 3.00	0.00 - 0.50	1.10 - 2.00
Pesticides (in µg/Kg)												
TOTAL DDTS	NA	19	NA	U	NA	U	NA	U	NA	U	NA	U
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
1,3-DINITROBENZENE	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
2,4,6-TRINITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
2,4-DINITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
2,6-DINITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
2-NITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
3-NITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
4-NITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
HMX	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
NITROBENZENE	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
RDX	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
TETRYL	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U	NA	120 U
Petroleum Indicators (in mg/Kg)												
DIESEL RANGE ORGANICS	13 U	1,400 U	700 U	22 U	1,000 U	25 U	18 U	17 U	29 U	48 U	27 U	140 U
MOTOR OIL RANGE ORGANICS	54	9,200	7,800	160	23,000	45	240	17 U	180	340	47	800
CLP Metals (in mg/Kg)												
ALUMINUM	14,900 J	9,200 J	10,700 J	21,800 J	14,700 J	24,800 J	15,800 J	17,700 J	37,500 J	5,630 J	16,700 J	8,100 J
ANTIMONY	0.54 U	0.46 U	1.2 U	0.91 U	2.3 U	1.1 U	0.74 U	0.73 U	1.9 U	2.0 U	1.1 U	2.4 U
ARSENIC	4.5 *	1.1 U	6.2 *	6.4 *	10.6 *	9.5 *	10.1 *	12.0 *	18.0 *	4.8 *	15.6 *	7.8 *
BARIUM	165	43.8	163	48.3	110	43.9	95.8	54.1	234	27.7	130	31.8
BERYLLIUM	0.030 U	0.020 U	0.090 U	0.070 U	0.040 U	0.050 U	0.25 U	0.030 U	0.080 U	0.10 U	0.050 U	0.11 U
CADMIUM	0.38	0.040 U	1.1	0.090 U	0.61	0.10 U	0.21 U	0.070 U	0.12 U	0.19 U	0.32	0.23 U
CALCIUM	12,000	6,200	4,330	5,070	5,040	4,140	4,390	3,790	7,240	8,830	6,360	8,630
CHROMIUM	34.2	15.3	25.7	70.5	47.0	82.1	48.1	69.0	106	20.5	50.6	24.8
COBALT	12.9	7.4	7.1	6.7	8.6	8.5	10.1	13.9	18.1	3.6	7.9	7.7
COPPER	30.3	21.4	55.0	30.7	59.7	30.8	63.1	28.0	86.0	13.1	64.6	16.8
IRON	19,500	11,900	16,900	18,100	22,100	21,800	18,900	29,800 *	47,100 *	6,970	18,500	15,300
LEAD	72.0	8.8	515 *	21.0	211 *	9.5	86.0	9.7	115	3.5	157 *	7.5
MAGNESIUM	6,530	3,890	5,560	7,470	7,010	11,200	8,810	9,770	15,400	9,920	7,980	11,500
MANGANESE	608	227	171	142	186	182	179	224	382	104	186	60.7
MERCURY	0.17 J	0.25 J	0.17 J	0.11 U	0.39 J	0.13 U	0.36 J	0.10 J	0.34 J	0.24 U	0.49 J	0.28 U
MOLYBDENUM	0.23 U	0.30 U	0.25 U	3.9	1.6 U	2.9	0.54 U	1.1 U	0.52 U	1.5 U	1.3 U	3.4
NICKEL	38.0	15.6	28.8	57.8	49.4	53.5	62.4	64.7	90.9	21.0	53.2	38.5
POTASSIUM	1,860 J	823 J	2,640 J	4,170 J	3,180 J	5,080 J	3,830 J	3,980 J	6,510 J	2,090 J	2,930 J	3,140 J
SELENIUM	0.88 U	0.74 U	0.96 U	1.5 U	1.4 U	1.7 U	1.2 U	1.2 U	2.0 U	3.3 U	1.9 U	3.9 U
SILVER	0.15 U	0.13 U	0.18	0.26 U	0.36	0.30 U	0.22	0.21 U	0.35 U	0.58 U	0.50	0.68 U

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Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB001	FTSSB001	FTSSB002	FTSSB002	FTSSB003	FTSSB003	FTSSB004	FTSSB004	FTSSB005	FTSSB005	FTSSB006	FTSSB006
Sample ID	281FTSSS001	281FTSSS002	281FTSSS003	281FTSSS004	281FTSSS005	281FTSSS006	281FTSSS007	281FTSSS008	281FTSSS009	281FTSSS010	281FTSSS011	281FTSSS012
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/05/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995
Sample Depth (in feet)	0.00 - 0.30	0.35 - 1.30	0.00 - 0.50	0.75 - 1.80	0.00 - 0.25	0.75 - 1.75	0.00 - 0.50	1.50 - 2.50	0.00 - 0.50	2.00 - 3.00	0.00 - 0.50	1.10 - 2.00
CLP Metals (in mg/Kg)												
SODIUM	1,610 J	1,160 J	2,680 J	8,870 J	3,490 J	12,500 J	4,610 J	5,790 J	11,900 J	35,200 J	7,810 J	45,800 J
THALLIUM	0.52 U	0.64	0.56 U	0.87 U	0.80 U	1.0 U	0.71 U	0.70 U	1.2 U	1.9 U	1.1 U	2.3 U
VANADIUM	54.7	34.4	39.8	68.7	57.4	85.1	56.9	65.6	113	32.6	67.6	47.0
ZINC	106	27.5	436	63.1	160	80.7	173	91.3	213	39.1	144	47.9
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	250 UJ	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	60.0 UJ	56.0 U	72.0 U	134 U	96.0 U	148 U	83.0 U	90.0 U	1,030	264 U	236 U	255 U
TOTAL ORGANIC CARBON	13,400	3,740	74,600	128,000	136,000	83,100	42,000	20,100	72,300	331,000	270,000	269,000
Percent Moisture (percent)												
PERCENT MOISTURE	20.0	NA	33.0	NA	50.0	NA	42.0	NA	53.0	NA	80.0	NA
Miscellaneous												
PH	8.4	7.5	7.3	6.4	6	5.8	7.3	6.8	7.2	6.5	6.7	7.1

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Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB007	FTSSB007	FTSSB008	FTSSB008	FTSSB009	FTSSB009	FTSSB100	FTSSB101	FTSSL102	FTSSL103	FTSSL104
Sample ID	281FTSSS013	281FTSSS014	281FTSSS015	281FTSSS016	281FTSSS017	281FTSSS018	217FTSSS100	217FTSSS101	217FTSSS102	217FTSSS103	217FTSSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	06/11/1998	06/11/1998	06/11/1998	06/11/1998	06/11/1998
Sample Depth (in feet)	0.00 - 0.25	1.50 - 2.30	0.00 - 0.50	1.20 - 1.75	0.00 - 0.12	0.12 - 1.30	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/Kg)											
1,1,1-TRICHLOROETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
2-BUTANONE	NA	12 U	NA	130 U	NA	12 U	NA	NA	NA	NA	NA
2-HEXANONE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
ACETONE	NA	13 U	NA	440 U	NA	21 U	NA	NA	NA	NA	NA
BENZENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
BROMOFORM	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
BROMOMETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
CHLOROETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
CHLOROFORM	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
STYRENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
TOLUENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	12 U	NA	48 U	NA	12 U	NA	NA	NA	NA	NA
Low Level Semivolatiles (in µg/Kg)											
1,1'-BIPHENYL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA

Notes:

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Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB007	FTSSB007	FTSSB008	FTSSB008	FTSSB009	FTSSB009	FTSSB100	FTSSB101	FTSSL102	FTSSL103	FTSSL104
Sample ID	281FTSSS013	281FTSSS014	281FTSSS015	281FTSSS016	281FTSSS017	281FTSSS018	217FTSSS100	217FTSSS101	217FTSSS102	217FTSSS103	217FTSSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	06/11/1998	06/11/1998	06/11/1998	06/11/1998	06/11/1998
Sample Depth (in feet)	0.00 - 0.25	1.50 - 2.30	0.00 - 0.50	1.20 - 1.75	0.00 - 0.12	0.12 - 1.30	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Semivolatiles (in µg/kg)											
1,4-DICHLOROBENZENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
1-METHYLNAPHTHALENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
1-METHYLPHENANTHRENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	100 U	NA	840 U	NA	510 U	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	100 U	NA	840 U	NA	510 U	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
2-NITROANILINE	100 U	NA	840 U	NA	510 U	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
3-NITROANILINE	100 U	NA	840 U	NA	510 U	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	100 U	NA	840 U	NA	510 U	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
4-NITROANILINE	100 U	NA	840 U	NA	510 U	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	100 U	NA	840 U	NA	510 U	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	41 U	NA	340 U	NA	29 J	NA	NA	NA	NA	NA	NA
ANTHRACENE	41 U	NA	340 U	NA	37 J	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	41 U	NA	53 J	NA	91 J	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	41 U	NA	340 U	NA	120 J *	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	41 U	NA	340 U	NA	240	NA	NA	NA	NA	NA	NA
BENZO(E)PYRENE	41 U	NA	340 U	NA	280	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	41 U	NA	340 U	NA	170 J	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	41 U	NA	340 U	NA	120 J	NA	NA	NA	NA	NA	NA
BENZOIC ACID	100 UJ	NA	840 UJ	NA	510 UJ	NA	NA	NA	NA	NA	NA

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Soil/Sediment Analytical Results

Point ID	FTSSB007	FTSSB007	FTSSB008	FTSSB008	FTSSB009	FTSSB009	FTSSB100	FTSSB101	FTSSL102	FTSSL103	FTSSL104
Sample ID	281FTSSS013	281FTSSS014	281FTSSS015	281FTSSS016	281FTSSS017	281FTSSS018	217FTSSS100	217FTSSS101	217FTSSS102	217FTSSS103	217FTSSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	06/11/1998	06/11/1998	06/11/1998	06/11/1998	06/11/1998
Sample Depth (in feet)	0.00 - 0.25	1.50 - 2.30	0.00 - 0.50	1.20 - 1.75	0.00 - 0.12	0.12 - 1.30	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Semivolatiles (in µg/kg)											
BENZYL ALCOHOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	41 U	NA	2,500	NA	200 U	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
CARBAZOLE	41 U	NA	340 U	NA	24 J	NA	NA	NA	NA	NA	NA
CHRYSENE	41 U	NA	110 J	NA	240	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
DIBENZOTHIOPHENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
FLUORANTHENE	41 U	NA	150 J	NA	170 J	NA	NA	NA	NA	NA	NA
FLUORENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	41 U	NA	340 U	NA	140 J	NA	NA	NA	NA	NA	NA
ISOPHORONE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
NAPHTHALENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
NITROBENZENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	100 U	NA	840 U	NA	510 U	NA	NA	NA	NA	NA	NA
PERYLENE	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
PHENANTHRENE	41 U	NA	47 J	NA	31 J	NA	NA	NA	NA	NA	NA
PHENOL	41 U	NA	340 U	NA	200 U	NA	NA	NA	NA	NA	NA
PYRENE	41 U	NA	110 J	NA	120 J	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	U	NA	420	NA	1,700	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	U	NA	47	NA	97	NA	NA	NA	NA	NA	NA
TOTAL PAHS	U	NA	470	NA	1,800	NA	NA	NA	NA	NA	NA
Semivolatiles (in µg/kg)											
1,2,4-TRICHLOROBENZENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
1,2-DICHLOROBENZENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	660 U	320 U	330 U
1,3-DICHLOROBENZENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	660 U	320 U	330 U
1,4-DICHLOROBENZENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	660 U	320 U	330 U

Notes:

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Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB007	FTSSB007	FTSSB008	FTSSB008	FTSSB009	FTSSB009	FTSSB100	FTSSB101	FTSSL102	FTSSL103	FTSSL104
Sample ID	281FTSSS013	281FTSSS014	281FTSSS015	281FTSSS016	281FTSSS017	281FTSSS018	217FTSSS100	217FTSSS101	217FTSSS102	217FTSSS103	217FTSSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	06/11/1998	06/11/1998	06/11/1998	06/11/1998	06/11/1998
Sample Depth (in feet)	0.00 - 0.25	1.50 - 2.30	0.00 - 0.50	1.20 - 1.75	0.00 - 0.12	0.12 - 1.30	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/Kg)											
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
2,4,5-TRICHLOROPHENOL	NA	990 U	NA	4,000 U	NA	1,000 U	NA	NA	3,400 U	1,600 U	1,700 U
2,4,6-TRICHLOROPHENOL	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
2,4-DICHLOROPHENOL	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
2,4-DIMETHYLPHENOL	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
2,4-DINITROPHENOL	NA	990 U	NA	4,000 U	NA	1,000 U	NA	NA	3,400 UJ	1,600 UJ	1,700 UJ
2,4-DINITROTOLUENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 UJ	650 UJ	680 UJ
2,6-DINITROTOLUENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
2-CHLORONAPHTHALENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
2-CHLOROPHENOL	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
2-METHYLNAPHTHALENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
2-METHYLPHENOL	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
2-NITROANILINE	NA	990 U	NA	4,000 U	NA	1,000 U	NA	NA	3,400 U	1,600 U	1,700 U
2-NITROPHENOL	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 UJ	650 UJ	680 UJ
3,3'-DICHLOROBENZIDINE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
3-NITROANILINE	NA	990 U	NA	4,000 U	NA	1,000 U	NA	NA	3,400 U	1,600 U	1,700 U
4,6-DINITRO-2-METHYLPHENOL	NA	990 U	NA	4,000 U	NA	1,000 U	NA	NA	3,400 UJ	1,600 UJ	1,700 UJ
4-BROMOPHENYL-PHENYLETHER	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
4-CHLORO-3-METHYLPHENOL	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
4-CHLOROANILINE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
4-CHLOROPHENYL-PHENYLETHER	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
4-METHYLPHENOL	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	300 J	650 U	680 U
4-NITROANILINE	NA	990 U	NA	4,000 U	NA	1,000 U	NA	NA	3,400 U	1,600 U	1,700 U
4-NITROPHENOL	NA	990 U	NA	4,000 U	NA	1,000 U	NA	NA	3,400 UJ	1,600 UJ	1,700 UJ
ACENAPHTHENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
ACENAPHTHYLENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
ANTHRACENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
BENZO(A)ANTHRACENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
BENZO(A)PYRENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 UJ	680 U
BENZO(B)FLUORANTHENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 UJ	680 U
BENZO(G,H,I)PERYLENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 UJ	680 U
BENZO(K)FLUORANTHENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 UJ	680 U
BIS(2-CHLOROETHOXY)METHANE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
BIS(2-CHLOROETHYL)ETHER	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	540 UJ	260 U	270 U
BUTYLBENZYLPHTHALATE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
CARBAZOLE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
CHRYSENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	76 J	650 U	35 J
DI-N-BUTYLPHTHALATE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U

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Soil/Sediment Analytical Results

Point ID	FTSSB007	FTSSB007	FTSSB008	FTSSB008	FTSSB009	FTSSB009	FTSSB100	FTSSB101	FTSSL102	FTSSL103	FTSSL104
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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	06/11/1998	06/11/1998	06/11/1998	06/11/1998	06/11/1998
Sample Depth (in feet)	0.00 - 0.25	1.50 - 2.30	0.00 - 0.50	1.20 - 1.75	0.00 - 0.12	0.12 - 1.30	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/Kg)											
DI-N-OCTYLPHTHALATE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 UJ	680 U
DIBENZ(A,H)ANTHRACENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 UJ	680 U
DIBENZOFURAN	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
DIETHYLPHTHALATE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
DIMETHYLPHTHALATE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
FLUORANTHENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	140 J	650 U	43 J
FLUORENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
HEXACHLOROBENZENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
HEXACHLOROBUTADIENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
HEXACHLOROCYCLOPENTADIENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 UJ	650 UJ	680 UJ
HEXACHLOROETHANE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
INDENO(1,2,3-CD)PYRENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 UJ	680 U
ISOPHORONE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
N-NITROSO-DI-N-PROPYLAMINE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
N-NITROSODIPHENYLAMINE (1)	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
NAPHTHALENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
NITROBENZENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
PENTACHLOROPHENOL	NA	990 U	NA	4,000 U	NA	1,000 U	NA	NA	3,400 U	1,600 U	1,700 U
PHENANTHRENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
PHENOL	NA	160 J	NA	1,600 U	NA	420 U	NA	NA	1,400 U	650 U	680 U
PYRENE	NA	400 U	NA	1,600 U	NA	420 U	NA	NA	110 J	650 U	680 U
TOTAL HIGH MOLECULAR PAHS	NA	U	NA	U	NA	U	NA	NA	330	U	79
TOTAL LOW MOLECULAR PAHS	NA	U	NA	U	NA	U	NA	NA	U	U	U
TOTAL PAHS	NA	U	NA	U	NA	U	NA	NA	330	U	79
Low Level Pesticides (in µg/Kg)											
2,4'-DDD	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	4 J	7	7
2,4'-DDE	0.1 U	NA	0.5	NA	0.2 UJ	NA	NA	NA	0.4 U	0.4 J	0.2 U
2,4'-DDT	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	3	0.2 U	0.2 U
4,4'-DDD	0.1 U	NA	10	NA	0.3 J	NA	NA	NA	14	7	11
4,4'-DDE	0.1 U	NA	3	NA	0.3 J	NA	NA	NA	7	3	6
4,4'-DDT	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	15	0.3 U	0.3 U
ALDRIN	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	0.7	0.2 U	0.2 U
ALPHA-CHLORDANE	0.1 U	NA	0.3 U	NA	0.3 J	NA	NA	NA	11 J	0.3 J	2 J
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
CIS-NONACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	4 U	0.2 U	0.9 U
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
DIELDRIN	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	1 U	0.2 U	0.2 U
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U

Notes:

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07/12/03

Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB007	FTSSB007	FTSSB008	FTSSB008	FTSSB009	FTSSB009	FTSSB100	FTSSB101	FTSSL102	FTSSL103	FTSSL104
Sample ID	281FTSSS013	281FTSSS014	281FTSSS015	281FTSSS016	281FTSSS017	281FTSSS018	217FTSSS100	217FTSSS101	217FTSSS102	217FTSSS103	217FTSSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	06/11/1998	06/11/1998	06/11/1998	06/11/1998	06/11/1998
Sample Depth (in feet)	0.00 - 0.25	1.50 - 2.30	0.00 - 0.50	1.20 - 1.75	0.00 - 0.12	0.12 - 1.30	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Pesticides (in µg/Kg)											
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
GAMMA-BHC (LINDANE)	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	12	0.4	2
HEPTACHLOR	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.1 UJ	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
HEXACHLOROBENZENE	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.7 U	0.4	0.4
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	1 U	0.7 U	0.7 U
MIREX	0.1 UJ	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
OXYCHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-101 (2,2',3,5,5')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-105 (2,3,3',4,4')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.3
PCB-114 (2,3,4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-118 (2,3',4,4',5)	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.7
PCB-123 (2',3,4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-126 (3,3',4,4',5)	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-128 (2,2',3,3',4,4')	0.1 U	NA	0.3 U	NA	0.1 J	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-138 (2,2',3,4,4',5')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.5 J	0.2 U	1
PCB-153 (2,2',4,4',5,5')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.7 U	0.2 U	0.9 J
PCB-156 (2,3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-157 (2,3,3',4,4',5')	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-167 (2,3',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-169 (3,3',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-170 (2,2',3,3',4,4',5)	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-18 (2,2',5)	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.7 U	0.3 U	0.4 U
PCB-180 (2,2',3,4,4',5,5')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.5 U
PCB-187 (2,2',3,4',5,5',6)	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.4
PCB-189 (2,3,3',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-195 (2,2',3,3',4,4',5,6)	0.1 UJ	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-206 (2,2',3,3',4,4',5,5',6	0.1 U	NA	0.3 U	NA	0.2 J	NA	NA	NA	0.4 U	0.2 U	2
PCB-209 (2,2',3,3',4,4',5,5',6	0.1 UJ	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.8
PCB-28 (2,4,4')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-44 (2,2',3,5')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-52 (2,2',5,5')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-66 (2,3',4,4')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U
PCB-77 (3,3',4,4')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	0.4 U	0.2 U	0.2 U

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Point ID	FTSSB007	FTSSB007	FTSSB008	FTSSB008	FTSSB009	FTSSB009	FTSSB100	FTSSB101	FTSSL102	FTSSL103	FTSSL104
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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	06/11/1998	06/11/1998	06/11/1998	06/11/1998	06/11/1998
Sample Depth (in feet)	0.00 - 0.25	1.50 - 2.30	0.00 - 0.50	1.20 - 1.75	0.00 - 0.12	0.12 - 1.30	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Pesticides (in ug/Kg)											
PCB-8 (2,4')	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	NA	NA	3 U	2 U	2 U
TECHNICAL CHLORDANE	NA	NA	NA	NA	NA	NA	21	190 J	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	210 U	100 U	100 U
TRANS-NONACHLOR	0.1 U	NA	0.3 U	NA	0.3 J	NA	NA	NA	7 U	0.3 J	1 U
TOTAL BHCS	U	NA	U	NA	U	NA	NA	NA	0.7	U	U
TOTAL CHLORDANES	U	NA	U	NA	0.3	NA	NA	NA	23	0.7	4
TOTAL DDTS	U	NA	14	NA	0.6	NA	NA	NA	43	17	24
TOTAL PCBS	U	NA	U	NA	0.6	NA	NA	NA	1	U	12
Pesticides (in µg/Kg)											
4,4'-DDD	NA	4 U	NA	8 J	NA	4 U	NA	NA	NA	NA	NA
4,4'-DDE	NA	4 U	NA	16 U	NA	4 U	NA	NA	NA	NA	NA
4,4'-DDT	NA	4 U	NA	16 U	NA	4 U	NA	NA	NA	NA	NA
ALDRIN	NA	2 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
ALPHA-BHC	NA	2 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	2 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
AROCLOR-1016	NA	20 U	NA	160 U	NA	42 U	NA	NA	NA	NA	NA
AROCLOR-1221	NA	20 U	NA	320 U	NA	84 U	NA	NA	NA	NA	NA
AROCLOR-1232	NA	20 U	NA	160 U	NA	42 U	NA	NA	NA	NA	NA
AROCLOR-1242	NA	20 U	NA	160 U	NA	42 U	NA	NA	NA	NA	NA
AROCLOR-1248	NA	20 U	NA	160 U	NA	42 U	NA	NA	NA	NA	NA
AROCLOR-1254	NA	20 U	NA	160 U	NA	42 U	NA	NA	NA	NA	NA
AROCLOR-1260	NA	20 U	NA	160 U	NA	42 U	NA	NA	NA	NA	NA
BETA-BHC	NA	2 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
DELTA-BHC	NA	2 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
DIELDRIN	NA	4 U	NA	16 U	NA	4 U	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	2 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	4 U	NA	16 U	NA	4 U	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	4 U	NA	16 U	NA	4 U	NA	NA	NA	NA	NA
ENDRIN	NA	4 U	NA	16 U	NA	4 U	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	4 U	NA	16 U	NA	4 U	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	4 U	NA	16 U	NA	4 U	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	2 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	2 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
HEPTACHLOR	NA	2 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	0.4 U	NA	8 U	NA	2 U	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	20 U	NA	79 U	NA	21 U	NA	NA	NA	NA	NA
TOXAPHENE	NA	120 U	NA	790 U	NA	210 U	NA	NA	NA	NA	NA
TOTAL BHCS	NA	U	NA	U	NA	U	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	U	NA	U	NA	U	NA	NA	NA	NA	NA

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Sample ID	281FTSSS013	281FTSSS014	281FTSSS015	281FTSSS016	281FTSSS017	281FTSSS018	217FTSSS100	217FTSSS101	217FTSSS102	217FTSSS103	217FTSSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	06/11/1998	06/11/1998	06/11/1998	06/11/1998	06/11/1998
Sample Depth (in feet)	0.00 - 0.25	1.50 - 2.30	0.00 - 0.50	1.20 - 1.75	0.00 - 0.12	0.12 - 1.30	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/Kg)											
TOTAL DDTS	NA	U	NA	8	NA	U	NA	NA	NA	NA	NA
Explosives (in µg/Kg)											
1,3,5-TRINITROBENZENE	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
HMX	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
NITROBENZENE	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
RDX	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
TETRYL	NA	120 U	NA	120 U	NA	120 U	NA	NA	NA	NA	NA
Petroleum Indicators (in mg/Kg)											
DIESEL RANGE ORGANICS	13 U	12 U	14 U	47 U	13 U	13 U	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	13 U	9 J	18	50	88	13 U	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)											
ALUMINUM	9,310 J	11,000 J	9,260 J	4,810 J	13,100 J	9,500 J	NA	NA	10,300 J	16,900 J	7,020 J
ANTIMONY	0.53 U	0.50 U	0.58 U	2.0 U	0.56 U	0.53 U	NA	NA	2.2 J	1.1 J	1.5 J
ARSENIC	4.0 U	7.0 *	6.2 *	26.6 *	4.9 *	4.0 U	NA	NA	9.8 J *	23.2 J *	17.4 J *
BARIUM	195	170	177	48.3	71.4	166	NA	NA	230 J	48.7 J	199 J
BERYLLIUM	0.030 U	0.070 U	0.070 U	0.090 U	0.030 U	0.13 U	NA	NA	0.050 UJ	0.35 J	0.010 U
CADMIUM	0.050 U	0.050 U	0.060 U	0.73	0.19 U	0.050 U	NA	NA	0.89 J	0.41 J	1.9 J
CALCIUM	12,800	4,210	3,390	14,600	8,100	4,770	NA	NA	4,390 J	2,160 J	37,500 J
CHROMIUM	25.2	24.7	28.3	25.2	39.3	19.8	NA	NA	33.4 J	45.7 J	25.1 J
COBALT	12.3	10.7	11.5	6.2	11.5	9.0	NA	NA	4.7 J	7.4 J	20.6 J
COPPER	25.3	28.7	26.5	50.9	34.1	16.5	NA	NA	92.0 J	33.0 J	43.7 J
IRON	16,100	19,900	15,400	5,860	20,400	14,900	NA	NA	16,400 J	21,000 J	37,300 J *
LEAD	14.3	7.7	20.1	84.4	143	7.5	NA	NA	79.5 J	32.8 J	55.6 J
MAGNESIUM	10,700	8,530	6,700	15,200	9,060	6,670	NA	NA	5,570 J	5,510 J	9,150 J
MANGANESE	706	400	182	246	314	359	NA	NA	135 J	139 J	3,530 J *
MERCURY	0.070 J	0.070 J	0.070 J	0.28 J	0.11 J	0.080 J	NA	NA	0.25 UJ	0.40 UJ	0.10 U
MOLYBDENUM	0.23 U	0.22 U	0.25 U	3.8	0.24 U	0.23 U	NA	NA	4.3 J	0.22 J	0.15 UJ
NICKEL	65.4	51.4	41.2	81.7	57.5	32.4	NA	NA	22.7 J	40.0 J	61.0 J
POTASSIUM	2,610 J	2,400 J	2,940 J	2,430 J	3,080 J	2,180 J	NA	NA	1,870	1,600	1,590
SELENIUM	0.85 U	0.81 U	0.94 U	3.2 U	0.91 U	0.85 U	NA	NA	1.2	0.45 U	1.5
SILVER	0.15 U	0.14 U	0.17 U	0.57 U	0.16 U	0.15 U	NA	NA	0.38 J	0.15 J	0.63 J

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table D-1
Site 9 - Froid and Taylor Roads
Soil/Sediment Analytical Results

Point ID	FTSSB007	FTSSB007	FTSSB008	FTSSB008	FTSSB009	FTSSB009	FTSSB100	FTSSB101	FTSSL102	FTSSL103	FTSSL104
Sample ID	281FTSSS013	281FTSSS014	281FTSSS015	281FTSSS016	281FTSSS017	281FTSSS018	217FTSSS100	217FTSSS101	217FTSSS102	217FTSSS103	217FTSSS104
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	07/06/1995	06/11/1998	06/11/1998	06/11/1998	06/11/1998	06/11/1998
Sample Depth (in feet)	0.00 - 0.25	1.50 - 2.30	0.00 - 0.50	1.20 - 1.75	0.00 - 0.12	0.12 - 1.30	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
CLP Metals (in mg/Kg)											
SODIUM	17,700 J	7,870 J	4,890 J	60,400 J	1,270 J	1,440 J	NA	NA	7,580	2,390	4,080
THALLIUM	0.50 U	0.48 U	0.55 U	2.0	0.54 U	0.50 U	NA	NA	1.4 U	1.1	3.8
VANADIUM	38.4	47.1	39.6	136	50.7	37.2	NA	NA	48.2 J	62.2 J	45.2 J
ZINC	58.5	60.7	115	154	118	45.5	NA	NA	148 J	59.5 J	149 J
Hexavalent Chromium (in mg/Kg)											
HEXAVALENT CHROMIUM	50.0 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)											
SULFIDE	60.0 U	60.0 U	74.0 U	72.0 U	75.0 U	61.0 U	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	125 U	1,630	49,800	47,800	21,500	128 U	NA	NA	NA	NA	NA
Percent Moisture (percent)											
PERCENT MOISTURE	20.0	NA	35.0	NA	36.0	NA	NA	NA	NA	NA	NA
Miscellaneous											
PH	8.3	8	7.4	6.2	8.3	9.2	7.5	7.6	6.8	7.7	7.5

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

TABLE D-2

ANALYTICAL RESULTS FOR SURFACE WATER
FROID AND TAYLOR ROADS (SITE 9)

FROID AND TAYLOR SURFACE WATER DATASET FOR TABLE D-2
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT
SWATER	FTSSL102	217FTSSW106	11-Jun-98
SWATER	FTSSL103	217FTSSW107	11-Jun-98
SWATER	FTSSL104	217FTSSW108	11-Jun-98
SWATER	FTSSW001	281FTSSW001	11-Jul-95
SWATER	FTSSW001	281FTSSW101	17-Oct-95
SWATER	FTSSW001	281FTSSW101A	26-Oct-95
SWATER	FTSSW001	281FTSSW201	30-Jan-96
SWATER	FTSSW001	281FTSSW201A	31-Jan-96
SWATER	FTSSW001	281FTSSW301	30-Apr-96
SWATER	FTSSW001	281FTSSW301A	1-May-96
SWATER	FTSSW002	281FTSSW002	11-Jul-95
SWATER	FTSSW002	281FTSSW202	30-Jan-96
SWATER	FTSSW002	281FTSSW202A	31-Jan-96

Notes:

MATRIX	Media Sampled
SWATER	Surface Water
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSL102	FTSSL103	FTSSL104	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW002	FTSSW002
Sample ID	217FTSSW106	217FTSSW107	217FTSSW108	281FTSSW001	281FTSSW101	281FTSSW101A	281FTSSW201	281FTSSW201A	281FTSSW301	281FTSSW301A	281FTSSW002	281FTSSW202
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/11/1998	06/11/1998	06/11/1998	07/11/1995	10/17/1995	10/26/1995	01/30/1996	01/31/1996	04/30/1996	05/01/1996	07/11/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/L)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
1,1,2-TRICHLOROETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
1,1-DICHLOROETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
1,1-DICHLOROETHENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
1,2-DICHLOROETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
1,2-DICHLOROPROPANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
2-BUTANONE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
2-HEXANONE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
4-METHYL-2-PENTANONE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
ACETONE	NA	NA	NA	10 U	63 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
BENZENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
BROMODICHLOROMETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
BROMOFORM	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
BROMOMETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
CARBON DISULFIDE	NA	NA	NA	10 U	20 J	NA	10 U	NA	10 U	NA	10 UJ	10 U
CARBON TETRACHLORIDE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
CHLOROBENZENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
CHLOROETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
CHLOROFORM	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
CHLOROMETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
DIBROMOCHLOROMETHANE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
ETHYLBENZENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
METHYLENE CHLORIDE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
STYRENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
TETRACHLOROETHENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
TOLUENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
TRICHLOROETHENE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
VINYL CHLORIDE	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
XYLENE (TOTAL)	NA	NA	NA	10 U	10 U	NA	10 U	NA	10 U	NA	10 UJ	10 U
Semivolatiles (in µg/L)												
1,2,4-TRICHLOROBENZENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	6 U	5 U	25 U	NA	5 U	NA	5 U	NA	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	6 U	5 U	25 U	NA	5 U	NA	5 U	NA	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	6 U	5 U	25 U	NA	5 U	NA	5 U	NA	5 U	5 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSL102	FTSSL103	FTSSL104	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW002	FTSSW002
Sample ID	217FTSSW106	217FTSSW107	217FTSSW108	281FTSSW001	281FTSSW101	281FTSSW101A	281FTSSW201	281FTSSW201A	281FTSSW301	281FTSSW301A	281FTSSW002	281FTSSW202
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/11/1998	06/11/1998	06/11/1998	07/11/1995	10/17/1995	10/26/1995	01/30/1996	01/31/1996	04/30/1996	05/01/1996	07/11/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
2,2'-OXYBIS(1-CHLOROPROPANE)	10 UJ	10 UJ	11 UJ	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2,4,5-TRICHLOROPHENOL	26 U	26 U	28 U	25 U	120 U	NA	25 U	NA	25 U	NA	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2,4-DINITROPHENOL	26 UJ	26 UJ	28 UJ	25 UJ	120 U	NA	25 U	NA	25 U	NA	25 UJ	25 U
2,4-DINITROTOLUENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2-METHYLPHENOL	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
2-NITROANILINE	26 U	26 U	28 U	25 U	120 U	NA	25 U	NA	25 U	NA	25 U	25 U
2-NITROPHENOL	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	11 U	10 U	50 U	NA	10 UJ	NA	10 U	NA	10 U	10 U
3-NITROANILINE	26 U	26 U	28 U	25 U	120 U	NA	25 U	NA	25 U	NA	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	26 UJ	26 UJ	28 UJ	25 U	120 U	NA	25 U	NA	25 U	NA	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
4-CHLOROANILINE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
4-METHYLPHENOL	3 J	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
4-NITROANILINE	26 U	26 U	28 U	25 U	120 U	NA	25 U	NA	25 U	NA	25 U	25 U
4-NITROPHENOL	26 UJ	26 UJ	28 UJ	25 U	120 U	NA	25 U	NA	25 U	NA	25 U	25 U
ACENAPHTHENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
ANTHRACENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 UJ	4 U	20 U	NA	4 U	NA	4 U	NA	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
CARBAZOLE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
CHRYSENE	10 U	10 U	0.6 J	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSL102	FTSSL103	FTSSL104	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW002	FTSSW002
Sample ID	217FTSSW106	217FTSSW107	217FTSSW108	281FTSSW001	281FTSSW101	281FTSSW101A	281FTSSW201	281FTSSW201A	281FTSSW301	281FTSSW301A	281FTSSW002	281FTSSW202
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/11/1998	06/11/1998	06/11/1998	07/11/1995	10/17/1995	10/26/1995	01/30/1996	01/31/1996	04/30/1996	05/01/1996	07/11/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
DI-N-OCTYLPHTHALATE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
DIBENZ(A,H)ANTHRACENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
DIBENZOFURAN	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
FLUORANTHENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
FLUORENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
HEXACHLOROBENZENE	10 UJ	10 UJ	11 UJ	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 R	10 R	11 R	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
ISOPHORONE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
NAPHTHALENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
NITROBENZENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
PENTACHLOROPHENOL	26 U	26 U	28 U	25 U	120 U	NA	25 U	NA	25 U	NA	25 U	25 U
PHENANTHRENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
PHENOL	0.9 J	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
PYRENE	10 U	10 U	11 U	10 U	50 U	NA	10 U	NA	10 U	NA	10 U	10 U
TOTAL HIGH MOLECULAR PAHS	U	U	0.6	U	U	NA	U	NA	U	NA	U	U
TOTAL LOW MOLECULAR PAHS	U	U	U	U	U	NA	U	NA	U	NA	U	U
TOTAL PAHS	U	U	0.6	U	U	NA	U	NA	U	NA	U	U
Pesticides (in µg/L)												
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
ALDRIN	0.05 U	0.05 U	0.06 U	0.05 U	0.05 UJ	NA	0.05 U	NA	0.05 U	NA	0.05 UJ	0.05 U
ALPHA-BHC	0.05 U	0.05 U	0.06 U	0.05 U	0.05 UJ	NA	0.05 U	NA	0.05 U	NA	0.05 UJ	0.05 U
ALPHA-CHLORDANE	0.05 U	0.05 U	0.06 U	0.05 U	0.05 UJ	NA	0.05 U	NA	0.05 U	NA	0.05 UJ	0.05 U
AROCLOR-1016	0.5 U	0.5 U	0.6 U	0.5 U	0.5 UJ	NA	0.5 U	NA	0.5 U	NA	0.5 UJ	0.5 U
AROCLOR-1221	1 U	1 U	1 U	0.5 U	0.5 UJ	NA	0.5 U	NA	0.5 U	NA	0.5 UJ	0.5 U
AROCLOR-1232	0.5 U	0.5 U	0.6 U	0.5 U	0.5 UJ	NA	0.5 U	NA	0.5 U	NA	0.5 UJ	0.5 U
AROCLOR-1242	0.5 U	0.5 U	0.6 U	0.5 U	0.5 UJ	NA	0.5 U	NA	0.5 U	NA	0.5 UJ	0.5 U
AROCLOR-1248	0.5 U	0.5 U	0.6 U	0.5 U	0.5 UJ	NA	0.5 U	NA	0.5 U	NA	0.5 UJ	0.5 U
AROCLOR-1254	0.5 U	0.5 U	0.6 U	0.5 U	0.5 UJ	NA	0.5 U	NA	0.5 U	NA	0.5 UJ	0.5 U
AROCLOR-1260	0.5 U	0.5 U	0.6 U	0.5 U	0.5 UJ	NA	0.5 U	NA	0.5 U	NA	0.5 UJ	0.5 U
BETA-BHC	0.05 U	0.05 U	0.06 U	0.05 U	0.05 UJ	NA	0.05 U	NA	0.05 U	NA	0.05 UJ	0.05 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSL102	FTSSL103	FTSSL104	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW002	FTSSW002
Sample ID	217FTSSW106	217FTSSW107	217FTSSW108	281FTSSW001	281FTSSW101	281FTSSW101A	281FTSSW201	281FTSSW201A	281FTSSW301	281FTSSW301A	281FTSSW002	281FTSSW202
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/11/1998	06/11/1998	06/11/1998	07/11/1995	10/17/1995	10/26/1995	01/30/1996	01/31/1996	04/30/1996	05/01/1996	07/11/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/L)												
DELTA-BHC	0.05 U	0.05 U	0.06 U	0.05 U	0.05 UJ	NA	0.05 U	NA	0.05 U	NA	0.05 UJ	0.05 U
DIELDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
ENDOSULFAN I	0.05 U	0.05 U	0.06 U	0.05 U	0.05 UJ	NA	0.05 U	NA	0.05 U	NA	0.05 UJ	0.05 U
ENDOSULFAN II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
ENDOSULFAN SULFATE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
ENDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
ENDRIN ALDEHYDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
ENDRIN KETONE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	0.06 U	0.05 U	0.05 UJ	NA	0.05 U	NA	0.05 U	NA	0.05 UJ	0.05 U
GAMMA-CHLORDANE	0.05 U	0.05 U	0.06 U	0.05 U	0.05 UJ	NA	0.05 U	NA	0.05 U	NA	0.05 UJ	0.05 U
HEPTACHLOR	0.01 U	0.01 U	0.01 U	0.05 U	0.05 UJ	NA	0.05 U	NA	0.05 U	NA	0.05 UJ	0.05 U
HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	NA	0.01 U	NA	0.01 U	NA	0.01 UJ	0.01 U
METHOXYCHLOR	0.5 U	0.5 U	0.6 U	0.5 U	0.5 UJ	NA	0.5 U	NA	0.5 U	NA	0.5 UJ	0.5 U
TOXAPHENE	3 U	3 U	3 U	3 U	3 UJ	NA	3 U	NA	3 U	NA	3 UJ	3 U
TOTAL BHCS	U	U	U	U	U	NA	U	NA	U	NA	U	U
TOTAL CHLORDANES	U	U	U	U	U	NA	U	NA	U	NA	U	U
TOTAL DDTS	U	U	U	U	U	NA	U	NA	U	NA	U	U
Explosives (in µg/L)												
1,3,5-TRINITROBENZENE	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
1,3-DINITROBENZENE	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
2,4,6-TRINITROTOLUENE	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 UJ	NA	0.1 UJ	0.1 U
2,4-DINITROTOLUENE	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
2,6-DINITROTOLUENE	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
2-NITROTOLUENE	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
3-NITROTOLUENE	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
4-NITROTOLUENE	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
HMX	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 UJ	NA	0.1 UJ	0.1 U
NITROBENZENE	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 UJ	0.1 U
RDX	NA	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	0.1 UJ	NA	0.1 UJ	0.1 U
TETRYL	NA	NA	NA	0.1 U	0.1 UJ	NA	0.1 U	NA	0.1 UJ	NA	0.1 UJ	0.1 U
Petroleum Indicators (in mg/L)												
DIESEL RANGE ORGANICS	NA	NA	NA	0.3	2 J	NA	NA	0.1	NA	0.1 U	0.3	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	0.6	2 J	NA	NA	0.2	NA	0.6	0.8	NA
CLP Metals (in µg/L)												
ALUMINUM	196 UJ	446	461	343	1,610	NA	39.7 U	NA	116 J	NA	304	78.7 U
ANTIMONY	1.0 J	1.0 U	1.0 U	3.4 U	9.9	NA	1.6 U	NA	2.3 U	NA	2.9 U	1.6 U
ARSENIC	12.2	12.5	12.4	20.9	275	NA	3.0 J	NA	10.0	NA	29.7	2.2
BARIUM	253	220	242	221	809	NA	106	NA	159	NA	220	115

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSL102	FTSSL103	FTSSL104	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW001	FTSSW002	FTSSW002
Sample ID	217FTSSW106	217FTSSW107	217FTSSW108	281FTSSW001	281FTSSW101	281FTSSW101A	281FTSSW201	281FTSSW201A	281FTSSW301	281FTSSW301A	281FTSSW002	281FTSSW202
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/11/1998	06/11/1998	06/11/1998	07/11/1995	10/17/1995	10/26/1995	01/30/1996	01/31/1996	04/30/1996	05/01/1996	07/11/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
CLP Metals (in µg/L)												
BERYLLIUM	0.020 U	0.020 U	0.020 U	0.10 U	0.10 U	NA	0.10 U	NA	0.20 U	NA	0.10 U	0.10 U
CADMIUM	0.16 UJ	0.080 UJ	0.090 UJ	0.20 U	0.20 U	NA	0.20 UJ	NA	1.1	NA	0.20 U	0.20 U
CALCIUM	86,200	190,000	181,000	314,000	1,950,000	NA	182,000	NA	185,000	NA	231,000	68,800
CHROMIUM	2.6 UJ	2.5 UJ	2.7 UJ	1.8 U	6.9	NA	1.2 U	NA	1.7	NA	2.2 U	0.40 U
COBALT	1.2 J	1.7 J	1.8 J	3.9	5.1	NA	1.4 UJ	NA	2.3	NA	4.0	0.64 U
COPPER	3.8 J	3.5 J	2.9 J	12.7	10.8	NA	13.4 J	NA	3.5 U	NA	9.5	7.8
IRON	3,060	2,350	2,980	785	3,230	NA	477	NA	1,830 J	NA	8,480	186
LEAD	0.36 U	0.36 U	0.36 U	1.5 U	6.2 U	NA	0.80 U	NA	1.9 U	NA	4.0	0.80 U
MAGNESIUM	99,100	263,000	249,000	623,000	5,280,000	NA	209,000	NA	239,000	NA	452,000	55,700
MANGANESE	1,740	452	653	532	4,480	NA	207	NA	585	NA	1,060	310
MERCURY	0.10 U	0.10 U	0.10 U	0.13	0.21 U	NA	0.10 U	NA	0.20 U	NA	0.17	0.10 U
MOLYBDENUM	1.1 J	0.92 J	0.95 J	3.4 U	1.3	NA	4.6 J	NA	2.3	NA	3.4 U	3.3 U
NICKEL	5.3 J	11.9	11.2	25.6 U	44.7	NA	9.1 J	NA	15.4 U	NA	17.6 U	3.8
POTASSIUM	32,200 J	60,800 J	58,000 J	99,200	552,000	NA	41,000	NA	61,700	NA	74,200	14,800
SELENIUM	2.3	1.2	1.0	3.5 U	3.9 U	NA	2.4	NA	3.5 U	NA	3.4 U	2.3 U
SILVER	0.30 J	0.26 U	0.27 J	0.60 U	0.70 U	NA	0.78 UJ	NA	1.3 U	NA	0.60 U	0.50 U
SODIUM	859,000	1,730,000	1,830,000	4,020,000	28,300,000	NA	1,360,000	NA	1,600,000	NA	3,400,000	485,000
THALLIUM	2.2 UJ	1.3 U	2.0 UJ	2.0 U	8.4	NA	1.9 U	NA	4.7 U	NA	2.0 U	1.9 U
VANADIUM	5.5 J	6.4 J	7.0 J	10.0	29.8	NA	1.6 UJ	NA	4.1	NA	15.7	2.0 U
ZINC	21.9	8.4 UJ	10.7 UJ	44.1 U	58.0 U	NA	12.3 UJ	NA	9.4 U	NA	95.2	16.7 U
Anions, Solids, Sulfides, and TOC (in mg/L)												
SULFIDE	NA	NA	NA	NA	NA	0.88	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	NA	NA	NA	103	497	NA	30.5	NA	47.9	NA	135	18.7
TOTAL SUSPENDED SOLIDS	NA	NA	NA	57.0	5,520	NA	15.0	NA	23.0	NA	317	10.0 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSW002
Sample ID	281FTSSW202A
Matrix	SWATER
Sample Date	01/31/1996
Sample Depth (in feet)	0.00 - 0.00
Volatiles (in µg/L)	
1,1,1-TRICHLOROETHANE	NA
1,1,2,2-TETRACHLOROETHANE	NA
1,1,2-TRICHLOROETHANE	NA
1,1-DICHLOROETHANE	NA
1,1-DICHLOROETHENE	NA
1,2-DICHLOROETHANE	NA
1,2-DICHLOROETHENE (TOTAL)	NA
1,2-DICHLOROPROPANE	NA
2-BUTANONE	NA
2-HEXANONE	NA
4-METHYL-2-PENTANONE	NA
ACETONE	NA
BENZENE	NA
BROMODICHLOROMETHANE	NA
BROMOFORM	NA
BROMOMETHANE	NA
CARBON DISULFIDE	NA
CARBON TETRACHLORIDE	NA
CHLOROBENZENE	NA
CHLOROETHANE	NA
CHLOROFORM	NA
CHLOROMETHANE	NA
CIS-1,3-DICHLOROPROPENE	NA
DIBROMOCHLOROMETHANE	NA
ETHYLBENZENE	NA
METHYLENE CHLORIDE	NA
STYRENE	NA
TETRACHLOROETHENE	NA
TOLUENE	NA
TRANS-1,3-DICHLOROPROPENE	NA
TRICHLOROETHENE	NA
VINYL CHLORIDE	NA
XYLENE (TOTAL)	NA
Semivolatiles (in µg/L)	
1,2,4-TRICHLOROBENZENE	NA
1,2-DICHLOROBENZENE	NA
1,3-DICHLOROBENZENE	NA
1,4-DICHLOROBENZENE	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSW002
Sample ID	281FTSSW202A
Matrix	SWATER
Sample Date	01/31/1996
Sample Depth (in feet)	0.00 - 0.00
Semivolatiles (in µg/L)	
2,2'-OXYBIS(1-CHLOROPROPANE)	NA
2,4,5-TRICHLOROPHENOL	NA
2,4,6-TRICHLOROPHENOL	NA
2,4-DICHLOROPHENOL	NA
2,4-DIMETHYLPHENOL	NA
2,4-DINITROPHENOL	NA
2,4-DINITROTOLUENE	NA
2,6-DINITROTOLUENE	NA
2-CHLORONAPHTHALENE	NA
2-CHLOROPHENOL	NA
2-METHYLNAPHTHALENE	NA
2-METHYLPHENOL	NA
2-NITROANILINE	NA
2-NITROPHENOL	NA
3,3'-DICHLOROBENZIDINE	NA
3-NITROANILINE	NA
4,6-DINITRO-2-METHYLPHENOL	NA
4-BROMOPHENYL-PHENYLETHER	NA
4-CHLORO-3-METHYLPHENOL	NA
4-CHLOROANILINE	NA
4-CHLOROPHENYL-PHENYLETHER	NA
4-METHYLPHENOL	NA
4-NITROANILINE	NA
4-NITROPHENOL	NA
ACENAPHTHENE	NA
ACENAPHTHYLENE	NA
ANTHRACENE	NA
BENZO(A)ANTHRACENE	NA
BENZO(A)PYRENE	NA
BENZO(B)FLUORANTHENE	NA
BENZO(G,H,I)PERYLENE	NA
BENZO(K)FLUORANTHENE	NA
BIS(2-CHLOROETHOXY)METHANE	NA
BIS(2-CHLOROETHYL)ETHER	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA
BUTYLBENZYLPHTHALATE	NA
CARBAZOLE	NA
CHRYSENE	NA
DI-N-BUTYLPHTHALATE	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSW002
Sample ID	281FTSSW202A
Matrix	SWATER
Sample Date	01/31/1996
Sample Depth (in feet)	0.00 - 0.00
Semivolatiles (in µg/L)	
DI-N-OCTYLPHTHALATE	NA
DIBENZ(A,H)ANTHRACENE	NA
DIBENZOFURAN	NA
DIETHYLPHTHALATE	NA
DIMETHYLPHTHALATE	NA
FLUORANTHENE	NA
FLUORENE	NA
HEXACHLOROBENZENE	NA
HEXACHLOROBUTADIENE	NA
HEXACHLOROCYCLOPENTADIENE	NA
HEXACHLOROETHANE	NA
INDENO(1,2,3-CD)PYRENE	NA
ISOPHORONE	NA
N-NITROSO-DI-N-PROPYLAMINE	NA
N-NITROSODIPHENYLAMINE (1)	NA
NAPHTHALENE	NA
NITROBENZENE	NA
PENTACHLOROPHENOL	NA
PHENANTHRENE	NA
PHENOL	NA
PYRENE	NA
TOTAL HIGH MOLECULAR PAHS	NA
TOTAL LOW MOLECULAR PAHS	NA
TOTAL PAHS	NA
Pesticides (in µg/L)	
4,4'-DDD	NA
4,4'-DDE	NA
4,4'-DDT	NA
ALDRIN	NA
ALPHA-BHC	NA
ALPHA-CHLORDANE	NA
AROCLOR-1016	NA
AROCLOR-1221	NA
AROCLOR-1232	NA
AROCLOR-1242	NA
AROCLOR-1248	NA
AROCLOR-1254	NA
AROCLOR-1260	NA
BETA-BHC	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSW002
Sample ID	281FTSSW202A
Matrix	SWATER
Sample Date	01/31/1996
Sample Depth (in feet)	0.00 - 0.00
Pesticides (in µg/L)	
DELTA-BHC	NA
DIELDRIN	NA
ENDOSULFAN I	NA
ENDOSULFAN II	NA
ENDOSULFAN SULFATE	NA
ENDRIN	NA
ENDRIN ALDEHYDE	NA
ENDRIN KETONE	NA
GAMMA-BHC (LINDANE)	NA
GAMMA-CHLORDANE	NA
HEPTACHLOR	NA
HEPTACHLOR EPOXIDE	NA
METHOXYCHLOR	NA
TOXAPHENE	NA
TOTAL BHCS	NA
TOTAL CHLORDANES	NA
TOTAL DDTS	NA
Explosives (in µg/L)	
1,3,5-TRINITROBENZENE	NA
1,3-DINITROBENZENE	NA
2,4,6-TRINITROTOLUENE	NA
2,4-DINITROTOLUENE	NA
2,6-DINITROTOLUENE	NA
2-NITROTOLUENE	NA
3-NITROTOLUENE	NA
4-NITROTOLUENE	NA
HMX	NA
NITROBENZENE	NA
RDX	NA
TETRYL	NA
Petroleum Indicators (in mg/L)	
DIESEL RANGE ORGANICS	0.08 J
MOTOR OIL RANGE ORGANICS	0.1
CLP Metals (in µg/L)	
ALUMINUM	NA
ANTIMONY	NA
ARSENIC	NA
BARIUM	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table D-2
Site 9 - Froid and Taylor Roads
Surface Water Analytical Results

Point ID	FTSSW002
Sample ID	281FTSSW202A
Matrix	SWATER
Sample Date	01/31/1996
Sample Depth (in feet)	0.00 - 0.00
CLP Metals (in µg/L)	
BERYLLIUM	NA
CADMIUM	NA
CALCIUM	NA
CHROMIUM	NA
COBALT	NA
COPPER	NA
IRON	NA
LEAD	NA
MAGNESIUM	NA
MANGANESE	NA
MERCURY	NA
MOLYBDENUM	NA
NICKEL	NA
POTASSIUM	NA
SELENIUM	NA
SILVER	NA
SODIUM	NA
THALLIUM	NA
VANADIUM	NA
ZINC	NA
Anions, Solids, Sulfides, and TOC (in mg/L)	
SULFIDE	NA
TOTAL ORGANIC CARBON	NA
TOTAL SUSPENDED SOLIDS	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

TABLE D-3

ANALYTICAL RESULTS FOR TISSUE
FROID AND TAYLOR ROADS (SITE 9)

FROID AND TAYLOR ROADS TISSUE DATASET FOR TABLE D-3
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT
FHTISSUE	FTSTI103	217FTSTI109	11-Jun-98
AMTISSUE	FTSTI105	217FTSTI105	11-Jun-98

Notes:

MATRIX	Media Sampled
FHTISSUE	Fish Tissue
AMTISSUE	Amphipod Tissue
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected

Table D-3
Site 9 - Froid and Taylor Roads
Tissue Analytical Results

Point ID	FTSTI103	FTSTI105
Sample ID	217FTSTI109	217FTSTI105
Matrix	FHTISSUE	AMTISSUE
Sample Date	06/11/1998	06/11/1998
Low Level Pesticides (in µg/Kg)		
2,4'-DDD	4	3
2,4'-DDE	0.6 U	0.6 U
2,4'-DDT	0.4 U	0.4 U
4,4'-DDD	15	4 J
4,4'-DDE	6	5 UJ
4,4'-DDT	0.4 U	0.4 U
ALDRIN	0.2 U	0.2 U
ALPHA-BHC	0.6 UJ	0.5 U
ALPHA-CHLORDANE	2 U	0.7 UJ
BETA-BHC	0.3 U	0.3 U
CIS-NONACHLOR	3 UJ	3 U
DELTA-BHC	0.3 R	0.3 R
DIELDRIN	2	0.3 J
ENDOSULFAN I	0.2 U	0.2 U
ENDOSULFAN II	2 U	2 U
ENDOSULFAN SULFATE	0.3 UJ	0.3 UJ
ENDRIN	0.2 U	0.2 U
ENDRIN ALDEHYDE	0.2 UJ	0.2 UJ
ENDRIN KETONE	0.3 U	0.3 U
GAMMA-BHC (LINDANE)	0.5 U	0.5 J
GAMMA-CHLORDANE	0.7 U	0.2 J
HEPTACHLOR	0.3 U	0.3 U
HEPTACHLOR EPOXIDE	0.2 U	0.2 U
HEXACHLOROBENZENE	0.7	0.4 U
METHOXYCHLOR	1	0.7 U
MIREX	0.4 U	0.4 U
OXYCHLORDANE	0.4 U	0.4 U
PCB-101 (2,2',3,5,5')	2 UJ	2 UJ
PCB-105 (2,3,3',4,4')	0.5 U	0.5 U
PCB-114 (2,3,4,4',5)	0.4 U	0.4 U
PCB-118 (2,3',4,4',5)	2 UJ	2 UJ
PCB-123 (2',3,4,4',5)	0.8 U	0.8 U
PCB-126 (3,3',4,4',5)	0.6 U	0.6 U
PCB-128 (2,2',3,3',4,4')	0.4 U	0.4 U
PCB-138 (2,2',3,4,4',5')	2 J	3 UJ
PCB-153 (2,2',4,4',5,5')	2 J	3 UJ
PCB-156 (2,3,3',4,4',5)	0.4 J	0.2 U
PCB-157 (2,3,3',4,4',5')	0.4 UJ	0.4 UJ
PCB-167 (2,3',4,4',5,5')	0.9 UJ	0.9 UJ
PCB-169 (3,3',4,4',5,5')	0.2 U	0.2 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table D-3
Site 9 - Froid and Taylor Roads
Tissue Analytical Results

Point ID	FTSTI103	FTSTI105
Sample ID	217FTSTI109	217FTSTI105
Matrix	FHTISSUE	AMTISSUE
Sample Date	06/11/1998	06/11/1998
Low Level Pesticides (in µg/Kg)		
PCB-170 (2,2',3,3',4,4',5)	0.8 U	0.8 U
PCB-18 (2,2',5)	1 U	1 U
PCB-180 (2,2',3,4,4',5,5')	1	1
PCB-187 (2,2',3,4',5,5',6)	0.8 J	0.5 J
PCB-189 (2,3,3',4,4',5,5')	0.2 U	0.2 U
PCB-195 (2,2',3,3',4,4',5,6)	0.2 U	0.3
PCB-206 (2,2',3,3',4,4',5,5',6	2	0.3 U
PCB-209 (2,2',3,3',4,4',5,5',6	0.5 U	0.5 U
PCB-28 (2,4,4')	0.2 U	0.2 U
PCB-44 (2,2',3,5')	0.8 U	0.8 U
PCB-52 (2,2',5,5')	0.4 U	0.4 U
PCB-66 (2,3',4,4')	0.6 U	0.6 U
PCB-77 (3,3',4,4')	0.4 U	0.4 U
PCB-8 (2,4')	0.7 U	0.7 U
TOXAPHENE	100 U	100 U
TRANS-NONACHLOR	2 U	0.7 J
TOTAL BHCS	U	0.5
TOTAL CHLORDANES	U	0.2
TOTAL DDTS	25	7
TOTAL PCBS	16	4
CLP Metals (in mg/Kg)		
ALUMINUM	74.6	495
ANTIMONY	0.17 U	0.18 U
ARSENIC	0.23 U	0.77
BARIUM	4.3 J	35.8
BERYLLIUM	0.020 U	0.020 U
CADMIUM	0.020 U	0.020 U
CALCIUM	7,600	10,800
CHROMIUM	0.29 J	1.2
COBALT	0.10 U	0.66 J
COPPER	1.5	5.1
IRON	106	750
LEAD	0.22	1.9
MAGNESIUM	437	673
MANGANESE	13.9	72.0
MERCURY	0.090	0.030
MOLYBDENUM	0.10 U	0.10 U
NICKEL	0.19 J	1.3 J
POTASSIUM	893	271
SELENIUM	0.45	0.28
SILVER	0.070 U	0.070 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table D-3
Site 9 - Froid and Taylor Roads
Tissue Analytical Results

Point ID	FTSTI103	FTSTI105
Sample ID	217FTSTI109	217FTSTI105
Matrix	FHTISSUE	AMTISSUE
Sample Date	06/11/1998	06/11/1998
TCL Metals (in mg/kg)		
SODIUM	1,390	743
THALLIUM	0.30 U	0.33 J
VANADIUM	0.58 J	4.1
ZINC	21.2	11.0

Notes:

U = Not detected with detection limit indicated, J = Estimated value, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/16/03

APPENDIX E

ANALYTICAL DATA TABLES – TIDAL AREA WOOD HOGGER SITE

LIST OF TABLES

Table

E-1 ANALYTICAL RESULTS FOR SOIL, WOOD HOGGER SITE (SITE 11)

E-2 ANALYTICAL RESULTS FOR SURFACE WATER, WOOD HOGGER SITE (SITE 11)

E-3 ANALYTICAL RESULTS FOR TISSUE, WOOD HOGGER SITE (SITE 11)

Notes:

Point ID	Location of the sample.
Sample ID	Number assigned before the sample is sent to the analytical laboratory. The sample ID is separate from the point (location) ID to ensure that samples are sent blind to the laboratory.
Matrix	Sample media (soil, sediment, surface water, tissue).
Sample Date	Date of sample collection.
Sample Depth	Depth, in feet below ground surface (bgs). Soil or sediment samples collected from a depth of 0 to 0.5 feet bgs are considered surface soil or sediment, and samples collected below 0.5 feet bgs are considered subsurface samples. Surface water samples are collected at a depth of 0 feet bgs.
Result	Listed by analytical group; the concentration shown is the detected concentration. When the sample is not detected, the detection limit is shown.
Detection Limit	The detection limit achieved by the laboratory that is specific to the sample and analyte. The detection limit is different from the sample quantitation limit, which is not sample-specific and instead applies to the methodology.

TABLE E-1

ANALYTICAL RESULTS FOR SOIL
WOOD HOGGER (SITE 11)

WOOD HOGGER SOIL DATASET FOR TABLE E-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SOIL	S37-01	283S37SS005	11-Apr-95	0	1
SOIL	S37-02	283S37SS007	13-Apr-95	0	1
SOIL	S37-02	283S37SS008	13-Apr-95	4	5
SOIL	S37-03	283S37SS009	13-Apr-95	0	1
SOIL	S37-03	283S37SS010	13-Apr-95	5	6
SOIL	S37-04	283S37SS011	13-Apr-95	0	1
SOIL	S37-04	283S37SS012	13-Apr-95	5	6
SOIL	S37-05	283S37SS021	17-Apr-95	0.5	1.5
SOIL	S37-05	283S37SS022	17-Apr-95	5	6
SOIL	S37-06	283S37SS023	17-Apr-95	0.5	1.5
SOIL	S37-06	283S37SS024	17-Apr-95	5	6
SOIL	S37-07	283S37SS013	13-Apr-95	0	1
SOIL	S37-07	283S37SS014	13-Apr-95	5	6
SOIL	S37-08	283S37SS001	11-Apr-95	0	1
SOIL	S37-08	283S37SS002	11-Apr-95	5	6
SOIL	S37-09	283S37SS003	11-Apr-95	0	1
SOIL	S37-09	283S37SS004	11-Apr-95	4.5	5.5
SOIL	S37-10	283S37SS025	17-Apr-95	0.5	1
SOIL	S37-10	283S37SS026	17-Apr-95	3	4
SOIL	S37-11	283S37SS028	18-Apr-95	0.5	1.5
SOIL	S37-11	283S37SS029	18-Apr-95	5	6
SOIL	S37-12	283S37SS016	14-Apr-95	0.5	1.5
SOIL	S37-12	283S37SS017	14-Apr-95	5	6
SOIL	WHSSB001	281WHSSS073	8-Aug-95	0	0.5
SOIL	WHSSB002	281WHSSS086	9-Aug-95	0	0.5
SOIL	WHSSB003	281WHSSS074	8-Aug-95	0	0.5
SOIL	WHSSB004	281WHSSS087	9-Aug-95	0	0.5
SOIL	WHSSB005	281WHSSS081	9-Aug-95	0	0.5
SOIL	WHSSB006	281WHSSS082	9-Aug-95	0	0.5
SOIL	WHSSB007	033WHSSS502Z	10-Jun-98	0	0
SOIL	WHSSB007	281WHSSS083	9-Aug-95	0	0.5
SOIL	WHSSB008	033WHSSS505	10-Jun-98	0	0
SOIL	WHSSB008	281WHSSS008	17-Jul-95	0	0.5
SOIL	WHSSB009	033WHSSS508	10-Jun-98	0	0
SOIL	WHSSB009	281WHSSS001	17-Jul-95	0	0.5
SOIL	WHSSB010	033WHSSS507	10-Jun-98	0	0
SOIL	WHSSB010	281WHSSS002	17-Jul-95	0	0.5
SOIL	WHSSB011	281WHSSS084	9-Aug-95	0	0.5
SOIL	WHSSB012	281WHSSS009	17-Jul-95	0	0.5
SOIL	WHSSB013	281WHSSS003	17-Jul-95	0	0.5
SOIL	WHSSB014	281WHSSS004	17-Jul-95	0	0.5
SOIL	WHSSB015	281WHSSS005	17-Jul-95	0	0.5
SOIL	WHSSB016	033WHSSS506	10-Jun-98	0	0
SOIL	WHSSB016	281WHSSS006	17-Jul-95	0	0.5
SOIL	WHSSB017	033WHSSS503Z	10-Jun-98	0	0
SOIL	WHSSB017	281WHSSS010	17-Jul-95	0	0.5
SOIL	WHSSB018	033WHSSS501Z	10-Jun-98	0	0
SOIL	WHSSB018	281WHSSS076	9-Aug-95	0	0.5
SOIL	WHSSB019	033WHSSS504	10-Jun-98	0	0
SOIL	WHSSB019	281WHSSS027	19-Jul-95	0	0.5

WOOD HOGGER SOIL DATASET FOR TABLE E-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SOIL	WHSSB020	281WHSSS028	19-Jul-95	0	0.5
SOIL	WHSSB021	281WHSSS092	11-Aug-95	0	0.5
SOIL	WHSSB022	281WHSSS054	24-Jul-95	0	0.5
SOIL	WHSSB023	033WHSSS500Z	10-Jun-98	0	0
SOIL	WHSSB023	281WHSSS113	29-Aug-95	0	0.5
SOIL	WHSSB024	281WHSSS026	19-Jul-95	0	0.5
SOIL	WHSSB025	281WHSSS045	21-Jul-95	0	0.5
SOIL	WHSSB026	281WHSSS080	9-Aug-95	0	0.5
SOIL	WHSSB027	281WHSSS037	20-Jul-95	0	0.5
SOIL	WHSSB028	281WHSSS040	20-Jul-95	0	0.5
SOIL	WHSSB029	281WHSSS068	28-Jul-95	0	0.5
SOIL	WHSSB030	281WHSSS114	29-Aug-95	3.2	3.5
SOIL	WHSSB050	033WHSSS500	6-Feb-96	0	0.5
SOIL	WHSSB050	033WHSSS501	6-Feb-96	2	2.5
SOIL	WHSSB051	033WHSSS502	6-Feb-96	0	0.5
SOIL	WHSSB051	033WHSSS503	6-Feb-96	2	2.5
SOIL	WHSSBA02	281WHSSS085	9-Aug-95	0	0.5
SOIL	WHSSBA04	281WHSSS016	19-Jul-95	0	0.5
SOIL	WHSSBA06	281WHSSS106	25-Aug-95	0	0.5
SOIL	WHSSBA06	281WHSSS107	25-Aug-95	1	2
SOIL	WHSSBA06	281WHSSS108	25-Aug-95	4.5	5
SOIL	WHSSBA06	281WHSSS109	25-Aug-95	9	10.9
SOIL	WHSSBA06	281WHSSS110	25-Aug-95	13	14
SOIL	WHSSBA08	281WHSSS025	19-Jul-95	0	0.5
SOIL	WHSSBB01	281WHSSS042	21-Jul-95	0	0.5
SOIL	WHSSBB03	281WHSSS017	19-Jul-95	0	0.5
SOIL	WHSSBB05	281WHSSS049	24-Jul-95	0	0.5
SOIL	WHSSBB07	281WHSSS018	19-Jul-95	0	0.5
SOIL	WHSSBC02	281WHSSS047	21-Jul-95	0	0.5
SOIL	WHSSBC02	281WHSSS088	11-Aug-95	0	0.5
SOIL	WHSSBC02	281WHSSS089	11-Aug-95	1.3	2
SOIL	WHSSBC02	281WHSSS090	11-Aug-95	4	5.5
SOIL	WHSSBC02	281WHSSS091	11-Aug-95	8.8	10
SOIL	WHSSBC04	281WHSSS043	21-Jul-95	0	0.5
SOIL	WHSSBC06	281WHSSS075	9-Aug-95	0	0.5
SOIL	WHSSBC08	281WHSSS020	19-Jul-95	0	0.5
SOIL	WHSSBD01	281WHSSS044	21-Jul-95	0	0.5
SOIL	WHSSBD03	281WHSSS059	25-Jul-95	0	0.5
SOIL	WHSSBD03	281WHSSS060	26-Jul-95	1.5	2
SOIL	WHSSBD03	281WHSSS061	25-Jul-95	4.5	5.8
SOIL	WHSSBD03	281WHSSS062	25-Jul-95	9.5	10.4
SOIL	WHSSBD03	281WHSSS063	26-Jul-95	18.5	20
SOIL	WHSSBD07	281WHSSS012	18-Jul-95	0	0.5
SOIL	WHSSBD07	281WHSSS013	18-Jul-95	1.5	2.3
SOIL	WHSSBD07	281WHSSS014	18-Jul-95	4.5	5.3
SOIL	WHSSBD07	281WHSSS015	18-Jul-95	9.3	10
SOIL	WHSSBE02	281WHSSS019	19-Jul-95	0	0.5
SOIL	WHSSBE04	281WHSSS046	21-Jul-95	0	0.5
SOIL	WHSSBE06	281WHSSS022	19-Jul-95	0	0.5
SOIL	WHSSBE08	281WHSSS102	25-Aug-95	0	0.5

WOOD HOGGER SOIL DATASET FOR TABLE E-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SOIL	WHSSBE08	281WHSSS103	25-Aug-95	2.5	4
SOIL	WHSSBE08	281WHSSS104	25-Aug-95	5.5	6.5
SOIL	WHSSBE08	281WHSSS105	25-Aug-95	9	10.3
SOIL	WHSSBF03	281WHSSS055A	25-Jul-95	0	0.5
SOIL	WHSSBF03	281WHSSS056	25-Jul-95	1.5	2.3
SOIL	WHSSBF03	281WHSSS057	25-Jul-95	4.5	5.9
SOIL	WHSSBF03	281WHSSS058	25-Jul-95	9.5	10.8
SOIL	WHSSBF07	281WHSSS007	17-Jul-95	0	0.5
SOIL	WHSSBG02	281WHSSS093	11-Aug-95	0	0.5
SOIL	WHSSBG06	281WHSSS098	25-Aug-95	0	0.5
SOIL	WHSSBG06	281WHSSS099	25-Aug-95	1.1	2
SOIL	WHSSBG06	281WHSSS100	25-Aug-95	4.5	5
SOIL	WHSSBG06	281WHSSS101	25-Aug-95	9	11
SOIL	WHSSBG08	281WHSSS077	9-Aug-95	0	0.5
SOIL	WHSSBH03	281WHSSS011	18-Jul-95	0	0.5
SOIL	WHSSBH07	281WHSSS094	24-Aug-95	0	0.5
SOIL	WHSSBH07	281WHSSS096	24-Aug-95	4	5
SOIL	WHSSBH07	281WHSSS097	24-Aug-95	8	10.1
SOIL	WHSSBH07	281WHSSS115	31-Aug-95	1.3	2.3
SOIL	WHSSBI02	281WHSSS023	19-Jul-95	0	0.5
SOIL	WHSSBI06	281WHSSS029	20-Jul-95	0	0.5
SOIL	WHSSBI08	281WHSSS079	9-Aug-95	0	0.5
SOIL	WHSSBJ05	281WHSSS030	20-Jul-95	0	0.5
SOIL	WHSSBJ07	281WHSSS031	20-Jul-95	0	0.5
SOIL	WHSSBK04	281WHSSS032	20-Jul-95	0	0.5
SOIL	WHSSBK06	281WHSSS033	20-Jul-95	0	0.5
SOIL	WHSSBK06	281WHSSS034	20-Jul-95	1.5	2.3
SOIL	WHSSBK06	281WHSSS035	20-Jul-95	4.5	5.3
SOIL	WHSSBK06	281WHSSS036	20-Jul-95	9.5	10.4
SOIL	WHSSBK08	281WHSSS078	9-Aug-95	0	0.5
SOIL	WHSSBL05	281WHSSS024	19-Jul-95	0	0.5
SOIL	WHSSBL07	281WHSSS038	20-Jul-95	0	0.5
SOIL	WHSSBM04	281WHSSS039	20-Jul-95	0	0.5
SOIL	WHSSBM06	281WHSSS041	20-Jul-95	0	0.5
SOIL	WHSSBM08	281WHSSS064	28-Jul-95	0	0.5
SOIL	WHSSBM08	281WHSSS065	28-Jul-95	1	1.7
SOIL	WHSSBM08	281WHSSS066	28-Jul-95	4.1	5.2
SOIL	WHSSBM08	281WHSSS067	28-Jul-95	9	10.5

Notes:

MATRIX	Media Sampled
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected
TOPDEPTH	Top depth of the sample
BOTDEPTH	Bottom depth of the sample

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-01	S37-02	S37-02	S37-03	S37-03	S37-04	S37-04	S37-05	S37-05	S37-06	S37-06	S37-07
Sample ID	283S37SS005	283S37SS007	283S37SS008	283S37SS009	283S37SS010	283S37SS011	283S37SS012	283S37SS021	283S37SS022	283S37SS023	283S37SS024	283S37SS013
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/11/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/17/1995	04/17/1995	04/17/1995	04/17/1995	04/13/1995
Sample Depth (in feet)	0.00 - 1.00	0.00 - 1.00	4.00 - 5.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 1.00
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
1,1,2,2-TETRACHLOROETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
1,1,2-TRICHLOROETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
1,1-DICHLOROETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
1,1-DICHLOROETHENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
1,2-DICHLOROETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
1,2-DICHLOROETHENE (TOTAL)	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
1,2-DICHLOROPROPANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
2-BUTANONE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
2-HEXANONE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
4-METHYL-2-PENTANONE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
ACETONE	32 U	30 U	16 U	11 U	19 U	17 U	59 U	30 U	29 U	15 U	18 U	21 U
BENZENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
BROMODICHLOROMETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
BROMOFORM	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
BROMOMETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
CARBON DISULFIDE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
CARBON TETRACHLORIDE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
CHLOROBENZENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
CHLOROETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
CHLOROFORM	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
CHLOROMETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
CIS-1,3-DICHLOROPROPENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
DIBROMOCHLOROMETHANE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
ETHYLBENZENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
METHYLENE CHLORIDE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
STYRENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
TETRACHLOROETHENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
TOLUENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
TRANS-1,3-DICHLOROPROPENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
TRICHLOROETHENE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
VINYL CHLORIDE	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U
XYLENE (TOTAL)	11 U	12 U	13 U	11 UJ	12 U	12 UJ	12 U	12 U	12 U	11 U	12 U	13 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-01	S37-02	S37-02	S37-03	S37-03	S37-04	S37-04	S37-05	S37-05	S37-06	S37-06	S37-07
Sample ID	283S37SS005	283S37SS007	283S37SS008	283S37SS009	283S37SS010	283S37SS011	283S37SS012	283S37SS021	283S37SS022	283S37SS023	283S37SS024	283S37SS013
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/11/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/17/1995	04/17/1995	04/17/1995	04/17/1995	04/13/1995
Sample Depth (in feet)	0.00 - 1.00	0.00 - 1.00	4.00 - 5.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 1.00
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-01	S37-02	S37-02	S37-03	S37-03	S37-04	S37-04	S37-05	S37-05	S37-06	S37-06	S37-07
Sample ID	283S37SS005	283S37SS007	283S37SS008	283S37SS009	283S37SS010	283S37SS011	283S37SS012	283S37SS021	283S37SS022	283S37SS023	283S37SS024	283S37SS013
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/11/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/17/1995	04/17/1995	04/17/1995	04/17/1995	04/13/1995
Sample Depth (in feet)	0.00 - 1.00	0.00 - 1.00	4.00 - 5.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 1.00
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOTHIOPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-01	S37-02	S37-02	S37-03	S37-03	S37-04	S37-04	S37-05	S37-05	S37-06	S37-06	S37-07
Sample ID	283S37SS005	283S37SS007	283S37SS008	283S37SS009	283S37SS010	283S37SS011	283S37SS012	283S37SS021	283S37SS022	283S37SS023	283S37SS024	283S37SS013
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/11/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/17/1995	04/17/1995	04/17/1995	04/17/1995	04/13/1995
Sample Depth (in feet)	0.00 - 1.00	0.00 - 1.00	4.00 - 5.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 1.00
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
1,2-DICHLOROBENZENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
1,3-DICHLOROBENZENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
1,4-DICHLOROBENZENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2,2'-OXYBIS(1-CHLOROPROPANE)	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2,4,5-TRICHLOROPHENOL	940 UJ	970 U	1,100 U	890 U	1,000 U	1,000 U	970 U	990 U	1,000 U	930 U	1,000 U	1,100 U
2,4,6-TRICHLOROPHENOL	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2,4-DICHLOROPHENOL	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2,4-DIMETHYLPHENOL	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2,4-DINITROPHENOL	940 UJ	970 U	1,100 U	890 U	1,000 U	1,000 U	970 U	990 U	1,000 U	930 U	1,000 U	1,100 U
2,4-DINITROTOLUENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2,6-DINITROTOLUENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2-CHLORONAPHTHALENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2-CHLOROPHENOL	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2-METHYLNAPHTHALENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2-METHYLPHENOL	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
2-NITROANILINE	940 UJ	970 U	1,100 U	890 U	1,000 U	1,000 U	970 U	990 U	1,000 U	930 U	1,000 U	1,100 U
2-NITROPHENOL	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
3,3'-DICHLOROBENZIDINE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
3-NITROANILINE	940 UJ	970 U	1,100 U	890 U	1,000 U	1,000 U	970 U	990 U	1,000 U	930 U	1,000 U	1,100 U
4,6-DINITRO-2-METHYLPHENOL	940 UJ	970 U	1,100 U	890 U	1,000 U	1,000 U	970 U	990 U	1,000 U	930 U	1,000 U	1,100 U
4-BROMOPHENYL-PHENYLETHER	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
4-CHLORO-3-METHYLPHENOL	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
4-CHLOROANILINE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
4-CHLOROPHENYL-PHENYLETHER	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
4-METHYLPHENOL	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
4-NITROANILINE	940 UJ	970 U	1,100 U	890 U	1,000 U	1,000 U	970 U	990 U	1,000 U	930 U	1,000 U	1,100 U
4-NITROPHENOL	940 UJ	970 U	1,100 U	890 U	1,000 U	1,000 U	970 U	990 U	1,000 U	930 U	1,000 U	1,100 U
ACENAPHTHENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
ACENAPHTHYLENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
ANTHRACENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
BENZO(A)ANTHRACENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
BENZO(A)PYRENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
BENZO(B)FLUORANTHENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
BENZO(G,H,I)PERYLENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
BENZO(K)FLUORANTHENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
BIS(2-CHLOROETHOXY)METHANE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
BIS(2-CHLOROETHYL)ETHER	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
BIS(2-ETHYLHEXYL)PHTHALATE	370 UJ	390 U	430 U	350 U	540 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U

Notes:

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-01	S37-02	S37-02	S37-03	S37-03	S37-04	S37-04	S37-05	S37-05	S37-06	S37-06	S37-07
Sample ID	283S37SS005	283S37SS007	283S37SS008	283S37SS009	283S37SS010	283S37SS011	283S37SS012	283S37SS021	283S37SS022	283S37SS023	283S37SS024	283S37SS013
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/11/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/17/1995	04/17/1995	04/17/1995	04/17/1995	04/13/1995
Sample Depth (in feet)	0.00 - 1.00	0.00 - 1.00	4.00 - 5.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 1.00
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
CARBAZOLE	370 UJ	390 UJ	430 UJ	350 UJ	410 UJ	410 UJ	390 UJ	400 U	420 U	370 U	400 U	440 UJ
CHRYSENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
DI-N-BUTYLPHTHALATE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
DI-N-OCTYLPHTHALATE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
DIBENZ(A,H)ANTHRACENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
DIBENZOFURAN	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
DIETHYLPHTHALATE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
DIMETHYLPHTHALATE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
FLUORANTHENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
FLUORENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
HEXACHLOROBENZENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
HEXACHLOROBUTADIENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
HEXACHLOROCYCLOPENTADIENE	370 UJ	390 UJ	430 UJ	350 UJ	410 UJ	410 UJ	390 UJ	400 U	420 U	370 U	400 U	440 UJ
HEXACHLOROETHANE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
INDENO(1,2,3-CD)PYRENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
ISOPHORONE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
N-NITROSO-DI-N-PROPYLAMINE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
N-NITROSODIPHENYLAMINE (1)	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
NAPHTHALENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
NITROBENZENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
PENTACHLOROPHENOL	940 UJ	970 U	1,100 U	890 U	1,000 U	1,000 U	970 U	990 U	1,000 U	930 U	1,000 U	1,100 U
PHENANTHRENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
PHENOL	280 J	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
PYRENE	370 UJ	390 U	430 U	350 U	410 U	410 U	390 U	400 U	420 U	370 U	400 U	440 U
TOTAL HIGH MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL LOW MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL PAHS	U	U	U	U	U	U	U	U	U	U	U	U
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-01	S37-02	S37-02	S37-03	S37-03	S37-04	S37-04	S37-05	S37-05	S37-06	S37-06	S37-07
Sample ID	283S37SS005	283S37SS007	283S37SS008	283S37SS009	283S37SS010	283S37SS011	283S37SS012	283S37SS021	283S37SS022	283S37SS023	283S37SS024	283S37SS013
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/11/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/17/1995	04/17/1995	04/17/1995	04/17/1995	04/13/1995
Sample Depth (in feet)	0.00 - 1.00	0.00 - 1.00	4.00 - 5.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 1.00
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MIREX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-101 (2,2',3,5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-105 (2,3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-118 (2,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-126 (3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-128 (2,2',3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-138 (2,2',3,4,4',5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-153 (2,2',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-170 (2,2',3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-18 (2,2',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-180 (2,2',3,4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-187 (2,2',3,4',5,5',6)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-28 (2,4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-44 (2,2',3,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-52 (2,2',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-66 (2,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-77 (3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-8 (2,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-NONACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PCBS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides (in µg/Kg)												
4,4'-DDD	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
4,4'-DDE	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
4,4'-DDT	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
ALDRIN	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ALPHA-BHC	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ALPHA-CHLORDANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
AROCLOR-1016	37 U	39 U	43 U	35 U	41 U	41 U	39 U	40 U	42 U	37 U	40 U	44 U
AROCLOR-1221	75 U	78 U	87 U	71 U	81 U	82 U	78 U	79 U	83 U	74 U	80 U	88 U

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Site 11 - Wood Hogger
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Sample ID	283S37SS005	283S37SS007	283S37SS008	283S37SS009	283S37SS010	283S37SS011	283S37SS012	283S37SS021	283S37SS022	283S37SS023	283S37SS024	283S37SS013
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/11/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/17/1995	04/17/1995	04/17/1995	04/17/1995	04/13/1995
Sample Depth (in feet)	0.00 - 1.00	0.00 - 1.00	4.00 - 5.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 1.00
Pesticides (in µg/Kg)												
AROCLOR-1232	37 U	39 U	43 U	35 U	41 U	41 U	39 U	40 U	42 U	37 U	40 U	44 U
AROCLOR-1242	37 U	39 U	43 U	35 U	41 U	41 U	39 U	40 U	42 U	37 U	40 U	44 U
AROCLOR-1248	37 U	39 U	43 U	35 U	41 U	41 U	39 U	40 U	42 U	37 U	40 U	44 U
AROCLOR-1254	37 U	39 U	43 U	35 U	41 U	41 U	39 U	40 U	42 U	37 U	40 U	44 U
AROCLOR-1260	37 U	39 U	43 U	35 U	41 U	41 U	39 U	40 U	42 U	37 U	40 U	44 U
BETA-BHC	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
DELTA-BHC	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
DIELDRIN	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
ENDOSULFAN I	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ENDOSULFAN II	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
ENDOSULFAN SULFATE	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
ENDRIN	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
ENDRIN ALDEHYDE	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
ENDRIN KETONE	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
GAMMA-BHC (LINDANE)	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
GAMMA-CHLORDANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
HEPTACHLOR	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
HEPTACHLOR EPOXIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
METHOXYCHLOR	19 U	19 U	22 U	18 U	20 U	21 U	19 U	20 U	21 U	19 U	20 U	22 U
TOXAPHENE	190 U	190 U	220 U	180 U	200 U	210 U	190 U	200 U	210 U	190 U	200 U	220 U
TOTAL BHCS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL CHLORDANES	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL DDTS	U	U	U	U	U	U	U	U	U	U	U	U
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
1,3-DINITROBENZENE	120 U	120 U	120 U	130	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-TRINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4-DINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,6-DINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
3-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
4-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
HMX	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
NITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
RDX	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
TETRYL	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Site 11 - Wood Hogger
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Point ID	S37-01	S37-02	S37-02	S37-03	S37-03	S37-04	S37-04	S37-05	S37-05	S37-06	S37-06	S37-07
Sample ID	283S37SS005	283S37SS007	283S37SS008	283S37SS009	283S37SS010	283S37SS011	283S37SS012	283S37SS021	283S37SS022	283S37SS023	283S37SS024	283S37SS013
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/11/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/17/1995	04/17/1995	04/17/1995	04/17/1995	04/13/1995
Sample Depth (in feet)	0.00 - 1.00	0.00 - 1.00	4.00 - 5.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 1.00
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	16,400	5,230	13,000	19,400	6,480	11,000	10,700	12,800	8,800	3,350	5,260	6,500
ANTIMONY	0.48 J	0.44 UJ	0.68 J	0.64 J	0.46 UJ	0.47 UJ	0.44 UJ	0.72 J	0.48 UJ	0.42 UJ	0.46 UJ	0.50 UJ
ARSENIC	3.2 *	4.7 *	2.3 U	0.63 U	3.8 *	4.7 *	9.9 *	13.2 *	5.1 *	3.5 *	3.9 *	3.8 *
BARIUM	221	36.4	96.0	3.5	172	183	228	287	103	20.3	157	175
BERYLLIUM	0.020 U	0.040 U	0.030 U	0.020 U	0.020 U	0.16 U	0.020 U	0.020 U	0.060 U	0.090 U	0.020 U	0.36
CADMIUM	0.020 U	0.020 U	0.030 U	0.020 U	0.030 U	0.040 U	0.030 U	0.020 U	0.020 U	0.020 U	0.020 U	0.48
CALCIUM	7,570	2,070	5,810	11,300	3,450	2,710	4,430	5,070	4,360	824	3,370	5,220
CHROMIUM	31.2	10.5	15.4	19.8	17.9	20.8	39.6	37.3	18.5	7.0	12.3	12.5
COBALT	17.3	5.5	14.4	17.0	7.9	10.0	15.1	16.3	7.8	3.4	10.0	4.4
COPPER	32.9	9.2	32.3	20.0	14.8	26.7	39.7	32.7	13.5	4.6	10.8	11.4
IRON	26,600 *	10,300	20,400	28,400 *	13,400	19,300	27,300 *	25,500 *	15,100	7,190	12,000	8,480
LEAD	6.0	5.2	5.7	2.4	4.8	7.6	8.2	6.5	6.7	3.1	5.0	6.3
MAGNESIUM	10,900	3,110	8,890	15,400	4,300	7,220	7,690	8,690	5,000	1,890	3,430	3,210
MANGANESE	456	123	458	244	340	338	590	252	270	75.1	452	179
MERCURY	0.17 U	0.060 U	0.16 U	0.35	0.060 U	0.060 U	0.060 U	0.12 U	0.060 U	0.060 U	0.060 U	0.070 U
MOLYBDENUM	0.18 U	0.19 U	0.21 U	0.17 U	0.19 U	0.20 U	0.19 U	0.19 U	0.20 U	0.18 U	0.19 U	0.25 U
NICKEL	34.4	8.9	37.6	11.2	26.9	35.8	79.3	65.2	26.0	5.2 U	22.0	14.7
POTASSIUM	865 J	944 J	1,410 J	410 J	612 J	1,650 J	834 J	752 J	1,500 J	666 J	636 J	1,160 J
SELENIUM	0.78 U	0.81 U	0.91 U	0.74 U	0.85 U	0.87 U	0.82 U	0.84 U	0.88 U	0.78 U	0.84 U	0.92 U
SILVER	0.11 U	0.12 U	0.13 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.11 U	0.12 U	0.13 U
SODIUM	617	53.0 U	455	564	506	225	257	226	1,160	28.5 U	43.5 U	530
THALLIUM	0.38 U	0.35 U	0.39 U	0.63 U	0.36 U	0.37 U	0.38 U	1.1 U	1.2 U	0.33 U	1.4 U	0.39 U
VANADIUM	69.9	24.0	51.9	76.1	40.2	49.8	65.3	61.1	43.1	14.8	36.9	15.8
ZINC	41.7	29.8 U	38.3	19.3 U	36.7	55.7	62.0	67.2	39.3	23.2 U	28.4 U	30.0 U
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	620	100 U	100 U
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample ID	283S37SS005	283S37SS007	283S37SS008	283S37SS009	283S37SS010	283S37SS011	283S37SS012	283S37SS021	283S37SS022	283S37SS023	283S37SS024	283S37SS013
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/11/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/13/1995	04/17/1995	04/17/1995	04/17/1995	04/17/1995	04/13/1995
Sample Depth (in feet)	0.00 - 1.00	0.00 - 1.00	4.00 - 5.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 1.00
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	4.8	16.7	19.4	4.8	18.0	18.3	15.1	10.9	17.7	19.5	20.0	21.3
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	8.2	7.8	7.9	7.8	7.7	8	8.2	8.5	8.1	8	8.3	7.4

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-07	S37-08	S37-08	S37-09	S37-09	S37-10	S37-10	S37-11	S37-11	S37-12	S37-12	WHSSB001
Sample ID	283S37SS014	283S37SS001	283S37SS002	283S37SS003	283S37SS004	283S37SS025	283S37SS026	283S37SS028	283S37SS029	283S37SS016	283S37SS017	281WHSSS073
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/13/1995	04/11/1995	04/11/1995	04/11/1995	04/11/1995	04/17/1995	04/17/1995	04/18/1995	04/18/1995	04/14/1995	04/14/1995	08/08/1995
Sample Depth (in feet)	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	4.50 - 5.50	0.50 - 1.00	3.00 - 4.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 0.50
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
1,1,2,2-TETRACHLOROETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
1,1,2-TRICHLOROETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
1,1-DICHLOROETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
1,1-DICHLOROETHENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
1,2-DICHLOROETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
1,2-DICHLOROETHENE (TOTAL)	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
1,2-DICHLOROPROPANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
2-BUTANONE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
2-HEXANONE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
4-METHYL-2-PENTANONE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
ACETONE	43 U	14 U	17 U	11 U	12 U	32 U	21 U	70 U	22 U	19 U	33 U	NA
BENZENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
BROMODICHLOROMETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
BROMOFORM	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
BROMOMETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
CARBON DISULFIDE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
CARBON TETRACHLORIDE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
CHLOROBENZENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
CHLOROETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
CHLOROFORM	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
CHLOROMETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
CIS-1,3-DICHLOROPROPENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
DIBROMOCHLOROMETHANE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
ETHYLBENZENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
METHYLENE CHLORIDE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
STYRENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
TETRACHLOROETHENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
TOLUENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
TRANS-1,3-DICHLOROPROPENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
TRICHLOROETHENE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
VINYL CHLORIDE	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA
XYLENE (TOTAL)	13 U	11 U	12 U	11 U	12 U	11 U	12 U	11 U	12 U	12 U	12 U	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-07	S37-08	S37-08	S37-09	S37-09	S37-10	S37-10	S37-11	S37-11	S37-12	S37-12	WHSSB001
Sample ID	283S37SS014	283S37SS001	283S37SS002	283S37SS003	283S37SS004	283S37SS025	283S37SS026	283S37SS028	283S37SS029	283S37SS016	283S37SS017	281WHSSS073
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/13/1995	04/11/1995	04/11/1995	04/11/1995	04/11/1995	04/17/1995	04/17/1995	04/18/1995	04/18/1995	04/14/1995	04/14/1995	08/08/1995
Sample Depth (in feet)	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	4.50 - 5.50	0.50 - 1.00	3.00 - 4.00	0.50 - 1.50	5.00 - 6.00	0.50 1.50	5.00 6.00	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-07	S37-08	S37-08	S37-09	S37-09	S37-10	S37-10	S37-11	S37-11	S37-12	S37-12	WHSSB001
Sample ID	283S37SS014	283S37SS001	283S37SS002	283S37SS003	283S37SS004	283S37SS025	283S37SS026	283S37SS028	283S37SS029	283S37SS016	283S37SS017	281WHSSS073
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/13/1995	04/11/1995	04/11/1995	04/11/1995	04/11/1995	04/17/1995	04/17/1995	04/18/1995	04/18/1995	04/14/1995	04/14/1995	08/08/1995
Sample Depth (in feet)	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	4.50 - 5.50	0.50 - 1.00	3.00 - 4.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U
BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
DIBENZOTHIOPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 UJ
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U
PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U

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Soil Analytical Results

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Sample ID	283S37SS014	283S37SS001	283S37SS002	283S37SS003	283S37SS004	283S37SS025	283S37SS026	283S37SS028	283S37SS029	283S37SS016	283S37SS017	281WHSSS073
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/13/1995	04/11/1995	04/11/1995	04/11/1995	04/11/1995	04/17/1995	04/17/1995	04/18/1995	04/18/1995	04/14/1995	04/14/1995	08/08/1995
Sample Depth (in feet)	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	4.50 - 5.50	0.50 - 1.00	3.00 - 4.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 0.50
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
1,2-DICHLOROBENZENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
1,3-DICHLOROBENZENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
1,4-DICHLOROBENZENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2,4,5-TRICHLOROPHENOL	1,100 U	960 U	1,000 U	940 U	1,000 U	940 U	990 U	940 U	1,000 U	990 U	1,000 UJ	NA
2,4,6-TRICHLOROPHENOL	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2,4-DICHLOROPHENOL	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2,4-DIMETHYLPHENOL	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2,4-DINITROPHENOL	1,100 U	960 U	1,000 U	940 U	1,000 U	940 U	990 U	940 UJ	1,000 U	990 U	1,000 UJ	NA
2,4-DINITROTOLUENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2,6-DINITROTOLUENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2-CHLORONAPHTHALENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2-CHLOROPHENOL	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2-METHYLNAPHTHALENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2-METHYLPHENOL	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
2-NITROANILINE	1,100 U	960 U	1,000 U	940 U	1,000 U	940 U	990 U	940 U	1,000 U	990 U	1,000 UJ	NA
2-NITROPHENOL	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
3,3'-DICHLOROBENZIDINE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
3-NITROANILINE	1,100 U	960 U	1,000 U	940 U	1,000 U	940 U	990 U	940 U	1,000 U	990 U	1,000 UJ	NA
4,6-DINITRO-2-METHYLPHENOL	1,100 U	960 U	1,000 U	940 U	1,000 U	940 U	990 UJ	940 U	1,000 U	990 UJ	1,000 UJ	NA
4-BROMOPHENYL-PHENYLETHER	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
4-CHLORO-3-METHYLPHENOL	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
4-CHLOROANILINE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
4-CHLOROPHENYL-PHENYLETHER	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
4-METHYLPHENOL	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
4-NITROANILINE	1,100 U	960 U	1,000 U	940 U	1,000 U	940 U	990 U	940 U	1,000 U	990 U	1,000 UJ	NA
4-NITROPHENOL	1,100 U	960 U	1,000 U	940 U	1,000 U	940 U	990 U	940 U	1,000 U	990 U	1,000 UJ	NA
ACENAPHTHENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
ACENAPHTHYLENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
ANTHRACENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
BENZO(A)ANTHRACENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
BENZO(A)PYRENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 U	420 UJ	NA
BENZO(B)FLUORANTHENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 U	420 UJ	NA
BENZO(G,H,I)PERYLENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 U	420 UJ	NA
BENZO(K)FLUORANTHENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 U	420 UJ	NA
BIS(2-CHLOROETHOXY)METHANE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
BIS(2-CHLOROETHYL)ETHER	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
BIS(2-ETHYLHEXYL)PHTHALATE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 U	420 UJ	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-07	S37-08	S37-08	S37-09	S37-09	S37-10	S37-10	S37-11	S37-11	S37-12	S37-12	WHSSB001
Sample ID	283S37SS014	283S37SS001	283S37SS002	283S37SS003	283S37SS004	283S37SS025	283S37SS026	283S37SS028	283S37SS029	283S37SS016	283S37SS017	281WHSSS073
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/13/1995	04/11/1995	04/11/1995	04/11/1995	04/11/1995	04/17/1995	04/17/1995	04/18/1995	04/18/1995	04/14/1995	04/14/1995	08/08/1995
Sample Depth (in feet)	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	4.50 - 5.50	0.50 - 1.00	3.00 - 4.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 0.50
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
CARBAZOLE	430 UJ	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
CHRYSENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
DI-N-BUTYLPHTHALATE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
DI-N-OCTYLPHTHALATE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 U	420 UJ	NA
DIBENZ(A,H)ANTHRACENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 U	420 UJ	NA
DIBENZOFURAN	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
DIETHYLPHTHALATE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
DIMETHYLPHTHALATE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
FLUORANTHENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
FLUORENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
HEXACHLOROBENZENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
HEXACHLOROBUTADIENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
HEXACHLOROCYCLOPENTADIENE	430 UJ	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 UJ	420 UJ	NA
HEXACHLOROETHANE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
INDENO(1,2,3-CD)PYRENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 U	420 UJ	NA
ISOPHORONE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
N-NITROSO-DI-N-PROPYLAMINE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
N-NITROSODIPHENYLAMINE (1)	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
NAPHTHALENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
NITROBENZENE	430 U	380 U	400 U	370 U	400 U	370 U	400 U	370 U	410 U	400 U	420 UJ	NA
PENTACHLOROPHENOL	1,100 U	960 U	1,000 U	940 U	1,000 U	940 U	990 UJ	940 U	1,000 U	990 UJ	1,000 UJ	NA
PHENANTHRENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
PHENOL	430 U	380 U	400 U	370 U	400 U	200 J	230 J	370 U	410 U	400 U	420 UJ	NA
PYRENE	430 U	380 U	400 U	370 U	400 U	370 U	400 UJ	370 U	410 U	400 UJ	420 UJ	NA
TOTAL HIGH MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	NA
TOTAL LOW MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	NA
TOTAL PAHS	U	U	U	U	U	U	U	U	U	U	U	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-07	S37-08	S37-08	S37-09	S37-09	S37-10	S37-10	S37-11	S37-11	S37-12	S37-12	WHSSB001
Sample ID	283S37SS014	283S37SS001	283S37SS002	283S37SS003	283S37SS004	283S37SS025	283S37SS026	283S37SS028	283S37SS029	283S37SS016	283S37SS017	281WHSSS073
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/13/1995	04/11/1995	04/11/1995	04/11/1995	04/11/1995	04/17/1995	04/17/1995	04/18/1995	04/18/1995	04/14/1995	04/14/1995	08/08/1995
Sample Depth (in feet)	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	4.50 - 5.50	0.50 - 1.00	3.00 - 4.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 UJ
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 UJ
MIREX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 UJ
PCB-101 (2,2',3,5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5 J
PCB-105 (2,3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-118 (2,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
PCB-126 (3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-128 (2,2',3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-138 (2,2',3,4,4',5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
PCB-153 (2,2',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-170 (2,2',3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-18 (2,2',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-180 (2,2',3,4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-187 (2,2',3,4',5,5',6)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-195 (2,2',3,3',4,4',5,6)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-206 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-209 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-28 (2,4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-44 (2,2',3,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 UJ
PCB-52 (2,2',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
PCB-66 (2,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-77 (3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
PCB-8 (2,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
TRANS-NONACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4
TOTAL PCBS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8
Pesticides (in µg/Kg)												
4,4'-DDD	4 U	4 U	4 U	4 U	4 U	37 U	40 U	2 J	4 U	4 U	4 J	NA
4,4'-DDE	4 U	4 U	4 U	4 U	4 U	37 U	40 U	4 U	4 U	4 U	4 U	NA
4,4'-DDT	4 U	4 U	4 U	4 U	4 U	37 U	40 U	4 U	4 U	4 U	3 J	NA
ALDRIN	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
ALPHA-BHC	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
ALPHA-CHLORDANE	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
AROCLOR-1016	43 U	38 U	40 U	37 U	40 U	370 U	400 U	37 U	41 U	40 U	42 U	NA
AROCLOR-1221	85 U	77 U	80 U	75 U	80 U	750 U	790 U	75 U	81 U	80 U	83 U	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-07	S37-08	S37-08	S37-09	S37-09	S37-10	S37-10	S37-11	S37-11	S37-12	S37-12	WHSSB001
Sample ID	283S37SS014	283S37SS001	283S37SS002	283S37SS003	283S37SS004	283S37SS025	283S37SS026	283S37SS028	283S37SS029	283S37SS016	283S37SS017	281WHSSS073
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/13/1995	04/11/1995	04/11/1995	04/11/1995	04/11/1995	04/17/1995	04/17/1995	04/18/1995	04/18/1995	04/14/1995	04/14/1995	08/08/1995
Sample Depth (in feet)	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	4.50 - 5.50	0.50 - 1.00	3.00 - 4.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1232	43 U	38 U	40 U	37 U	40 U	370 U	400 U	37 U	41 U	40 U	42 U	NA
AROCLOR-1242	43 U	38 U	40 U	37 U	40 U	370 U	400 U	37 U	41 U	40 U	42 U	NA
AROCLOR-1248	43 U	38 U	40 U	37 U	40 U	370 U	400 U	37 U	41 U	40 U	42 U	NA
AROCLOR-1254	43 U	38 U	40 U	37 U	40 U	370 U	400 U	37 U	41 U	40 U	42 U	NA
AROCLOR-1260	43 U	38 U	40 U	37 U	40 U	370 U	400 U	37 U	41 U	40 U	42 U	NA
BETA-BHC	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
DELTA-BHC	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
DIELDRIN	4 U	4 U	4 U	4 U	4 U	37 U	40 U	4 U	4 U	4 U	4 U	NA
ENDOSULFAN I	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
ENDOSULFAN II	4 U	4 U	4 U	4 U	4 U	37 U	40 U	4 U	4 U	4 U	4 U	NA
ENDOSULFAN SULFATE	4 U	4 U	4 U	4 U	4 U	37 U	40 U	4 U	4 U	4 U	4 U	NA
ENDRIN	4 U	4 U	4 U	4 U	4 U	37 U	40 U	4 U	4 U	4 U	4 U	NA
ENDRIN ALDEHYDE	4 U	4 U	4 U	4 U	4 U	37 U	40 U	4 U	4 U	4 U	4 U	NA
ENDRIN KETONE	4 U	4 U	4 J	4 U	4 U	37 U	40 U	4 U	4 U	4 U	4 U	NA
GAMMA-BHC (LINDANE)	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
GAMMA-CHLORDANE	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
HEPTACHLOR	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
HEPTACHLOR EPOXIDE	2 U	2 U	2 U	2 U	2 U	19 U	20 U	2 U	2 U	2 U	2 U	NA
METHOXYCHLOR	21 U	19 U	20 U	19 U	20 U	190 U	200 U	19 U	20 U	20 U	21 U	NA
TOXAPHENE	210 U	190 U	200 U	190 U	200 U	1,900 U	2,000 U	190 U	200 U	200 U	210 U	NA
TOTAL BHCS	U	U	U	U	U	U	U	U	U	U	U	NA
TOTAL CHLORDANES	U	U	U	U	U	U	U	U	U	U	U	NA
TOTAL DDTS	U	U	U	U	U	U	U	2	U	U	6	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
1,3-DINITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
2,4,6-TRINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
2,4-DINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
2,6-DINITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
2-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
3-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
4-NITROTOLUENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
HMX	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
NITROBENZENE	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
RDX	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
TETRYL	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Point ID	S37-07	S37-08	S37-08	S37-09	S37-09	S37-10	S37-10	S37-11	S37-11	S37-12	S37-12	WHSSB001
Sample ID	283S37SS014	283S37SS001	283S37SS002	283S37SS003	283S37SS004	283S37SS025	283S37SS026	283S37SS028	283S37SS029	283S37SS016	283S37SS017	281WHSSS073
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/13/1995	04/11/1995	04/11/1995	04/11/1995	04/11/1995	04/17/1995	04/17/1995	04/18/1995	04/18/1995	04/14/1995	04/14/1995	08/08/1995
Sample Depth (in feet)	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	4.50 - 5.50	0.50 - 1.00	3.00 - 4.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 0.50
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	9,510	4,790	11,500	3,340	11,700	25,600	10,800	14,000	13,100	6,770	13,400	42,700
ANTIMONY	0.49 UJ	0.53 J	0.70 J	0.43 UJ	0.46 UJ	0.68 J	0.48 J	1.3 J	0.46 UJ	0.46 UJ	0.47 UJ	2.0 UJ
ARSENIC	3.9 *	8.2 *	4.3 *	3.4 *	4.6 *	3.6 *	2.7 J *	6.2 *	7.2 *	2.4 U	3.5 *	18.6 *
BARIUM	237	34.7	183	22.9	215	11.7	438	127	106	109	165	100
BERYLLIUM	0.17 U	0.060 U	0.25	0.040 U	0.15 U	0.020 U	0.020 U	0.020 U	0.050 U	0.17 U	0.070 U	0.84
CADMIUM	0.030 U	0.020 U	0.020 U	0.020 U	0.020 U	1.2	0.020 U	0.050 U	0.020 U	0.040 U	0.11 U	0.27 U
CALCIUM	4,030	1,830	3,520	1,200	3,090	10,200	4,940	6,670	10,900	2,900	4,080	5,330
CHROMIUM	15.0	10.4	20.3	6.4	23.9	23.3	29.0	62.9 J	25.2 J	13.1	25.9	122
COBALT	6.5	4.7	13.2	4.8	14.5	29.2	14.4	18.1	9.2	8.7	15.3	28.4
COPPER	14.8	9.9 J	27.1 J	6.1 J	29.3 J	86.0	33.3	60.8	22.3	17.9	37.3	96.0
IRON	13,900	11,700	20,200	7,580	21,000	36,000 *	22,900	25,200 *	20,000	12,000	20,800	73,300 *
LEAD	7.0	5.2	7.9	3.3	8.4	5.6	5.8 J	25.0 J	8.1 J	4.9	12.2	47.8
MAGNESIUM	5,580	3,080	7,610	2,280	7,650	13,000	8,900	9,550	7,380	5,380	7,410	17,700
MANGANESE	159	98.3	538	123	608	462	759	293	247	291	569	577
MERCURY	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U	0.51	0.12 U	0.22	0.060	0.060 U	0.13 U	0.49 J
MOLYBDENUM	0.21 U	0.18 U	0.19 U	0.18 U	0.19 U	0.18 U	0.19 UJ	0.18 U	0.20 U	0.19 U	0.20 U	3.6
NICKEL	20.7	7.0	47.5	6.3	51.0	18.6	46.5	45.0	38.7	26.0	50.0	123
POTASSIUM	1,990 J	1,100 J	2,400 J	768 J	2,110 J	706 J	659 J	1,180 J	1,980 J	1,100 J	1,680 J	6,520
SELENIUM	0.90 U	0.80 U	0.85 U	0.79 U	0.85 U	0.79 U	0.84 UJ	0.79 U	0.85 U	0.84 U	0.87 U	3.5
SILVER	0.13 U	0.11 U	0.12 U	0.11 U	0.12 U	1.3	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U	0.73 U
SODIUM	1,820	220	278	515	346	1,460	673	251	667	821	1,050	6,480
THALLIUM	0.39 U	0.34 U	0.36 U	0.34 U	0.36 U	0.34 U	0.37 U	1.0 U	0.48 U	0.36 U	0.93 U	1.2 U
VANADIUM	35.1	25.1	48.0	15.3	49.1	86.4	60.3	71.7	53.5	28.9	53.4	139
ZINC	40.1	37.6 U	64.1	24.6 U	68.1	46.0	56.6 J	88.7	50.2	37.8	58.5	268
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,350 J
TOTAL ORGANIC CARBON	100 U	34,500	8,550	100 U	100 U	100 U	1,350	100 U	3,180	100 U	100 U	47,800
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	S37-07	S37-08	S37-08	S37-09	S37-09	S37-10	S37-10	S37-11	S37-11	S37-12	S37-12	WHSSB001
Sample ID	283S37SS014	283S37SS001	283S37SS002	283S37SS003	283S37SS004	283S37SS025	283S37SS026	283S37SS028	283S37SS029	283S37SS016	283S37SS017	281WHSSS073
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	04/13/1995	04/11/1995	04/11/1995	04/11/1995	04/11/1995	04/17/1995	04/17/1995	04/18/1995	04/18/1995	04/14/1995	04/14/1995	08/08/1995
Sample Depth (in feet)	5.00 - 6.00	0.00 - 1.00	5.00 - 6.00	0.00 - 1.00	4.50 - 5.50	0.50 - 1.00	3.00 - 4.00	0.50 - 1.50	5.00 - 6.00	0.50 - 1.50	5.00 - 6.00	0.00 - 0.50
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	23.0	0.60	0.80	0.60	0.80	8.0	14.9	11.4	21.5	16.1	18.6	80.0
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	7.4	7.6	7.8	7.5	8.1	7.7	8	8.2	7.9	7.4	7.4	7.8

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB002	WHSSB003	WHSSB004	WHSSB005	WHSSB006	WHSSB007	WHSSB007	WHSSB008	WHSSB008	WHSSB009	WHSSB009	WHSSB010
Sample ID	281WHSSS086	281WHSSS074	281WHSSS087	281WHSSS081	281WHSSS082	033WHSSS502Z	281WHSSS083	033WHSSS505	281WHSSS008	033WHSSS508	281WHSSS001	033WHSSS507
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	08/08/1995	08/09/1995	08/09/1995	08/09/1995	06/10/1998	08/09/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB002	WHSSB003	WHSSB004	WHSSB005	WHSSB006	WHSSB007	WHSSB007	WHSSB008	WHSSB008	WHSSB009	WHSSB009	WHSSB010
Sample ID	281WHSSS086	281WHSSS074	281WHSSS087	281WHSSS081	281WHSSS082	033WHSSS502Z	281WHSSS083	033WHSSS505	281WHSSS008	033WHSSS508	281WHSSS001	033WHSSS507
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	08/08/1995	08/09/1995	08/09/1995	08/09/1995	06/10/1998	08/09/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
1,2,4-TRICHLOROBENZENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
1,2-DICHLOROBENZENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
1,3-DICHLOROBENZENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
1,4-DICHLOROBENZENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
1-METHYLNAPHTHALENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
1-METHYLPHENANTHRENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2,3,5-TRIMETHYLNAPHTHALENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2,4,5-TRICHLOROPHENOL	1,300 U	630 U	380 U	100 U	210 U	NA	110 U	NA	2,700 U	NA	600 U	NA
2,4,6-TRICHLOROPHENOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2,4-DICHLOROPHENOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2,4-DIMETHYLPHENOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2,4-DINITROPHENOL	1,300 U	630 U	380 U	100 U	210 U	NA	110 U	NA	2,700 U	NA	600 U	NA
2,4-DINITROTOLUENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2,6-DIMETHYLNAPHTHALENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2,6-DINITROTOLUENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2-CHLORONAPHTHALENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2-CHLOROPHENOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2-METHYLNAPHTHALENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2-METHYLPHENOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
2-NITROANILINE	1,300 U	630 U	380 U	100 U	210 U	NA	110 U	NA	2,700 U	NA	600 U	NA
2-NITROPHENOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
3,3'-DICHLOROBENZIDINE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
3-NITROANILINE	1,300 U	630 U	380 U	100 U	210 U	NA	110 U	NA	2,700 U	NA	600 U	NA
4,6-DINITRO-2-METHYLPHENOL	1,300 U	630 U	380 U	100 U	210 U	NA	110 U	NA	2,700 U	NA	600 U	NA
4-BROMOPHENYL-PHENYLETHER	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
4-CHLORO-3-METHYLPHENOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
4-CHLOROANILINE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
4-CHLOROPHENYL-PHENYLETHER	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
4-METHYLPHENOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
4-NITROANILINE	1,300 U	630 U	380 U	100 U	210 U	NA	110 U	NA	2,700 U	NA	600 U	NA
4-NITROPHENOL	1,300 U	630 U	380 U	100 U	210 U	NA	110 U	NA	2,700 U	NA	600 U	NA
ACENAPHTHENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	57 J	NA
ACENAPHTHYLENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
ANTHRACENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	390 J	NA	140 J	NA
BENZO(A)ANTHRACENE	530 U	250 U	150 U	41 U	110	NA	43 U	NA	1,800 U	NA	540 U	NA
BENZO(A)PYRENE	530 U	250 U	150 U	41 U	68 J *	NA	43 U	NA	1,900 U	NA	490 U	NA
BENZO(B)FLUORANTHENE	530 U	250 U	150 U	41 U	170	NA	43 U	NA	2,900 U	NA	690 U	NA

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Site 11 - Wood Hogger
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Sample ID	281WHSSS086	281WHSSS074	281WHSSS087	281WHSSS081	281WHSSS082	033WHSSS502Z	281WHSSS083	033WHSSS505	281WHSSS008	033WHSSS508	281WHSSS001	033WHSSS507
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	08/08/1995	08/09/1995	08/09/1995	08/09/1995	06/10/1998	08/09/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	530 U	250 U	150 U	41 U	110	NA	43 U	NA	1,800	NA	420	NA
BENZO(G,H,I)PERYLENE	530 U	250 U	150 U	41 U	46 J	NA	43 U	NA	1,100 U	NA	440 U	NA
BENZO(K)FLUORANTHENE	530 U	250 U	150 U	41 U	130	NA	43 U	NA	2,200 U	NA	570 U	NA
BENZOIC ACID	1,300 U	1,000	380 U	100 U	210 U	NA	110 U	NA	2,700 U	NA	78 J	NA
BENZYL ALCOHOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
BIS(2-CHLOROETHOXY)METHANE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
BIS(2-CHLOROETHYL)ETHER	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
BUTYLBENZYLPHTHALATE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
CARBAZOLE	530 U	250 U	150 U	41 U	49 J	NA	43 U	NA	200 J	NA	120 J	NA
CHRYSENE	530 U	250 U	150 U	41 U	360	NA	43 U	NA	2,900	NA	760 U	NA
DI-N-BUTYLPHTHALATE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
DI-N-OCTYLPHTHALATE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
DIBENZ(A,H)ANTHRACENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
DIBENZOFURAN	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
DIBENZOTHIOPHENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	25 J	NA
DIETHYLPHTHALATE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
DIMETHYLPHTHALATE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
FLUORANTHENE	530 U	250 U	150 U	41 U	260	NA	43 U	NA	1,200	NA	1,300	NA
FLUORENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	40 J	NA
HEXACHLOROBENZENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
HEXACHLOROBUTADIENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
HEXACHLOROCYCLOPENTADIENE	530 U	250 UJ	150 U	41 UJ	86 UJ	NA	43 UJ	NA	1,100 UJ	NA	250 UJ	NA
HEXACHLOROETHANE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
INDENO(1,2,3-CD)PYRENE	530 U	250 U	150 U	41 U	44 J	NA	43 U	NA	1,100 U	NA	410 U	NA
ISOPHORONE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
N-NITROSO-DI-N-PROPYLAMINE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
N-NITROSODIPHENYLAMINE (1)	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
NAPHTHALENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
NITROBENZENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
PENTACHLOROPHENOL	1,300 U	630 U	380 U	100 U	210 U	NA	110 U	NA	2,700 U	NA	120 J	NA
PERYLENE	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
PHENANTHRENE	530 U	250 U	150 U	41 U	56 J	NA	43 U	NA	240 J	NA	650	NA
PHENOL	530 U	250 U	150 U	41 U	86 U	NA	43 U	NA	1,100 U	NA	250 U	NA
PYRENE	530 U	250 U	150 U	41 U	240	NA	43 U	NA	1,600	NA	950	NA
TOTAL HIGH MOLECULAR PAHS	U	U	U	U	1,500	NA	U	NA	7,500	NA	2,700	NA
TOTAL LOW MOLECULAR PAHS	U	U	U	U	56	NA	U	NA	630	NA	890	NA
TOTAL PAHS	U	U	U	U	1,600	NA	U	NA	8,100	NA	3,600	NA

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB002	WHSSB003	WHSSB004	WHSSB005	WHSSB006	WHSSB007	WHSSB007	WHSSB008	WHSSB008	WHSSB009	WHSSB009	WHSSB010
Sample ID	281WHSSS086	281WHSSS074	281WHSSS087	281WHSSS081	281WHSSS082	033WHSSS502Z	281WHSSS083	033WHSSS505	281WHSSS008	033WHSSS508	281WHSSS001	033WHSSS507
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	08/08/1995	08/09/1995	08/09/1995	08/09/1995	06/10/1998	08/09/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Point ID	WHSSB002	WHSSB003	WHSSB004	WHSSB005	WHSSB006	WHSSB007	WHSSB007	WHSSB008	WHSSB008	WHSSB009	WHSSB009	WHSSB010
Sample ID	281WHSSS086	281WHSSS074	281WHSSS087	281WHSSS081	281WHSSS082	033WHSSS502Z	281WHSSS083	033WHSSS505	281WHSSS008	033WHSSS508	281WHSSS001	033WHSSS507
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	08/08/1995	08/09/1995	08/09/1995	08/09/1995	06/10/1998	08/09/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	0.3 UJ	0.5 U	0.4 J	0.1 UJ	0.4	NA	0.6	NA	1 J	NA	7 U	NA
2,4'-DDE	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.1 U	NA	7 U	NA
2,4'-DDT	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.5	NA	0.3 U	NA	0.3 J	NA	7 U	NA
4,4'-DDD	0.3 UJ	2	0.8 J	0.1 UJ	0.4	NA	2	NA	0.8 J	NA	280	NA
4,4'-DDE	0.8 J	2	0.8 J	0.1 UJ	0.9	NA	3	NA	0.4 J	NA	30	NA
4,4'-DDT	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	2	NA	9	NA	0.9	NA	14 J	NA
ALDRIN	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.1 U	NA	7 U	NA
ALPHA-CHLORDANE	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	1	NA	1	NA	0.4 J	NA	50	NA
DIELDRIN	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.6	NA	0.5	NA	0.1 U	NA	7 U	NA
GAMMA-BHC (LINDANE)	1 J	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.1 U	NA	7 U	NA

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	08/08/1995	08/09/1995	08/09/1995	08/09/1995	06/10/1998	08/09/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	0.7 J	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.7	NA	0.1 U	NA	7 U	NA
HEPTACHLOR EPOXIDE	0.3 UJ	0.5 UJ	0.2 UJ	0.1 UJ	0.2 J	NA	0.3 U	NA	0.1 U	NA	7 U	NA
HEXACHLOROBENZENE	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.1 U	NA	7 U	NA
MIREX	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.1	NA	0.3 U	NA	0.2 J	NA	7 U	NA
PCB-101 (2,2',3,5,5')	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.5	NA	1	NA	0.2 J	NA	7 U	NA
PCB-105 (2,3,3',4,4')	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.5	NA	0.6	NA	0.1 J	NA	7 U	NA
PCB-118 (2,3',4,4',5)	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.7	NA	1	NA	0.1 UJ	NA	7 U	NA
PCB-126 (3,3',4,4',5)	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.2	NA	0.3 U	NA	0.1 UJ	NA	7 U	NA
PCB-128 (2,2',3,3',4,4')	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.1 UJ	NA	7 U	NA
PCB-138 (2,2',3,4,4',5')	0.6 J	0.6 U	0.2 UJ	0.1 UJ	0.6	NA	1	NA	0.1 UJ	NA	7 J	NA
PCB-153 (2,2',4,4',5,5')	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.3	NA	0.9	NA	0.1 UJ	NA	7 U	NA
PCB-170 (2,2',3,3',4,4',5)	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.1 UJ	NA	7 U	NA
PCB-18 (2,2',5)	0.3 J	0.3 J	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.1 UJ	NA	7 U	NA
PCB-180 (2,2',3,4,4',5,5')	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.3	NA	0.4	NA	0.1 UJ	NA	7 U	NA
PCB-187 (2,2',3,4',5,5',6)	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.2	NA	0.3 U	NA	0.1 UJ	NA	7 U	NA
PCB-195 (2,2',3,3',4,4',5,6)	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.2 UJ	NA	7 U	NA
PCB-206 (2,2',3,3',4,4',5,5',6	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.2	NA	0.3 U	NA	0.3 UJ	NA	7 U	NA
PCB-209 (2,2',3,3',4,4',5,5',6	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.2	NA	0.3 U	NA	0.1 UJ	NA	7 U	NA
PCB-28 (2,4,4')	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.1 UJ	NA	7 U	NA
PCB-44 (2,2',3,5')	0.3 UJ	0.5 UJ	0.2 UJ	0.1 UJ	0.1 UJ	NA	0.3 J	NA	0.1 UJ	NA	7 U	NA
PCB-52 (2,2',5,5')	0.3 UJ	0.6	0.2 UJ	0.1 UJ	0.1 U	NA	0.6	NA	0.1 UJ	NA	7 U	NA
PCB-66 (2,3',4,4')	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.2	NA	1	NA	0.2 UJ	NA	7 U	NA
PCB-77 (3,3',4,4')	0.3 UJ	0.5 U	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 U	NA	0.1 UJ	NA	7 U	NA
PCB-8 (2,4')	0.4 J	1 J	0.2 UJ	0.1 UJ	0.1 U	NA	0.3 UJ	NA	0.1 UJ	NA	7 U	NA
TRANS-NONACHLOR	0.3 UJ	0.5 U	0.2 UJ	0.3 J	2	NA	0.9	NA	0.4 J	NA	34	NA
TOTAL BHCS	1	U	U	U	U	NA	U	NA	U	NA	U	NA
TOTAL CHLORDANES	U	U	U	U	1	NA	1	NA	0.4	NA	50	NA
TOTAL DDTS	0.8	3	2	U	4	NA	14	NA	3	NA	320	NA
TOTAL PCBS	3	4	U	U	7	NA	15	NA	0.6	NA	14	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB002	WHSSB003	WHSSB004	WHSSB005	WHSSB006	WHSSB007	WHSSB007	WHSSB008	WHSSB008	WHSSB009	WHSSB009	WHSSB010
Sample ID	281WHSSS086	281WHSSS074	281WHSSS087	281WHSSS081	281WHSSS082	033WHSSS502Z	281WHSSS083	033WHSSS505	281WHSSS008	033WHSSS508	281WHSSS001	033WHSSS507
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	08/08/1995	08/09/1995	08/09/1995	08/09/1995	06/10/1998	08/09/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00
Pesticides (in µg/Kg)												
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB002	WHSSB003	WHSSB004	WHSSB005	WHSSB006	WHSSB007	WHSSB007	WHSSB008	WHSSB008	WHSSB009	WHSSB009	WHSSB010
Sample ID	281WHSSS086	281WHSSS074	281WHSSS087	281WHSSS081	281WHSSS082	033WHSSS502Z	281WHSSS083	033WHSSS505	281WHSSS008	033WHSSS508	281WHSSS001	033WHSSS507
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	08/08/1995	08/09/1995	08/09/1995	08/09/1995	06/10/1998	08/09/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	30,400	30,600	19,600	15,500	12,700	NA	18,400	NA	6,940	NA	11,300	NA
ANTIMONY	2.9 J	2.2 J	2.4 J	0.95 J	0.97 J	NA	1.2 J	NA	0.53 UJ	NA	2.9 J	NA
ARSENIC	24.8 *	19.7 *	12.2 *	6.0 *	5.5 *	NA	5.7 *	NA	2.0 *	NA	11.6 *	NA
BARIUM	280	139	107	160	134	NA	282	NA	83.3	NA	75.1	NA
BERYLLIUM	0.81	0.78	0.28	0.49	0.41	NA	0.36	NA	0.19	NA	0.030 U	NA
CADMIUM	4.2	0.66	0.89	0.25	0.53	NA	0.43	NA	0.080	NA	4.7	NA
CALCIUM	7,320	11,000	5,550	11,500	5,700	NA	17,200	NA	2,240	NA	5,810	NA
CHROMIUM	65.8	81.1	50.3	26.0	25.3	NA	45.7	NA	17.9	NA	36.1	NA
COBALT	23.8	33.9	11.4	11.7	9.8	NA	13.7	NA	8.4	NA	15.2	NA
COPPER	104	77.3	78.7	19.7	22.2	NA	34.0	NA	14.0	NA	102	NA
IRON	54,600 *	59,800 *	28,800 *	21,000	19,200	NA	29,300 *	NA	9,030	NA	24,100 *	NA
LEAD	99.5	59.1	92.2	6.8	26.8	NA	17.7	NA	7.5	NA	167 *	NA
MAGNESIUM	12,400	12,700	8,010	6,400	6,090	NA	8,630	NA	4,050	NA	8,880	NA
MANGANESE	597	693	364	541	408	NA	417	NA	436 J	NA	652 J	NA
MERCURY	0.42	0.30 J	0.22	0.030	0.080	NA	0.070	NA	0.060	NA	0.28	NA
MOLYBDENUM	2.9	1.8	2.4	0.42 U	0.48	NA	0.84	NA	0.23 U	NA	0.34	NA
NICKEL	102	107	50.0	30.3	28.7	NA	53.2	NA	29.9	NA	27.5	NA
POTASSIUM	4,990	5,010	3,040	2,830	2,750	NA	2,870	NA	1,110 J	NA	1,620 J	NA
SELENIUM	1.8 U	2.2 U	0.75 U	0.74 U	0.77 U	NA	0.78 U	NA	0.86 U	NA	0.88 U	NA
SILVER	0.91 U	0.47 U	0.38 U	0.37 U	0.38 U	NA	0.39 U	NA	0.15 U	NA	1.6	NA
SODIUM	7,680	8,330	4,060	4,180	4,020	NA	6,660	NA	2,390	NA	1,870	NA
THALLIUM	0.27 U	0.83 U	0.20 U	0.090 UJ	0.13 U	NA	0.13 U	NA	0.51 U	NA	0.52 U	NA
VANADIUM	120	109	78.1	50.6	42.2	NA	71.5	NA	27.0	NA	50.2	NA
ZINC	605	394	166	48.3	109	NA	124	NA	33.1	NA	746	NA
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	2.0 U	NA	NA	NA	NA	50.0 U	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	4,770	145 J	3,010	12.4 U	12.9 U	NA	12.7 U	NA	13.0 UJ	NA	15.0 UJ	NA
TOTAL ORGANIC CARBON	31,400	46,900	44,000	878	44,300	NA	10,900	NA	3,750	NA	45,000	NA
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	2 U	NA	2 J	NA	100 J	NA	1 U
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	1 U	NA	1 U	NA	5 J(EM)	NA	0.7 U
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	2 U	NA	2 U	NA	8 J	NA	1 U
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	0.5 U	NA	0.6 U	NA	2 J	NA	0.3 U
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	0.6 U	NA	0.8 U	NA	1 U	NA	0.4 U

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Sample ID	281WHSSS086	281WHSSS074	281WHSSS087	281WHSSS081	281WHSSS082	033WHSSS502Z	281WHSSS083	033WHSSS505	281WHSSS008	033WHSSS508	281WHSSS001	033WHSSS507
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	08/08/1995	08/09/1995	08/09/1995	08/09/1995	06/10/1998	08/09/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	1 U	NA	1 U	NA	1 U	NA	0.8 U
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	0.3 U	NA	0.3 U	NA	0.6 U	NA	0.2 U
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	1 U	NA	1 U	NA	1 U	NA	0.8 U
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	0.3 U	NA	0.3 U	NA	0.6 U	NA	0.2 U
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	1 U	NA	1 U	NA	1 U	NA	0.8 U
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	0.4 U	NA	0.4 U	NA	0.7 U	NA	0.2 U
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	0.5 U	NA	0.5 U	NA	1 U	NA	0.2 U
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	0.3 U	NA	0.3 U	NA	0.4 U	NA	0.2 U
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	0.3 U	NA	0.4 U	NA	0.6 U	NA	0.2 U
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	0.3 U	NA	0.3 U	NA	0.4 U	NA	0.2 U
2,3,7,8-TCDD	NA	NA	NA	NA	NA	0.3 U	NA	0.3 U	NA	0.7 U	NA	0.1 U
2,3,7,8-TCDF	NA	NA	NA	NA	NA	0.2 U	NA	0.2 U	NA	0.3 U	NA	0.1 U
TOTAL HPCDD	NA	NA	NA	NA	NA	41 EMPC	NA	2 U	NA	15 J	NA	1 U
TOTAL HPCDF	NA	NA	NA	NA	NA	0.5 U	NA	0.6 U	NA	6 J(EM)	NA	0.3 U
TOTAL HXCDD	NA	NA	NA	NA	NA	1 U	NA	1 U	NA	1 U	NA	0.8 U
TOTAL HXCDF	NA	NA	NA	NA	NA	0.3 U	NA	0.3 U	NA	1 J(EM)	NA	0.2 U
TOTAL PECDD	NA	NA	NA	NA	NA	0.5 U	NA	0.5 U	NA	1 U	NA	0.2 U
TOTAL PECDF	NA	NA	NA	NA	NA	0.3 U	NA	0.3 U	NA	0.4 U	NA	0.2 U
TOTAL TCDD	NA	NA	NA	NA	NA	6 EMPC	NA	4 EMPC	NA	6 EMPC	NA	2 EMPC
TOTAL TCDF	NA	NA	NA	NA	NA	0.2 U	NA	0.2 U	NA	0.3 U	NA	0.1 U
Percent Moisture (percent)												
PERCENT MOISTURE	69.0	74.0	56.0	20.0	23.0	NA	23.0	NA	25.0	NA	33.0	NA
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	8.06	7.99	7.85	8.92	8.46	NA	7.9	NA	8.3	NA	7.1	NA

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB010	WHSSB011	WHSSB012	WHSSB013	WHSSB014	WHSSB015	WHSSB016	WHSSB016	WHSSB017	WHSSB017	WHSSB018	WHSSB018
Sample ID	281WHSSS002	281WHSSS084	281WHSSS009	281WHSSS003	281WHSSS004	281WHSSS005	033WHSSS506	281WHSSS006	033WHSSS503Z	281WHSSS010	033WHSSS501Z	281WHSSS076
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/17/1995	08/09/1995	07/17/1995	07/17/1995	07/17/1995	07/17/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998	08/09/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Soil Analytical Results

Point ID	WHSSB010	WHSSB011	WHSSB012	WHSSB013	WHSSB014	WHSSB015	WHSSB016	WHSSB016	WHSSB017	WHSSB017	WHSSB018	WHSSB018
Sample ID	281WHSSS002	281WHSSS084	281WHSSS009	281WHSSS003	281WHSSS004	281WHSSS005	033WHSSS506	281WHSSS006	033WHSSS503Z	281WHSSS010	033WHSSS501Z	281WHSSS076
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/17/1995	08/09/1995	07/17/1995	07/17/1995	07/17/1995	07/17/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998	08/09/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
1,2,4-TRICHLOROBENZENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
1,2-DICHLOROBENZENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
1,3-DICHLOROBENZENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
1,4-DICHLOROBENZENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
1-METHYLNAPHTHALENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
1-METHYLPHENANTHRENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
2,2'-OXYBIS(1-CHLOROPROPANE)	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
2,3,5-TRIMETHYLNAPHTHALENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
2,4,5-TRICHLOROPHENOL	390 U	230 U	1,000 U	820 U	6,900 U	1,400 U	NA	30,000 U	NA	2,000 U	NA	95 U
2,4,6-TRICHLOROPHENOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2,4-DICHLOROPHENOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2,4-DIMETHYLPHENOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2,4-DINITROPHENOL	390 U	230 U	1,000 U	820 U	6,900 U	1,400 U	NA	30,000 U	NA	2,000 U	NA	95 U
2,4-DINITROTOLUENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2,6-DIMETHYLNAPHTHALENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2,6-DINITROTOLUENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2-CHLORONAPHTHALENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2-CHLOROPHENOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2-METHYLNAPHTHALENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2-METHYLPHENOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
2-NITROANILINE	390 U	230 U	1,000 U	820 U	6,900 U	1,400 U	NA	30,000 U	NA	2,000 U	NA	95 U
2-NITROPHENOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
3,3'-DICHLOROBENZIDINE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
3-NITROANILINE	390 U	230 U	1,000 U	820 U	6,900 U	1,400 U	NA	30,000 U	NA	2,000 U	NA	95 U
4,6-DINITRO-2-METHYLPHENOL	390 U	230 U	1,000 U	820 U	6,900 U	1,400 U	NA	30,000 U	NA	2,000 U	NA	95 U
4-BROMOPHENYL-PHENYLETHER	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
4-CHLORO-3-METHYLPHENOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
4-CHLOROANILINE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
4-CHLOROPHENYL-PHENYLETHER	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
4-METHYLPHENOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	950 U	NA	38 U
4-NITROANILINE	390 U	230 U	1,000 U	820 U	6,900 U	1,400 U	NA	30,000 U	NA	2,000 U	NA	95 U
4-NITROPHENOL	390 U	230 U	1,000 U	820 U	6,900 U	1,400 U	NA	30,000 U	NA	2,000 U	NA	95 U
ACENAPHTHENE	27 J	92 U	410 U	210 J	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
ACENAPHTHYLENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
ANTHRACENE	70 J	92 U	410 U	360	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
BENZO(A)ANTHRACENE	230 U	92 U	410 U	750 U	2,800 U	590 U	NA	2,600 U	NA	840 U	NA	38 U
BENZO(A)PYRENE	200 U	92 U	410 U	740 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	20 J
BENZO(B)FLUORANTHENE	210 U	92 U	410 U	690 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	27 J

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB010	WHSSB011	WHSSB012	WHSSB013	WHSSB014	WHSSB015	WHSSB016	WHSSB016	WHSSB017	WHSSB017	WHSSB018	WHSSB018
Sample ID	281WHSSS002	281WHSSS084	281WHSSS009	281WHSSS003	281WHSSS004	281WHSSS005	033WHSSS506	281WHSSS006	033WHSSS503Z	281WHSSS010	033WHSSS501Z	281WHSSS076
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/17/1995	08/09/1995	07/17/1995	07/17/1995	07/17/1995	07/17/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998	08/09/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	120 J	92 U	51 J	510	630 J	150 J	NA	2,400 J	NA	150 J	NA	21 J
BENZO(G,H,I)PERYLENE	160 U	92 U	410 U	530 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
BENZO(K)FLUORANTHENE	210 U	92 U	410 U	740 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	20 J
BENZOIC ACID	390 U	230 U	1,000 U	820 UJ	6,900 U	1,400 U	NA	30,000 U	NA	2,000 U	NA	95 U
BENZYL ALCOHOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
BIS(2-CHLOROETHOXY)METHANE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
BIS(2-CHLOROETHYL)ETHER	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
BIS(2-ETHYLHEXYL)PHTHALATE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
BUTYLBENZYLPHTHALATE	160 U	92 U	78 J	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
CARBAZOLE	50 J	92 U	410 U	190 J	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
CHRYSENE	300 U	47 J	410 U	850 U	2,800 U	590 U	NA	7,500 U	NA	840 U	NA	28 J
DI-N-BUTYLPHTHALATE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
DI-N-OCTYLPHTHALATE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
DIBENZ(A,H)ANTHRACENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
DIBENZOFURAN	160 U	92 U	410 U	84 J	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
DIBENZOTHIOPHENE	160 U	92 U	410 U	53 J	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
DIETHYLPHTHALATE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
DIMETHYLPHTHALATE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
FLUORANTHENE	530	54 J	95 J	1,700	930 J	150 J	NA	5,400 J	NA	96 J	NA	50
FLUORENE	20 J	92 U	410 U	160 J	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
HEXACHLOROBENZENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
HEXACHLOROBUTADIENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
HEXACHLOROCYCLOPENTADIENE	160 U	92 U	410 UJ	340 UJ	2,800 UJ	590 UJ	NA	12,000 UJ	NA	840 UJ	NA	38 UJ
HEXACHLOROETHANE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
INDENO(1,2,3-CD)PYRENE	160 U	92 U	410 U	480 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
ISOPHORONE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
N-NITROSO-DI-N-PROPYLAMINE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
N-NITROSODIPHENYLAMINE (1)	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
NAPHTHALENE	160 U	92 U	410 U	110 J	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
NITROBENZENE	160 U	92 U	410 U	340 UJ	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
PENTACHLOROPHENOL	390 U	230 U	1,000 U	120 J	6,900 U	1,400 U	NA	30,000 U	NA	2,000 U	NA	95 U
PERYLENE	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
PHENANTHRENE	300	92 U	49 J	1,200	450 J	72 J	NA	4,000 J	NA	840 U	NA	22 J
PHENOL	160 U	92 U	410 U	340 U	2,800 U	590 U	NA	12,000 U	NA	840 U	NA	38 U
PYRENE	400	48 J	88 J	1,200	1,000 J	120 J	NA	3,900 J	NA	840 U	NA	37 J
TOTAL HIGH MOLECULAR PAHS	1,100	150	230	3,400	2,600	420	NA	12,000	NA	250	NA	200
TOTAL LOW MOLECULAR PAHS	420	U	49	2,000	450	72	NA	4,000	NA	U	NA	22
TOTAL PAHS	1,500	150	280	5,500	3,000	490	NA	16,000	NA	250	NA	230

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB010	WHSSB011	WHSSB012	WHSSB013	WHSSB014	WHSSB015	WHSSB016	WHSSB016	WHSSB017	WHSSB017	WHSSB018	WHSSB018
Sample ID	281WHSSS002	281WHSSS084	281WHSSS009	281WHSSS003	281WHSSS004	281WHSSS005	033WHSSS506	281WHSSS006	033WHSSS503Z	281WHSSS010	033WHSSS501Z	281WHSSS076
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/17/1995	08/09/1995	07/17/1995	07/17/1995	07/17/1995	07/17/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998	08/09/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Point ID	WHSSB010	WHSSB011	WHSSB012	WHSSB013	WHSSB014	WHSSB015	WHSSB016	WHSSB016	WHSSB017	WHSSB017	WHSSB018	WHSSB018
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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/17/1995	08/09/1995	07/17/1995	07/17/1995	07/17/1995	07/17/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998	08/09/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	0.2 U	0.1 UJ	0.3 J	4 J	8 J	7 J	NA	4 J	NA	1 U	NA	0.1 U
2,4'-DDE	0.2 U	0.1 UJ	0.1 U	2 U	3	2 U	NA	6 U	NA	0.5 J	NA	0.1 U
2,4'-DDT	0.2 U	0.3 J	0.1 U	2 U	11	2 U	NA	34	NA	5	NA	0.1 U
4,4'-DDD	0.4	0.1 UJ	0.2	50	30	9	NA	7 J	NA	1	NA	0.1 U
4,4'-DDE	0.2 U	0.4 J	0.3	6	12	6 J	NA	32	NA	2	NA	0.1 U
4,4'-DDT	0.3 J	0.6 J	0.6	3	69	14	NA	230	NA	30	NA	0.1 U
ALDRIN	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
ALPHA-CHLORDANE	0.9	0.4 J	0.3	8	17	78	NA	17	NA	1	NA	0.1 U
DIELDRIN	0.2 U	0.1 UJ	0.1 U	2 U	4	6	NA	6 U	NA	2	NA	0.1 U
GAMMA-BHC (LINDANE)	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	2 J	NA	0.5

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Soil Analytical Results

Point ID	WHSSB010	WHSSB011	WHSSB012	WHSSB013	WHSSB014	WHSSB015	WHSSB016	WHSSB016	WHSSB017	WHSSB017	WHSSB018	WHSSB018
Sample ID	281WHSSS002	281WHSSS084	281WHSSS009	281WHSSS003	281WHSSS004	281WHSSS005	033WHSSS506	281WHSSS006	033WHSSS503Z	281WHSSS010	033WHSSS501Z	281WHSSS076
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/17/1995	08/09/1995	07/17/1995	07/17/1995	07/17/1995	07/17/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998	08/09/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
HEPTACHLOR EPOXIDE	0.2 U	0.1 UJ	0.1 U	2 U	2 U	6 J	NA	6 U	NA	1 U	NA	0.1 U
HEXACHLOROBENZENE	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
MIREX	0.2 U	0.1 UJ	0.1 U	2 J	5	0.4 J	NA	6 U	NA	1 U	NA	0.1 U
PCB-101 (2,2',3,5,5')	0.2 U	0.1 J	0.1 U	5 J	7 J	3 J	NA	3 J	NA	1 U	NA	0.1 U
PCB-105 (2,3,3',4,4')	0.2 U	0.2 J	0.1 U	1 J	3 J	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-118 (2,3',4,4',5)	0.2 U	0.3 J	0.1 J	3 J	5 J	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-126 (3,3',4,4',5)	0.2 U	0.1 UJ	0.1 U	2 UJ	2 UJ	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-128 (2,2',3,3',4,4')	0.2 U	0.1 UJ	0.1 U	2 U	3 J	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-138 (2,2',3,4,4',5')	0.2 U	0.2 J	0.1 U	7 J	12 J	6 J	NA	6 U	NA	1 U	NA	0.1 U
PCB-153 (2,2',4,4',5,5')	0.2 U	0.1 UJ	0.1 U	5	9	5 J	NA	6 U	NA	1 U	NA	0.1 U
PCB-170 (2,2',3,3',4,4',5)	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-18 (2,2',5)	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-180 (2,2',3,4,4',5,5')	0.2 U	0.1 UJ	0.1 U	4	6	6	NA	4 J	NA	1 U	NA	0.1 U
PCB-187 (2,2',3,4',5,5',6)	0.2 U	0.1 UJ	0.1 U	0.4 J	2	4 J	NA	6 U	NA	1 U	NA	0.1 U
PCB-195 (2,2',3,3',4,4',5,6)	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-206 (2,2',3,3',4,4',5,5',6	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-209 (2,2',3,3',4,4',5,5',6	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-28 (2,4,4')	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-44 (2,2',3,5')	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-52 (2,2',5,5')	0.2 U	0.1 UJ	0.1 U	2 J	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-66 (2,3',4,4')	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-77 (3,3',4,4')	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.1 U
PCB-8 (2,4')	0.2 U	0.1 UJ	0.1 U	2 U	2 U	2 U	NA	6 U	NA	1 U	NA	0.2
TRANS-NONACHLOR	0.9	0.6 J	0.6	6	15	65	NA	29	NA	1 U	NA	0.1 U
TOTAL BHCS	U	U	U	U	U	U	NA	U	NA	2	NA	0.5
TOTAL CHLORDANES	0.9	0.4	0.3	8	17	78	NA	17	NA	1	NA	U
TOTAL DDTS	0.7	1	1	63	130	36	NA	310	NA	39	NA	U
TOTAL PCBS	U	2	0.2	55	94	48	NA	14	NA	U	NA	0.3
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB010	WHSSB011	WHSSB012	WHSSB013	WHSSB014	WHSSB015	WHSSB016	WHSSB016	WHSSB017	WHSSB017	WHSSB018	WHSSB018
Sample ID	281WHSSS002	281WHSSS084	281WHSSS009	281WHSSS003	281WHSSS004	281WHSSS005	033WHSSS506	281WHSSS006	033WHSSS503Z	281WHSSS010	033WHSSS501Z	281WHSSS076
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/17/1995	08/09/1995	07/17/1995	07/17/1995	07/17/1995	07/17/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998	08/09/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB010	WHSSB011	WHSSB012	WHSSB013	WHSSB014	WHSSB015	WHSSB016	WHSSB016	WHSSB017	WHSSB017	WHSSB018	WHSSB018
Sample ID	281WHSSS002	281WHSSS084	281WHSSS009	281WHSSS003	281WHSSS004	281WHSSS005	033WHSSS506	281WHSSS006	033WHSSS503Z	281WHSSS010	033WHSSS501Z	281WHSSS076
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/17/1995	08/09/1995	07/17/1995	07/17/1995	07/17/1995	07/17/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998	08/09/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	5,400	22,800	9,080	10,200	6,400	7,150	NA	7,010	NA	5,920	NA	21,800
ANTIMONY	0.61 J	0.71 J	0.67 J	4.9 J	7.1 J	2.1 J	NA	7.0 J	NA	1.2 J	NA	1.8 J
ARSENIC	9.1 *	5.6 *	4.0 *	15.2 *	13.2 *	6.9 *	NA	8.6 *	NA	3.4 *	NA	1.3 *
BARIUM	32.1	163	118	82.9	301	87.3	NA	139	NA	59.2	NA	37.0
BERYLLIUM	0.020 U	0.52	0.11	0.030 U	0.030 U	0.020 U	NA	0.050 U	NA	0.020 U	NA	0.010
CADMIUM	0.050	0.46	0.18	3.3	2.1	1.6	NA	2.4	NA	0.31	NA	0.64
CALCIUM	2,010	13,800	3,310	5,800	4,940	5,680	NA	7,680	NA	3,900	NA	12,800
CHROMIUM	27.2	49.2	24.2	30.2	122	25.8	NA	34.4	NA	21.9	NA	28.1
COBALT	13.0	14.7	8.6	12.9	7.6	7.9	NA	9.4	NA	9.7	NA	28.4
COPPER	7.6	30.9	18.1	67.4	49.3 U	40.8 U	NA	84.3	NA	45.7	NA	58.1
IRON	16,700	27,500 *	13,700	30,000 *	24,100 *	17,000	NA	25,300 *	NA	30,200 *	NA	43,200 *
LEAD	8.0	10.0	16.0	226 *	598 *	142	NA	211 *	NA	56.3	NA	5.4
MAGNESIUM	6,150	9,880	5,780	7,440	5,360	5,980	NA	5,690	NA	5,760	NA	18,800
MANGANESE	311 J	522	361 J	489 J	379 J	402 J	NA	627 J	NA	390 J	NA	928
MERCURY	0.060 U	0.070	0.080	0.33	0.22	0.24	NA	0.30	NA	0.11	NA	10.0
MOLYBDENUM	0.20 U	0.27 U	0.24 U	1.1	0.75	0.59	NA	0.46 U	NA	0.19 U	NA	0.32 U
NICKEL	47.4	62.5	34.6	25.5	16.6	18.9	NA	20.8	NA	37.5	NA	30.9
POTASSIUM	1,190 J	3,300	2,460 J	1,380 J	1,200 J	1,500 J	NA	1,010 J	NA	533 J	NA	887
SELENIUM	0.75 U	0.48 U	0.91 U	1.2	1.1 U	0.90	NA	1.7 U	NA	0.70 U	NA	0.56 U
SILVER	0.13 U	0.24 U	0.16 U	4.4	2.3	0.40	NA	1.1	NA	0.12 U	NA	0.28 U
SODIUM	878	2,760	3,230	1,640	2,420	1,910	NA	810	NA	36.9	NA	2,510
THALLIUM	0.44 U	0.14 U	0.54 U	0.66 U	0.65 U	0.48 U	NA	1.0 U	NA	0.41 U	NA	0.090 U
VANADIUM	29.3	65.1	36.4	43.0	28.1	29.5	NA	32.9	NA	30.2	NA	112
ZINC	49.2	71.7	74.6	467	426	258	NA	515	NA	94.9	NA	176
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	12.0 UJ	13.7 U	12.0 UJ	15.0 UJ	17.0 UJ	11.0 UJ	NA	19.0 UJ	NA	10.0 UJ	NA	11.4 U
TOTAL ORGANIC CARBON	6,050	5,800	12,000	44,900	110,000	131,000	NA	455,000	NA	51,100	NA	3,700
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	140 J	NA	7 J	NA	4 J	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	13 J	NA	1 U	NA	0.6 U	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	16 J	NA	1 U	NA	0.8 U	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	3 J	NA	0.4 U	NA	0.3 U	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	2 U	NA	0.6 U	NA	0.4 U	NA

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07/12/03

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Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB010	WHSSB011	WHSSB012	WHSSB013	WHSSB014	WHSSB015	WHSSB016	WHSSB016	WHSSB017	WHSSB017	WHSSB018	WHSSB018
Sample ID	281WHSSS002	281WHSSS084	281WHSSS009	281WHSSS003	281WHSSS004	281WHSSS005	033WHSSS506	281WHSSS006	033WHSSS503Z	281WHSSS010	033WHSSS501Z	281WHSSS076
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/17/1995	08/09/1995	07/17/1995	07/17/1995	07/17/1995	07/17/1995	06/10/1998	07/17/1995	06/10/1998	07/17/1995	06/10/1998	08/09/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	2 U	NA	0.8 U	NA	0.5 UJ	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	0.7 U	NA	0.3 U	NA	0.2 U	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	2 U	NA	0.8 U	NA	0.5 U	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	0.6 U	NA	0.2 U	NA	0.2 U	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	2 U	NA	0.8 U	NA	0.5 UJ	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	0.8 U	NA	0.3 U	NA	0.2 UJ	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	0.9 U	NA	0.4 U	NA	0.7 U	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	0.4 U	NA	0.2 U	NA	0.2 U	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	0.7 U	NA	0.3 U	NA	0.2 U	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	0.4 U	NA	0.2 U	NA	0.2 U	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	0.6 U	NA	0.3 U	NA	0.4 U	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	0.3 U	NA	0.1 U	NA	0.1 U	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	33 J	NA	1 U	NA	2 J	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	13 J	NA	0.9 J(EM)	NA	0.3 U	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	2 U	NA	0.8 U	NA	0.5 U	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	4 J	NA	0.2 U	NA	0.2 U	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	0.9 U	NA	0.4 U	NA	0.7 U	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	0.4 U	NA	0.2 U	NA	0.2 U	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	4 EMPC	NA	3 EMPC	NA	7 EMPC	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	0.3 U	NA	0.1 U	NA	0.1 U	NA
Percent Moisture (percent)												
PERCENT MOISTURE	19.0	28.0	20.0	35.0	42.0	7.0	NA	47.0	NA	2.0	NA	13.0
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	7.1	8.07	8.2	7	7	6.6	NA	5.6	NA	7.1	NA	7.84

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB019	WHSSB019	WHSSB020	WHSSB021	WHSSB022	WHSSB023	WHSSB023	WHSSB024	WHSSB025	WHSSB026	WHSSB027	WHSSB028
Sample ID	033WHSSS504	281WHSSS027	281WHSSS028	281WHSSS092	281WHSSS054	033WHSSS500Z	281WHSSS113	281WHSSS026	281WHSSS045	281WHSSS080	281WHSSS037	281WHSSS040
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	06/10/1998	07/19/1995	07/19/1995	08/11/1995	07/24/1995	06/10/1998	08/29/1995	07/19/1995	07/21/1995	08/09/1995	07/20/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB019	WHSSB019	WHSSB020	WHSSB021	WHSSB022	WHSSB023	WHSSB023	WHSSB024	WHSSB025	WHSSB026	WHSSB027	WHSSB028
Sample ID	033WHSSS504	281WHSSS027	281WHSSS028	281WHSSS092	281WHSSS054	033WHSSS500Z	281WHSSS113	281WHSSS026	281WHSSS045	281WHSSS080	281WHSSS037	281WHSSS040
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	06/10/1998	07/19/1995	07/19/1995	08/11/1995	07/24/1995	06/10/1998	08/29/1995	07/19/1995	07/21/1995	08/09/1995	07/20/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB019	WHSSB019	WHSSB020	WHSSB021	WHSSB022	WHSSB023	WHSSB023	WHSSB024	WHSSB025	WHSSB026	WHSSB027	WHSSB028
Sample ID	033WHSSS504	281WHSSS027	281WHSSS028	281WHSSS092	281WHSSS054	033WHSSS500Z	281WHSSS113	281WHSSS026	281WHSSS045	281WHSSS080	281WHSSS037	281WHSSS040
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	06/10/1998	07/19/1995	07/19/1995	08/11/1995	07/24/1995	06/10/1998	08/29/1995	07/19/1995	07/21/1995	08/09/1995	07/20/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOTHIOPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB019	WHSSB019	WHSSB020	WHSSB021	WHSSB022	WHSSB023	WHSSB023	WHSSB024	WHSSB025	WHSSB026	WHSSB027	WHSSB028
Sample ID	033WHSSS504	281WHSSS027	281WHSSS028	281WHSSS092	281WHSSS054	033WHSSS500Z	281WHSSS113	281WHSSS026	281WHSSS045	281WHSSS080	281WHSSS037	281WHSSS040
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	06/10/1998	07/19/1995	07/19/1995	08/11/1995	07/24/1995	06/10/1998	08/29/1995	07/19/1995	07/21/1995	08/09/1995	07/20/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Soil Analytical Results

Point ID	WHSSB019	WHSSB019	WHSSB020	WHSSB021	WHSSB022	WHSSB023	WHSSB023	WHSSB024	WHSSB025	WHSSB026	WHSSB027	WHSSB028
Sample ID	033WHSSS504	281WHSSS027	281WHSSS028	281WHSSS092	281WHSSS054	033WHSSS500Z	281WHSSS113	281WHSSS026	281WHSSS045	281WHSSS080	281WHSSS037	281WHSSS040
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	06/10/1998	07/19/1995	07/19/1995	08/11/1995	07/24/1995	06/10/1998	08/29/1995	07/19/1995	07/21/1995	08/09/1995	07/20/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB019	WHSSB019	WHSSB020	WHSSB021	WHSSB022	WHSSB023	WHSSB023	WHSSB024	WHSSB025	WHSSB026	WHSSB027	WHSSB028
Sample ID	033WHSSS504	281WHSSS027	281WHSSS028	281WHSSS092	281WHSSS054	033WHSSS500Z	281WHSSS113	281WHSSS026	281WHSSS045	281WHSSS080	281WHSSS037	281WHSSS040
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	06/10/1998	07/19/1995	07/19/1995	08/11/1995	07/24/1995	06/10/1998	08/29/1995	07/19/1995	07/21/1995	08/09/1995	07/20/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MIREX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-101 (2,2',3,5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-105 (2,3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-118 (2,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-126 (3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-128 (2,2',3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-138 (2,2',3,4,4',5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-153 (2,2',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-170 (2,2',3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-18 (2,2',5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-180 (2,2',3,4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-187 (2,2',3,4',5,5',6)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-28 (2,4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-44 (2,2',3,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB 52 (2,2',5,5')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-66 (2,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-77 (3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-8 (2,4')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-NONACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PCBS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample ID	033WHSSS504	281WHSSS027	281WHSSS028	281WHSSS092	281WHSSS054	033WHSSS500Z	281WHSSS113	281WHSSS026	281WHSSS045	281WHSSS080	281WHSSS037	281WHSSS040
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	06/10/1998	07/19/1995	07/19/1995	08/11/1995	07/24/1995	06/10/1998	08/29/1995	07/19/1995	07/21/1995	08/09/1995	07/20/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	06/10/1998	07/19/1995	07/19/1995	08/11/1995	07/24/1995	06/10/1998	08/29/1995	07/19/1995	07/21/1995	08/09/1995	07/20/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	NA	NA	NA	5,130	22,500	NA	20,700	32,500	11,400	21,600	12,500	11,100
ANTIMONY	NA	NA	NA	2.1 U	1.9 U	NA	1.2 UJ	2.8 J	0.63 U	2.0 J	1.7 J	0.64 U
ARSENIC	NA	NA	NA	19.2 *	3.8 J *	NA	11.8 *	5.8 *	4.5 *	9.6 *	3.4 *	6.9 *
BARIUM	NA	NA	NA	47.6	46.8	NA	70.5	45.4	73.8	80.2	183	124
BERYLLIUM	NA	NA	NA	0.10 U	0.020 U	NA	0.060 U	0.040 U	0.030 U	0.37	0.17	0.020 U
CADMIUM	NA	NA	NA	0.20 U	0.040 U	NA	0.11 U	0.090 U	0.050 U	1.1	0.050 U	0.040 U
CALCIUM	NA	NA	NA	7,240	10,800	NA	8,010	8,170	5,430 J	5,500	4,970	5,800
CHROMIUM	NA	NA	NA	21.6	28.3 J	NA	54.2	73.2	28.1	56.2	33.5	36.3
COBALT	NA	NA	NA	2.4	39.3	NA	23.3	30.2	12.5	15.8	10.5	12.4
COPPER	NA	NA	NA	29.2	89.0 J	NA	82.9	102	20.4	57.3	16.3	18.9
IRON	NA	NA	NA	3,570 J	70,400 J *	NA	48,400 *	55,300 *	20,400	42,700 *	15,000	20,000
LEAD	NA	NA	NA	39.3	8.4 J	NA	81.4	31.0 J	21.4	27.5	10.7 J	150
MAGNESIUM	NA	NA	NA	8,260	22,400	NA	14,000	21,500	7,020	10,300	3,630	6,670
MANGANESE	NA	NA	NA	55.3	1,270	NA	702 J	652 J	418 J	374	477 J	463 J
MERCURY	NA	NA	NA	0.25 U	18.5 J	NA	0.27	7.1	0.070	0.22	0.070	0.050 U
MOLYBDENUM	NA	NA	NA	5.0	0.20 U	NA	1.9	0.39 U	0.23 U	4.2	0.22 U	0.19 U
NICKEL	NA	NA	NA	27.2	23.6	NA	68.4	63.2	33.8	68.2	29.2	53.2
POTASSIUM	NA	NA	NA	2,200 J	1,170 J	NA	3,930 J	4,450 J	1,850 J	3,490	1,260 J	1,770 J
SELENIUM	NA	NA	NA	3.4 U	0.76 U	NA	1.9 U	1.5 U	0.87 U	1.6 U	0.82 U	0.70 U
SILVER	NA	NA	NA	0.60 U	0.13 U	NA	0.34 U	0.26 U	0.15 U	0.80 U	0.14 U	0.12 U
SODIUM	NA	NA	NA	23,400 J	1,550 J	NA	6,340	1,710	1,470 J	6,130	2,960	163 J
THALLIUM	NA	NA	NA	2.0 U	0.45 U	NA	1.1 U	1.1	0.51 U	0.42 U	1.1	0.41 U
VANADIUM	NA	NA	NA	41.4	136	NA	83.9	139	64.8	82.3	45.5	47.3
ZINC	NA	NA	NA	82.1 J	164	NA	322	224	153	207	36.0	71.9
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	10 J	4	0.4 J	NA	NA	9 J	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	1 U	0.2 U	0.08 U	NA	NA	0.5 J	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	1 U	0.5	0.06 U	NA	NA	2 J	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	0.4 U	0.1 J	0.08 U	NA	NA	0.2 J	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	0.6 U	0.04 U	0.08 U	NA	NA	0.4 U	NA	NA	NA	NA	NA	NA

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Point ID	WHSSB019	WHSSB019	WHSSB020	WHSSB021	WHSSB022	WHSSB023	WHSSB023	WHSSB024	WHSSB025	WHSSB026	WHSSB027	WHSSB028
Sample ID	033WHSSS504	281WHSSS027	281WHSSS028	281WHSSS092	281WHSSS054	033WHSSS500Z	281WHSSS113	281WHSSS026	281WHSSS045	281WHSSS080	281WHSSS037	281WHSSS040
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	06/10/1998	07/19/1995	07/19/1995	08/11/1995	07/24/1995	06/10/1998	08/29/1995	07/19/1995	07/21/1995	08/09/1995	07/20/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	0.6 U	0.05 U	0.07 U	NA	NA	0.8 U	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	0.3 U	0.02 U	0.06 U	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	0.6 U	0.05 U	0.07 U	NA	NA	0.7 U	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	0.3 U	0.02 U	0.06 U	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	0.6 U	0.05 U	0.07 U	NA	NA	0.7 U	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	0.3 U	0.02 U	0.06 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	0.5 U	0.08 U	0.06 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	0.2 U	0.09 U	0.04 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	0.3 U	0.02 U	0.06 U	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	0.2 U	0.09 U	0.04 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	0.3 U	0.02 U	0.03 U	NA	NA	0.5 U	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	0.1 U	0.06 U	0.1 U	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	8 J(EM)	0.8	0.1 U	NA	NA	6 J(EM)	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	0.4 U	0.3 J	0.08 U	NA	NA	0.8 J(EM)	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	0.6 U	0.05 U	0.07 U	NA	NA	0.7 U	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	0.3 U	0.2 U	0.06 U	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA
TOTAL PECDD	0.5 U	0.08 U	0.06 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA
TOTAL PECDF	0.2 U	0.09 U	0.04 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	NA
TOTAL TCDD	4 EMPC	0.02 U	0.03 U	NA	NA	13 EMPC	NA	NA	NA	NA	NA	NA
TOTAL TCDF	0.1 U	0.06 U	0.1 U	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	NA	18.0	54.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	NA	NA	NA	6.5	8.8	NA	7.8	7.2	7.7	7.62	7.7	8.4

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB029	WHSSB030	WHSSB050	WHSSB050	WHSSB051	WHSSB051	WHSSBA02	WHSSBA04	WHSSBA06	WHSSBA06	WHSSBA06	WHSSBA06
Sample ID	281WHSSS068	281WHSSS114	033WHSSS500	033WHSSS501	033WHSSS502	033WHSSS503	281WHSSS085	281WHSSS016	281WHSSS106	281WHSSS107	281WHSSS108	281WHSSS109
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/28/1995	08/29/1995	02/06/1996	02/06/1996	02/06/1996	02/06/1996	08/09/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995
Sample Depth (in feet)	0.00 - 0.50	3.20 - 3.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 2.00	4.50 - 5.00	9.00 - 10.90
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	56 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	160	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	56 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	21 U
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	51 U	37 U	110 U
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	19 U	13 U
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	12 U	12 U	13 U

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB029	WHSSB030	WHSSB050	WHSSB050	WHSSB051	WHSSB051	WHSSBA02	WHSSBA04	WHSSBA06	WHSSBA06	WHSSBA06	WHSSBA06
Sample ID	281WHSSS068	281WHSSS114	033WHSSS500	033WHSSS501	033WHSSS502	033WHSSS503	281WHSSS085	281WHSSS016	281WHSSS106	281WHSSS107	281WHSSS108	281WHSSS109
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/28/1995	08/29/1995	02/06/1996	02/06/1996	02/06/1996	02/06/1996	08/09/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995
Sample Depth (in feet)	0.00 - 0.50	3.20 - 3.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 2.00	4.50 - 5.00	9.00 - 10.90
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	420 U	87 U	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	420 U	87 U	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	420 U	87 U	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	170 U	35 UJ	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	420 U	87 UJ	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	420 U	87 U	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	420 U	87 UJ	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	420 U	87 U	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB029	WHSSB030	WHSSB050	WHSSB050	WHSSB051	WHSSB051	WHSSBA02	WHSSBA04	WHSSBA06	WHSSBA06	WHSSBA06	WHSSBA06
Sample ID	281WHSSS068	281WHSSS114	033WHSSS500	033WHSSS501	033WHSSS502	033WHSSS503	281WHSSS085	281WHSSS016	281WHSSS106	281WHSSS107	281WHSSS108	281WHSSS109
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/28/1995	08/29/1995	02/06/1996	02/06/1996	02/06/1996	02/06/1996	08/09/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995
Sample Depth (in feet)	0.00 - 0.50	3.20 - 3.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 2.00	4.50 - 5.00	9.00 - 10.90
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	170 U	87 U	NA	NA	NA
BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 UJ	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
DIBENZOTHIOPHENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	420 U	87 U	NA	NA	NA
PERYLENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	170 U	35 U	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	U	U	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	U	U	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	U	U	NA	NA	NA

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Site 11 - Wood Hogger
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Point ID	WHSSB029	WHSSB030	WHSSB050	WHSSB050	WHSSB051	WHSSB051	WHSSBA02	WHSSBA04	WHSSBA06	WHSSBA06	WHSSBA06	WHSSBA06
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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/28/1995	08/29/1995	02/06/1996	02/06/1996	02/06/1996	02/06/1996	08/09/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995
Sample Depth (in feet)	0.00 - 0.50	3.20 - 3.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 2.00	4.50 - 5.00	9.00 - 10.90
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
1,2-DICHLOROBENZENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
1,3-DICHLOROBENZENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
1,4-DICHLOROBENZENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2,4,5-TRICHLOROPHENOL	NA	50,000 U	920 U	980 U	870 U	940 U	NA	NA	NA	930 U	990 U	1,000 U
2,4,6-TRICHLOROPHENOL	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2,4-DICHLOROPHENOL	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2,4-DIMETHYLPHENOL	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2,4-DINITROPHENOL	NA	50,000 U	920 U	980 U	870 U	940 U	NA	NA	NA	930 U	990 U	1,000 U
2,4-DINITROTOLUENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2,6-DINITROTOLUENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2-CHLORONAPHTHALENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2-CHLOROPHENOL	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2-METHYLNAPHTHALENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2-METHYLPHENOL	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
2-NITROANILINE	NA	50,000 U	920 U	980 U	870 U	940 U	NA	NA	NA	930 U	990 U	1,000 U
2-NITROPHENOL	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
3,3'-DICHLOROBENZIDINE	NA	20,000 UJ	380 UJ	400 UJ	360 UJ	390 UJ	NA	NA	NA	380 U	410 U	420 U
3-NITROANILINE	NA	50,000 U	920 U	980 U	870 U	940 U	NA	NA	NA	930 U	990 U	1,000 U
4,6-DINITRO-2-METHYLPHENOL	NA	50,000 U	920 U	980 U	870 U	940 U	NA	NA	NA	930 U	990 U	1,000 U
4-BROMOPHENYL-PHENYLETHER	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
4-CHLORO-3-METHYLPHENOL	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
4-CHLOROANILINE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
4-CHLOROPHENYL-PHENYLETHER	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
4-METHYLPHENOL	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
4-NITROANILINE	NA	50,000 U	920 U	980 U	870 U	940 U	NA	NA	NA	930 U	990 U	1,000 U
4-NITROPHENOL	NA	50,000 U	920 U	980 U	870 U	940 U	NA	NA	NA	930 U	990 U	1,000 U
ACENAPHTHENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
ACENAPHTHYLENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
ANTHRACENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
BENZO(A)ANTHRACENE	NA	20,000 UJ	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
BENZO(A)PYRENE	NA	20,000 UJ	380 UJ	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
BENZO(B)FLUORANTHENE	NA	20,000 UJ	380 UJ	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
BENZO(G,H,I)PERYLENE	NA	20,000 UJ	380 UJ	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
BENZO(K)FLUORANTHENE	NA	20,000 UJ	380 UJ	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
BIS(2-CHLOROETHOXY)METHANE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
BIS(2-CHLOROETHYL)ETHER	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	20,000 UJ	2,100 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB029	WHSSB030	WHSSB050	WHSSB050	WHSSB051	WHSSB051	WHSSBA02	WHSSBA04	WHSSBA06	WHSSBA06	WHSSBA06	WHSSBA06
Sample ID	281WHSSS068	281WHSSS114	033WHSSS500	033WHSSS501	033WHSSS502	033WHSSS503	281WHSSS085	281WHSSS016	281WHSSS106	281WHSSS107	281WHSSS108	281WHSSS109
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/28/1995	08/29/1995	02/06/1996	02/06/1996	02/06/1996	02/06/1996	08/09/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995
Sample Depth (in feet)	0.00 - 0.50	3.20 - 3.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 2.00	4.50 - 5.00	9.00 - 10.90
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	NA	20,000 UJ	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
CARBAZOLE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
CHRYSENE	NA	20,000 UJ	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
DI-N-BUTYLPHTHALATE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
DI-N-OCTYLPHTHALATE	NA	20,000 UJ	380 UJ	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
DIBENZ(A,H)ANTHRACENE	NA	20,000 UJ	380 UJ	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
DIBENZOFURAN	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
DIETHYLPHTHALATE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
DIMETHYLPHTHALATE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
FLUORANTHENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
FLUORENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
HEXACHLOROBENZENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
HEXACHLOROBUTADIENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
HEXACHLOROCYCLOPENTADIENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
HEXACHLOROETHANE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
INDENO(1,2,3-CD)PYRENE	NA	20,000 UJ	380 UJ	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
ISOPHORONE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
N-NITROSODIPHENYLAMINE (1)	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
NAPHTHALENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
NITROBENZENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
PENTACHLOROPHENOL	NA	50,000 U	920 U	980 U	870 U	940 U	NA	NA	NA	930 U	990 U	1,000 U
PHENANTHRENE	NA	20,000 U	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
PHENOL	NA	20,000 U	450	560	900	980	NA	NA	NA	380 U	410 U	420 U
PYRENE	NA	20,000 UJ	380 U	400 U	360 U	390 U	NA	NA	NA	380 U	410 U	420 U
TOTAL HIGH MOLECULAR PAHS	NA	U	U	U	U	U	NA	NA	NA	U	U	U
TOTAL LOW MOLECULAR PAHS	NA	U	U	U	U	U	NA	NA	NA	U	U	U
TOTAL PAHS	NA	U	U	U	U	U	NA	NA	NA	U	U	U
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.4	NA	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB029	WHSSB030	WHSSB050	WHSSB050	WHSSB051	WHSSB051	WHSSBA02	WHSSBA04	WHSSBA06	WHSSBA06	WHSSBA06	WHSSBA06
Sample ID	281WHSSS068	281WHSSS114	033WHSSS500	033WHSSS501	033WHSSS502	033WHSSS503	281WHSSS085	281WHSSS016	281WHSSS106	281WHSSS107	281WHSSS108	281WHSSS109
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/28/1995	08/29/1995	02/06/1996	02/06/1996	02/06/1996	02/06/1996	08/09/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995
Sample Depth (in feet)	0.00 - 0.50	3.20 - 3.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 2.00	4.50 - 5.00	9.00 - 10.90
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	0.3	0.1 U	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.7	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
MIREX	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-101 (2,2',3,5,5')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-105 (2,3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-118 (2,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-126 (3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	0.2	0.1 U	NA	NA	NA
PCB-128 (2,2',3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-138 (2,2',3,4,4',5')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-153 (2,2',4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-170 (2,2',3,3',4,4',5)	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-18 (2,2',5)	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1	NA	NA	NA
PCB-180 (2,2',3,4,4',5,5')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-187 (2,2',3,4',5,5',6)	NA	NA	NA	NA	NA	NA	NA	0.6	0.1 U	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-28 (2,4,4')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-44 (2,2',3,5')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 UJ	NA	NA	NA
PCB-52 (2,2',5,5')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-66 (2,3',4,4')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-77 (3,3',4,4')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
PCB-8 (2,4')	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
TRANS-NONACHLOR	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	U	0.4	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	U	U	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	U	U	NA	NA	NA
TOTAL PCBS	NA	NA	NA	NA	NA	NA	NA	1	0.3	NA	NA	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 U	4 U	4 U
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 U	4 U	4 U
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 UJ	4 UJ	4 UJ
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 UJ	2 UJ	2 UJ
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	2 U	2 U
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	2 U	2 U
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 U	41 U	43 U
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	78 U	82 U	85 U

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB029	WHSSB030	WHSSB050	WHSSB050	WHSSB051	WHSSB051	WHSSBA02	WHSSBA04	WHSSBA06	WHSSBA06	WHSSBA06	WHSSBA06
Sample ID	281WHSSS068	281WHSSS114	033WHSSS500	033WHSSS501	033WHSSS502	033WHSSS503	281WHSSS085	281WHSSS016	281WHSSS106	281WHSSS107	281WHSSS108	281WHSSS109
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/28/1995	08/29/1995	02/06/1996	02/06/1996	02/06/1996	02/06/1996	08/09/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995
Sample Depth (in feet)	0.00 - 0.50	3.20 - 3.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 2.00	4.50 - 5.00	9.00 - 10.90
Pesticides (in µg/Kg)												
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 U	41 U	43 U
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 U	41 U	43 U
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 U	41 U	43 U
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 U	41 U	43 U
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 U	41 U	43 U
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	2 U	2 U
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	2 U	2 U
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 UJ	4 UJ	4 UJ
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	2 U	2 U
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 U	4 U	4 U
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 U	4 U	4 U
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 UJ	4 UJ	4 UJ
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 U	4 U	4 U
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 U	4 U	4 U
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 UJ	2 UJ	2 UJ
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	2 U	2 U
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 UJ	2 UJ	2 UJ
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	2 U	2 U
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	19 U	21 U	21 U
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	190 U	210 U	210 U
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	U	U	U
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	U	U	U
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	U	U	U
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	2,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/28/1995	08/29/1995	02/06/1996	02/06/1996	02/06/1996	02/06/1996	08/09/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995
Sample Depth (in feet)	0.00 - 0.50	3.20 - 3.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 2.00	4.50 - 5.00	9.00 - 10.90
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	8,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	15,400	NA	16,900	7,590	19,200	10,500	33,100	17,000	20,600	16,400	10,400	13,900
ANTIMONY	0.77 U	NA	1.4 J	0.39 UJ	0.44 J	0.64 J	2.8 J	2.1 J	0.69 J	0.87 J	1.3 J	0.54 UJ
ARSENIC	2.8 U	NA	4.1 *	4.4 *	0.30 U	4.5 *	17.7 *	8.7 *	0.60 U	3.6 *	5.4 *	5.1 *
BARIUM	59.2	NA	115	138	7.9	195	191	256	19.0	460	177	116
BERYLLIUM	0.020 U	NA	0.020 U	0.060 U	0.020 U	0.020 U	0.65	0.19	0.020 U	0.020 U	0.020 U	0.13
CADMIUM	0.050 U	NA	19.9	0.050 U	0.040 U	0.050 U	3.9	0.050 U	0.040 U	0.050 U	0.050 U	0.050 U
CALCIUM	9,300 J	NA	9,630 J	9,610 J	10,200 J	27,400 J	13,900	2,090	17,900	7,370	45,500	21,700
CHROMIUM	27.1	NA	34.2	17.3	17.0	34.9	72.3	36.6	14.9	47.3	32.6	28.9
COBALT	15.2	NA	19.5	13.0	20.7	15.1	22.7	15.3	23.5	23.9	13.1	16.5
COPPER	24.8	NA	71.5 J	12.8 J	28.6 J	30.8 J	105	30.8	67.3	38.8	24.5	27.3
IRON	23,000	NA	48,300 *	16,200	30,000 *	22,500	50,200 *	26,100 *	38,900 *	30,600 *	23,500 *	15,800
LEAD	23.7 J	NA	127	6.2	1.8	5.6	66.4	10.4 J	3.7	5.8	6.8	9.5
MAGNESIUM	12,300	NA	12,500	5,070	14,800	8,980	13,200	9,230	14,100	11,300	7,900	6,800
MANGANESE	338	NA	674	962	250	1,300	677	551 J	752	1,190	1,470	327
MERCURY	0.17 U	NA	0.18	0.060 U	0.21	0.14	0.35	0.080	5.6	0.090	0.090	0.060 U
MOLYBDENUM	0.22 U	NA	1.0	0.15 U	0.13 U	0.14 U	5.2	0.22 U	0.19 UJ	0.21 UJ	0.22 UJ	0.23 UJ
NICKEL	33.9	NA	30.2	28.0	10.8	68.4	94.7	54.3	16.5	74.5	50.8	54.6
POTASSIUM	1,430 J	NA	1,530 J	1,190 J	353 J	1,440 J	5,930	5,130 J	642 J	1,260 J	1,670 J	1,760 J
SELENIUM	0.83 U	NA	0.53 U	0.56 U	0.50 U	0.54 U	1.9 U	0.84 U	0.73 U	0.79 U	0.84 U	0.87 U
SILVER	0.15 U	NA	0.11 U	0.12 U	0.11 U	0.12 U	0.93 U	0.15 U	0.13 U	0.14 U	0.15 U	0.15 U
SODIUM	1,170 J	NA	844 J	1,090 J	764 J	533 J	8,860	5,270	2,520	1,760	694	3,920
THALLIUM	0.49 U	NA	0.44 U	0.47 U	0.41 U	0.45 U	0.24 U	0.49 U	0.43 U	0.46 U	1.8	0.51 U
VANADIUM	64.5	NA	65.6	44.6	74.2	59.2	109	61.9	83.0	80.0	56.6	56.2
ZINC	63.1	NA	723	42.4	28.6	54.2	568	69.3	83.9	73.7	57.1	48.3
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	NA	NA	NA	NA	NA	NA	13.0 UJ	10.2 UJ	NA	NA	12.5 UJ
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	265 J	316	117 U	124 U	128 U
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSB029	WHSSB030	WHSSB050	WHSSB050	WHSSB051	WHSSB051	WHSSBA02	WHSSBA04	WHSSBA06	WHSSBA06	WHSSBA06	WHSSBA06
Sample ID	281WHSSS068	281WHSSS114	033WHSSS500	033WHSSS501	033WHSSS502	033WHSSS503	281WHSSS085	281WHSSS016	281WHSSS106	281WHSSS107	281WHSSS108	281WHSSS109
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/28/1995	08/29/1995	02/06/1996	02/06/1996	02/06/1996	02/06/1996	08/09/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995
Sample Depth (in feet)	0.00 - 0.50	3.20 - 3.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	2.00 - 2.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 2.00	4.50 - 5.00	9.00 - 10.90
Dioxin (in µg/kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	NA	NA	NA	NA	NA	NA	NA	25.0	5.0	NA	NA	NA
PERCENT SOLIDS	NA	NA	87.2	81.7	92.2	85.2	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	8.6	NA	NA	NA	NA	NA	8.05	8.2	7.8	8.2	7.8	8.2

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBA06	WHSSBA08	WHSSBB01	WHSSBB03	WHSSBB05	WHSSBB07	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC04
Sample ID	281WHSSS110	281WHSSS025	281WHSSS042	281WHSSS017	281WHSSS049	281WHSSS018	281WHSSS047	281WHSSS088	281WHSSS089	281WHSSS090	281WHSSS091	281WHSSS043
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/25/1995	07/19/1995	07/21/1995	07/19/1995	07/24/1995	07/19/1995	07/21/1995	08/11/1995	08/11/1995	08/11/1995	08/11/1995	07/21/1995
Sample Depth (in feet)	13.00 - 14.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	4.00 - 5.50	8.80 - 10.00	0.00 - 0.50
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
1,1,2,2-TETRACHLOROETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
1,1,2-TRICHLOROETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
1,1-DICHLOROETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
1,1-DICHLOROETHENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
1,2-DICHLOROETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
1,2-DICHLOROETHENE (TOTAL)	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
1,2-DICHLOROPROPANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
2-BUTANONE	16 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
2-HEXANONE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
4-METHYL-2-PENTANONE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
ACETONE	100 U	NA	NA	NA	NA	NA	NA	NA	80 U	120 U	110 U	NA
BENZENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
BROMODICHLOROMETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
BROMOFORM	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
BROMOMETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
CARBON DISULFIDE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
CARBON TETRACHLORIDE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
CHLOROBENZENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
CHLOROETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
CHLOROFORM	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
CHLOROMETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
CIS-1,3-DICHLOROPROPENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
DIBROMOCHLOROMETHANE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
ETHYLBENZENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
METHYLENE CHLORIDE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	58 U	59 U	NA
STYRENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
TETRACHLOROETHENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
TOLUENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
TRANS-1,3-DICHLOROPROPENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
TRICHLOROETHENE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
VINYL CHLORIDE	13 U	NA	NA	NA	NA	NA	NA	NA	50 U	56 U	59 U	NA
XYLENE (TOTAL)	13 U	NA	NA	NA	NA	NA	NA	NA	26 J	54 J	59 U	NA

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBA06	WHSSBA08	WHSSBB01	WHSSBB03	WHSSBB05	WHSSBB07	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC04
Sample ID	281WHSSS110	281WHSSS025	281WHSSS042	281WHSSS017	281WHSSS049	281WHSSS018	281WHSSS047	281WHSSS088	281WHSSS089	281WHSSS090	281WHSSS091	281WHSSS043
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/25/1995	07/19/1995	07/21/1995	07/19/1995	07/24/1995	07/19/1995	07/21/1995	08/11/1995	08/11/1995	08/11/1995	08/11/1995	07/21/1995
Sample Depth (in feet)	13.00 - 14.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	4.00 - 5.50	8.80 - 10.00	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
1,1'-BIPHENYL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
1-METHYLNAPHTHALENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
1-METHYLPHENANTHRENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	10,000 U	5,300 U	4,400 U	NA	2,000 U	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	10,000 U	5,300 U	4,400 U	NA	2,000 U	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	10,000 U	5,300 U	4,400 U	NA	2,000 U	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	10,000 U	5,300 U	4,400 U	NA	2,000 U	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	10,000 U	5,300 U	4,400 U	NA	2,000 U	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	10,000 U	5,300 U	4,400 U	NA	2,000 U	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	10,000 U	5,300 U	4,400 U	NA	2,000 U	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	4,200 U	2,100 U	150 J	NA	790 U	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	4,200 U	270 J *	190 J *	NA	790 U	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	4,200 U	300 J	290 J	NA	790 U	NA	NA	NA	NA

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07/12/03

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Site 11 - Wood Hogger
Soil Analytical Results

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/25/1995	07/19/1995	07/21/1995	07/19/1995	07/24/1995	07/19/1995	07/21/1995	08/11/1995	08/11/1995	08/11/1995	08/11/1995	07/21/1995
Sample Depth (in feet)	13.00 - 14.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	4.00 - 5.50	8.80 - 10.00	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)												
BENZO(E)PYRENE	NA	NA	NA	4,200 U	240 J	170 J	NA	790 U	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	4,200 U	230 J	180 J	NA	790 U	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	4,200 U	300 J	210 J	NA	790 U	NA	NA	NA	NA
BENZOIC ACID	NA	NA	NA	10,000 U	5,300 U	4,400 U	NA	2,300 J	NA	NA	NA	NA
BENZYL ALCOHOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	4,200 U	360 J	300 J	NA	790 U	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
DIBENZOTHIOPHENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	200 J	430 J	310 J	NA	790 U	NA	NA	NA	NA
FLUORENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	4,200 UJ	2,100 U	1,800 U	NA	790 UJ	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	4,200 U	2,100 U	140 J	NA	790 U	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	10,000 U	5,300 U	4,400 U	NA	2,000 U	NA	NA	NA	NA
PERYLENE	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	4,200 U	2,100 U	200 J	NA	790 U	NA	NA	NA	NA
PHENOL	NA	NA	NA	4,200 U	2,100 U	1,800 U	NA	790 U	NA	NA	NA	NA
PYRENE	NA	NA	NA	200 J	480 J	290 J	NA	790 U	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	400	2,600	2,200	NA	U	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	U	U	200	NA	U	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	400	2,600	2,400	NA	U	NA	NA	NA	NA

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBA06	WHSSBA08	WHSSBB01	WHSSBB03	WHSSBB05	WHSSBB07	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC04
Sample ID	281WHSSS110	281WHSSS025	281WHSSS042	281WHSSS017	281WHSSS049	281WHSSS018	281WHSSS047	281WHSSS088	281WHSSS089	281WHSSS090	281WHSSS091	281WHSSS043
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/25/1995	07/19/1995	07/21/1995	07/19/1995	07/24/1995	07/19/1995	07/21/1995	08/11/1995	08/11/1995	08/11/1995	08/11/1995	07/21/1995
Sample Depth (in feet)	13.00 - 14.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	4.00 - 5.50	8.80 - 10.00	0.00 - 0.50
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
1,2-DICHLOROBENZENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
1,3-DICHLOROBENZENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
1,4-DICHLOROBENZENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2,4,5-TRICHLOROPHENOL	1,000 U	NA	NA	NA	NA	NA	NA	NA	4,200 U	4,600 U	4,900 U	NA
2,4,6-TRICHLOROPHENOL	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2,4-DICHLOROPHENOL	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2,4-DIMETHYLPHENOL	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2,4-DINITROPHENOL	1,000 U	NA	NA	NA	NA	NA	NA	NA	4,200 U	4,600 U	4,900 U	NA
2,4-DINITROTOLUENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2,6-DINITROTOLUENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2-CHLORONAPHTHALENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2-CHLOROPHENOL	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2-METHYLNAPHTHALENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2-METHYLPHENOL	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
2-NITROANILINE	1,000 U	NA	NA	NA	NA	NA	NA	NA	4,200 U	4,600 U	4,900 U	NA
2-NITROPHENOL	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
3,3'-DICHLOROBENZIDINE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
3-NITROANILINE	1,000 U	NA	NA	NA	NA	NA	NA	NA	4,200 U	4,600 U	4,900 U	NA
4,6-DINITRO-2-METHYLPHENOL	1,000 U	NA	NA	NA	NA	NA	NA	NA	4,200 U	4,600 U	4,900 U	NA
4-BROMOPHENYL-PHENYLETHER	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
4-CHLORO-3-METHYLPHENOL	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
4-CHLOROANILINE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
4-CHLOROPHENYL-PHENYLETHER	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
4-METHYLPHENOL	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
4-NITROANILINE	1,000 U	NA	NA	NA	NA	NA	NA	NA	4,200 U	4,600 U	4,900 U	NA
4-NITROPHENOL	1,000 U	NA	NA	NA	NA	NA	NA	NA	4,200 U	4,600 U	4,900 U	NA
ACENAPHTHENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
ACENAPHTHYLENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
ANTHRACENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
BENZO(A)ANTHRACENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
BENZO(A)PYRENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
BENZO(B)FLUORANTHENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
BENZO(G,H,I)PERYLENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
BENZO(K)FLUORANTHENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
BIS(2-CHLOROETHOXY)METHANE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
BIS(2-CHLOROETHYL)ETHER	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA

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Point ID	WHSSBA06	WHSSBA08	WHSSBB01	WHSSBB03	WHSSBB05	WHSSBB07	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC04
Sample ID	281WHSSS110	281WHSSS025	281WHSSS042	281WHSSS017	281WHSSS049	281WHSSS018	281WHSSS047	281WHSSS088	281WHSSS089	281WHSSS090	281WHSSS091	281WHSSS043
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/25/1995	07/19/1995	07/21/1995	07/19/1995	07/24/1995	07/19/1995	07/21/1995	08/11/1995	08/11/1995	08/11/1995	08/11/1995	07/21/1995
Sample Depth (in feet)	13.00 - 14.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	4.00 - 5.50	8.80 - 10.00	0.00 - 0.50
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
CARBAZOLE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
CHRYSENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
DI-N-BUTYLPHTHALATE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
DI-N-OCTYLPHTHALATE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
DIBENZ(A,H)ANTHRACENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
DIBENZOFURAN	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
DIETHYLPHTHALATE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
DIMETHYLPHTHALATE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
FLUORANTHENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
FLUORENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
HEXACHLOROBENZENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
HEXACHLOROBUTADIENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
HEXACHLOROCYCLOPENTADIENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
HEXACHLOROETHANE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
INDENO(1,2,3-CD)PYRENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
ISOPHORONE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
N-NITROSO-DI-N-PROPYLAMINE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
N-NITROSODIPHENYLAMINE (1)	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
NAPHTHALENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
NITROBENZENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
PENTACHLOROPHENOL	1,000 U	NA	NA	NA	NA	NA	NA	NA	4,200 U	4,600 U	4,900 U	NA
PHENANTHRENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
PHENOL	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,500 J	2,000 U	NA
PYRENE	430 U	NA	NA	NA	NA	NA	NA	NA	1,700 U	1,900 U	2,000 U	NA
TOTAL HIGH MOLECULAR PAHS	U	NA	NA	NA	NA	NA	NA	NA	U	U	U	NA
TOTAL LOW MOLECULAR PAHS	U	NA	NA	NA	NA	NA	NA	NA	U	U	U	NA
TOTAL PAHS	U	NA	NA	NA	NA	NA	NA	NA	U	U	U	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	NA	NA	0.5 J	0.3 U	1 J	NA	0.6 U	NA	NA	NA	NA
2,4'-DDE	NA	NA	NA	0.3 U	0.3 U	0.4	NA	0.6 U	NA	NA	NA	NA
2,4'-DDT	NA	NA	NA	0.3 U	0.3 U	0.5 J	NA	0.6 U	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	1	0.9 J	3	NA	0.6 U	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	1	0.9	0.8	NA	0.6 U	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	0.3 U	0.3 U	0.8 J	NA	0.6 U	NA	NA	NA	NA
ALDRIN	NA	NA	NA	0.3 U	0.3 U	0.4	NA	0.6 U	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	0.7 J	1 J	3 J	NA	0.6 U	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	0.3 U	0.3 U	0.7	NA	0.6 U	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	0.3 U	0.3 U	0.1 U	NA	0.6 U	NA	NA	NA	NA

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Point ID	WHSSBA06	WHSSBA08	WHSSBB01	WHSSBB03	WHSSBB05	WHSSBB07	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC04
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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/25/1995	07/19/1995	07/21/1995	07/19/1995	07/24/1995	07/19/1995	07/21/1995	08/11/1995	08/11/1995	08/11/1995	08/11/1995	07/21/1995
Sample Depth (in feet)	13.00 - 14.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	4.00 - 5.50	8.80 - 10.00	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	NA	NA	NA	0.3 U	0.3 U	0.1 U	NA	0.6 U	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	0.3 U	0.3 U	0.1 U	NA	0.6 U	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	0.3 U	0.3 U	0.4 J	NA	0.6 U	NA	NA	NA	NA
MIREX	NA	NA	NA	0.3 U	0.3 U	0.5 J	NA	0.6 U	NA	NA	NA	NA
PCB-101 (2,2',3,5,5')	NA	NA	NA	0.3 U	0.2 J	0.7 J	NA	0.6 U	NA	NA	NA	NA
PCB-105 (2,3,3',4,4')	NA	NA	NA	0.3 U	0.3 U	0.5	NA	1	NA	NA	NA	NA
PCB-118 (2,3',4,4',5)	NA	NA	NA	0.3 U	0.2 J	0.3 J	NA	0.6 U	NA	NA	NA	NA
PCB-126 (3,3',4,4',5)	NA	NA	NA	0.3 U	0.3 U	0.6 J	NA	0.6 U	NA	NA	NA	NA
PCB-128 (2,2',3,3',4,4')	NA	NA	NA	0.3 U	0.3 U	0.3 J	NA	0.6 U	NA	NA	NA	NA
PCB-138 (2,2',3,4,4',5')	NA	NA	NA	0.3 J	1 J	2 J	NA	0.6 U	NA	NA	NA	NA
PCB-153 (2,2',4,4',5,5')	NA	NA	NA	0.3 U	1	1 J	NA	0.6 U	NA	NA	NA	NA
PCB-170 (2,2',3,3',4,4',5)	NA	NA	NA	0.3 U	0.7	0.5 J	NA	0.6 U	NA	NA	NA	NA
PCB-18 (2,2',5)	NA	NA	NA	0.3 U	0.3 U	0.1 U	NA	0.6 U	NA	NA	NA	NA
PCB-180 (2,2',3,4,4',5,5')	NA	NA	NA	0.3 U	1	1 J	NA	0.6 U	NA	NA	NA	NA
PCB-187 (2,2',3,4',5,5',6)	NA	NA	NA	0.3 U	0.6	0.7 J	NA	0.6 U	NA	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	NA	NA	NA	0.3 U	0.3 U	0.2 J	NA	1	NA	NA	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	NA	NA	NA	0.3 U	0.3 U	0.3	NA	0.9	NA	NA	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	NA	NA	NA	0.3 U	0.3 U	0.1 U	NA	0.6 U	NA	NA	NA	NA
PCB-28 (2,4,4')	NA	NA	NA	0.3 U	0.3 U	0.1 U	NA	0.6 U	NA	NA	NA	NA
PCB-44 (2,2',3,5')	NA	NA	NA	0.7 J	0.3 U	0.2 J	NA	0.6 UJ	NA	NA	NA	NA
PCB-52 (2,2',5,5')	NA	NA	NA	0.3 J	0.3 U	0.2	NA	0.6 U	NA	NA	NA	NA
PCB-66 (2,3',4,4')	NA	NA	NA	0.3 U	0.3 U	0.1 U	NA	0.6 U	NA	NA	NA	NA
PCB-77 (3,3',4,4')	NA	NA	NA	0.3 U	0.3 U	0.9 J	NA	0.6 U	NA	NA	NA	NA
PCB-8 (2,4')	NA	NA	NA	0.3 U	0.3 U	0.1 U	NA	0.6 U	NA	NA	NA	NA
TRANS-NONACHLOR	NA	NA	NA	0.5 J	0.9 J	2	NA	0.6 U	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	U	U	U	NA	U	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	0.7	1	3	NA	U	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	3	2	7	NA	U	NA	NA	NA	NA
TOTAL PCBS	NA	NA	NA	3	10	16	NA	6	NA	NA	NA	NA
Pesticides (in µg/Kg)												
4,4'-DDD	4 U	NA	NA	NA	NA	NA	NA	NA	17 U	19 U	20 U	NA
4,4'-DDE	4 U	NA	NA	NA	NA	NA	NA	NA	17 U	19 U	20 U	NA
4,4'-DDT	4 UJ	NA	NA	NA	NA	NA	NA	NA	17 U	19 U	20 U	NA
ALDRIN	2 UJ	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
ALPHA-BHC	2 U	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
ALPHA-CHLORDANE	2 U	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
AROCLOR-1016	44 U	NA	NA	NA	NA	NA	NA	NA	170 U	190 U	200 U	NA
AROCLOR-1221	88 U	NA	NA	NA	NA	NA	NA	NA	330 U	370 U	390 U	NA

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/25/1995	07/19/1995	07/21/1995	07/19/1995	07/24/1995	07/19/1995	07/21/1995	08/11/1995	08/11/1995	08/11/1995	08/11/1995	07/21/1995
Sample Depth (in feet)	13.00 - 14.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	4.00 - 5.50	8.80 - 10.00	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1232	44 U	NA	NA	NA	NA	NA	NA	NA	170 U	190 U	200 U	NA
AROCLOR-1242	44 U	NA	NA	NA	NA	NA	NA	NA	170 U	190 U	200 U	NA
AROCLOR-1248	44 U	NA	NA	NA	NA	NA	NA	NA	170 U	190 U	200 U	NA
AROCLOR-1254	44 U	NA	NA	NA	NA	NA	NA	NA	170 U	190 U	200 U	NA
AROCLOR-1260	44 U	NA	NA	NA	NA	NA	NA	NA	170 U	190 U	200 U	NA
BETA-BHC	2 U	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
DELTA-BHC	2 U	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
DIELDRIN	4 UJ	NA	NA	NA	NA	NA	NA	NA	17 U	19 U	20 U	NA
ENDOSULFAN I	2 U	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
ENDOSULFAN II	4 U	NA	NA	NA	NA	NA	NA	NA	17 U	19 U	20 U	NA
ENDOSULFAN SULFATE	4 U	NA	NA	NA	NA	NA	NA	NA	17 U	19 U	20 U	NA
ENDRIN	4 UJ	NA	NA	NA	NA	NA	NA	NA	17 U	19 U	20 U	NA
ENDRIN ALDEHYDE	4 U	NA	NA	NA	NA	NA	NA	NA	17 U	19 U	20 U	NA
ENDRIN KETONE	4 U	NA	NA	NA	NA	NA	NA	NA	17 U	19 U	20 U	NA
GAMMA-BHC (LINDANE)	2 UJ	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
GAMMA-CHLORDANE	2 U	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
HEPTACHLOR	2 UJ	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
HEPTACHLOR EPOXIDE	2 U	NA	NA	NA	NA	NA	NA	NA	8 U	9 U	10 U	NA
METHOXYCHLOR	22 U	NA	NA	NA	NA	NA	NA	NA	83 U	93 U	98 U	NA
TOXAPHENE	220 U	NA	NA	NA	NA	NA	NA	NA	830 U	930 U	980 U	NA
TOTAL BHCS	U	NA	NA	NA	NA	NA	NA	NA	U	U	U	NA
TOTAL CHLORDANES	U	NA	NA	NA	NA	NA	NA	NA	U	U	U	NA
TOTAL DDTS	U	NA	NA	NA	NA	NA	NA	NA	U	U	U	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	120 UJ	120 U	NA	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBA06	WHSSBA08	WHSSBB01	WHSSBB03	WHSSBB05	WHSSBB07	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC04
Sample ID	281WHSSS110	281WHSSS025	281WHSSS042	281WHSSS017	281WHSSS049	281WHSSS018	281WHSSS047	281WHSSS088	281WHSSS089	281WHSSS090	281WHSSS091	281WHSSS043
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/25/1995	07/19/1995	07/21/1995	07/19/1995	07/24/1995	07/19/1995	07/21/1995	08/11/1995	08/11/1995	08/11/1995	08/11/1995	07/21/1995
Sample Depth (in feet)	13.00 - 14.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	4.00 - 5.50	8.80 - 10.00	0.00 - 0.50
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	17,800	32,200	13,600	11,800	28,000	15,300	17,600	NA	9,410	2,750	6,300	12,400
ANTIMONY	0.84 J	2.5 J	0.95 U	1.8 J	1.4 UJ	3.7 J	2.9 U	NA	2.1 U	2.3 U	2.5 U	0.71 UJ
ARSENIC	4.0 *	14.9 *	5.4 *	6.8 *	9.8 J *	7.2 *	22.4 *	NA	3.7 *	3.1 U	9.2 *	5.3 *
BARIUM	415	116	297	250	70.1	76.6	62.0	NA	29.9	18.5	20.9	175
BERYLLIUM	0.13	0.060	0.19 U	0.10	0.060 U	0.030 U	0.10 U	NA	0.10 U	0.11 U	0.12 U	0.030 U
CADMIUM	0.050 U	0.080 U	0.050 U	0.060 U	0.13 U	0.060 U	0.20 U	NA	0.20 U	0.22 U	0.24 U	0.31 U
CALCIUM	7,160	4,830	2,920 J	2,980	5,370	5,000	5,630 J	NA	5,680	7,280	8,100	4,650 J
CHROMIUM	34.9	100	23.8	21.6	78.0 J	43.4	53.4	NA	35.9	11.2	23.5	27.2
COBALT	13.2	23.6	11.9	12.0	15.2	16.8	7.2	NA	2.8	1.7	5.4	28.4
COPPER	24.4	70.8	16.7	22.5	85.1 J	82.5	69.1	NA	14.5	14.2	16.4	21.6
IRON	18,500	47,800 *	18,500	19,900	37,800 J *	37,200 *	22,100	NA	19,100 J	3,960 J	10,000 J	19,400
LEAD	9.1	40.9 J	8.8	15.3 J	46.2 J	68.3 J	175 *	NA	5.8	1.9	4.3	33.5
MAGNESIUM	6,810	16,200	7,470	6,720	14,000	10,600	9,940	NA	12,000	14,400	15,900	7,520
MANGANESE	163	943 J	496 J	354 J	285	234 J	164 J	NA	119	63.3	78.2	1,060 J
MERCURY	0.070 U	0.44	0.060	0.080	0.82 J	0.18	0.39	NA	0.25 U	0.28 U	0.30 U	0.080
MOLYBDENUM	0.24 UJ	0.37 U	0.23 U	0.25 U	1.1 U	0.57	1.8 U	NA	2.3	3.2	4.7	0.30 U
NICKEL	46.4	95.5	30.0	37.7	69.2	34.8	56.8	NA	25.5	14.4	26.6	51.9
POTASSIUM	2,500 J	4,700 J	3,830 J	3,580 J	4,200 J	1,870 J	3,690 J	NA	4,240 J	2,900 J	3,610 J	2,490 J
SELENIUM	0.89 U	1.4 U	0.86 U	0.95 U	2.2 U	0.95 U	3.4 U	NA	4.8	3.8 U	4.4 U	1.1 U
SILVER	0.16 U	0.25 U	0.15 U	0.17 U	0.39 U	0.17 U	0.61 U	NA	0.59 U	0.66 U	0.72 U	0.20 U
SODIUM	7,030	2,840	5,820 J	4,340	2,420 J	1,970	10,300 J	NA	46,600 J	70,000 J	66,700 J	6,440 J
THALLIUM	0.52 U	0.82 U	0.51 U	0.56 U	1.3 U	0.56 U	2.0 U	NA	2.0 U	2.2 U	2.4 U	1.0
VANADIUM	60.0	102	42.2	50.0	92.8	69.5	99.7	NA	50.2	31.9	44.7	53.9
ZINC	47.0	281	53.0	198	259	194	338	NA	31.4 J	28.7 J	27.7 J	158
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	2,500 U	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	NA	NA	741 J	384	14.0 UJ	NA	47.1 UJ	63.3 UJ	52.9 UJ	55.9 UJ	NA
TOTAL ORGANIC CARBON	127 U	NA	NA	56,100 J	66,500	58,800 J	NA	271,000	329,000	184,000	267,000	NA
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Point ID	WHSSBA06	WHSSBA08	WHSSBB01	WHSSBB03	WHSSBB05	WHSSBB07	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC02	WHSSBC04
Sample ID	281WHSSS110	281WHSSS025	281WHSSS042	281WHSSS017	281WHSSS049	281WHSSS018	281WHSSS047	281WHSSS088	281WHSSS089	281WHSSS090	281WHSSS091	281WHSSS043
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/25/1995	07/19/1995	07/21/1995	07/19/1995	07/24/1995	07/19/1995	07/21/1995	08/11/1995	08/11/1995	08/11/1995	08/11/1995	07/21/1995
Sample Depth (in feet)	13.00 - 14.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.30 - 2.00	4.00 - 5.50	8.80 - 10.00	0.00 - 0.50
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	NA	NA	NA	69.0	69.0	28.0	NA	79.0	NA	NA	NA	NA
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	8.8	6.7	8.8	7.8	7.5	6.9	6.5	NA	7	7.3	7.3	7

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Site 11 - Wood Hogger
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Point ID	WHSSBC06	WHSSBC08	WHSSBD01	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD07	WHSSBD07	WHSSBD07	WHSSBD07
Sample ID	281WHSSS075	281WHSSS020	281WHSSS044	281WHSSS059	281WHSSS060	281WHSSS061	281WHSSS062	281WHSSS063	281WHSSS012	281WHSSS013	281WHSSS014	281WHSSS015
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	07/19/1995	07/21/1995	07/25/1995	07/26/1995	07/25/1995	07/25/1995	07/26/1995	07/18/1995	07/18/1995	07/18/1995	07/18/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	4.50 - 5.80	9.50 - 10.40	18.50 - 20.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.30 - 10.00
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
1,1-DICHLOROETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
1,1-DICHLOROETHENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
1,2-DICHLOROETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
1,2-DICHLOROPROPANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
2-BUTANONE	NA	NA	NA	NA	110 U	43 U	31 U	77 U	NA	16 U	12 U	29 U
2-HEXANONE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
4-METHYL-2-PENTANONE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
ACETONE	NA	NA	NA	NA	490 U	250 U	120 U	470 U	NA	16 U	12 U	130 U
BENZENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
BROMODICHLOROMETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
BROMOFORM	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
BROMOMETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
CARBON DISULFIDE	NA	NA	NA	NA	81	290	48	70 J	NA	16 U	12 U	12 U
CARBON TETRACHLORIDE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
CHLOROBENZENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
CHLOROETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
CHLOROFORM	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
CHLOROMETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
ETHYLBENZENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
METHYLENE CHLORIDE	NA	NA	NA	NA	88 U	43 U	31 U	97 U	NA	16 U	12 U	12 U
STYRENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
TETRACHLOROETHENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
TOLUENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
TRICHLOROETHENE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
VINYL CHLORIDE	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U
XYLENE (TOTAL)	NA	NA	NA	NA	56 U	43 U	31 U	77 U	NA	16 U	12 U	12 U

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Sample ID	281WHSSS075	281WHSSS020	281WHSSS044	281WHSSS059	281WHSSS060	281WHSSS061	281WHSSS062	281WHSSS063	281WHSSS012	281WHSSS013	281WHSSS014	281WHSSS015
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	07/19/1995	07/21/1995	07/25/1995	07/26/1995	07/25/1995	07/25/1995	07/26/1995	07/18/1995	07/18/1995	07/18/1995	07/18/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	4.50 - 5.80	9.50 - 10.40	18.50 - 20.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.30 - 10.00
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
1,2,4-TRICHLOROBENZENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
1,2-DICHLOROBENZENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
1,3-DICHLOROBENZENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
1,4-DICHLOROBENZENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
1-METHYLNAPHTHALENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
1-METHYLPHENANTHRENE	350	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2,4,5-TRICHLOROPHENOL	470 U	2,100 U	410 U	1,500 U	NA	NA	NA	NA	3,000 U	NA	NA	NA
2,4,6-TRICHLOROPHENOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2,4-DICHLOROPHENOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2,4-DIMETHYLPHENOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2,4-DINITROPHENOL	470 U	2,100 U	410 U	1,500 U	NA	NA	NA	NA	3,000 U	NA	NA	NA
2,4-DINITROTOLUENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2,6-DINITROTOLUENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2-CHLORONAPHTHALENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2-CHLOROPHENOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2-METHYLNAPHTHALENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2-METHYLPHENOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
2-NITROANILINE	470 U	2,100 U	410 U	1,500 U	NA	NA	NA	NA	3,000 U	NA	NA	NA
2-NITROPHENOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
3,3'-DICHLOROBENZIDINE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
3-NITROANILINE	470 U	2,100 U	410 U	1,500 U	NA	NA	NA	NA	3,000 U	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	470 U	2,100 U	410 U	1,500 U	NA	NA	NA	NA	3,000 U	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
4-CHLOROANILINE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
4-METHYLPHENOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
4-NITROANILINE	470 U	2,100 U	410 U	1,500 U	NA	NA	NA	NA	3,000 U	NA	NA	NA
4-NITROPHENOL	470 U	2,100 U	410 U	1,500 U	NA	NA	NA	NA	3,000 U	NA	NA	NA
ACENAPHTHENE	280	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
ACENAPHTHYLENE	270	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
ANTHRACENE	2,100	850 U	160 U	590 U	NA	NA	NA	NA	360 J	NA	NA	NA
BENZO(A)ANTHRACENE	3,800 *	31 J	20 J	62 J	NA	NA	NA	NA	1,200 U	NA	NA	NA
BENZO(A)PYRENE	2,700 *	37 J	20 J	79 J *	NA	NA	NA	NA	1,200 U	NA	NA	NA
BENZO(B)FLUORANTHENE	3,100 *	50 J	33 J	99 J	NA	NA	NA	NA	1,200 U	NA	NA	NA

Notes:

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Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBC06	WHSSBC08	WHSSBD01	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD07	WHSSBD07	WHSSBD07	WHSSBD07
Sample ID	281WHSSS075	281WHSSS020	281WHSSS044	281WHSSS059	281WHSSS060	281WHSSS061	281WHSSS062	281WHSSS063	281WHSSS012	281WHSSS013	281WHSSS014	281WHSSS015
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	07/19/1995	07/21/1995	07/25/1995	07/26/1995	07/25/1995	07/25/1995	07/26/1995	07/18/1995	07/18/1995	07/18/1995	07/18/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	4.50 - 5.80	9.50 - 10.40	18.50 - 20.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.30 - 10.00
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	2,400	850 U	33 J	75 J	NA	NA	NA	NA	840 J	NA	NA	NA
BENZO(G,H,I)PERYLENE	1,100	850 U	29 J	77 J	NA	NA	NA	NA	1,200 U	NA	NA	NA
BENZO(K)FLUORANTHENE	3,400 *	45 J	22 J	72 J	NA	NA	NA	NA	1,200 U	NA	NA	NA
BENZOIC ACID	470 U	2,100 U	410 UJ	350 J	NA	NA	NA	NA	3,000 U	NA	NA	NA
BENZYL ALCOHOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	260 U	850 U	160 U	590 U	NA	NA	NA	NA	1,700 U	NA	NA	NA
BUTYLBENZYLPHTHALATE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
CARBAZOLE	880	850 U	160 U	590 U	NA	NA	NA	NA	150 J	NA	NA	NA
CHRYSENE	6,400 *	64 J	37 J	130 J	NA	NA	NA	NA	1,200 U	NA	NA	NA
DI-N-BUTYLPHTHALATE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
DI-N-OCTYLPHTHALATE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	600 *	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
DIBENZOFURAN	170 J	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
DIBENZOTHIOPHENE	170 J	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
DIETHYLPHTHALATE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
DIMETHYLPHTHALATE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
FLUORANTHENE	14,000	89 J	39 J	140 J	NA	NA	NA	NA	770 J	NA	NA	NA
FLUORENE	350	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
HEXACHLOROBENZENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
HEXACHLOROBUTADIENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	190 UJ	850 UJ	160 U	590 U	NA	NA	NA	NA	1,200 UJ	NA	NA	NA
HEXACHLOROETHANE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	1,200 *	850 U	20 J	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
ISOPHORONE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
NAPHTHALENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
NITROBENZENE	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
PENTACHLOROPHENOL	780 J	2,100 U	410 U	1,500 U	NA	NA	NA	NA	3,000 U	NA	NA	NA
PERYLENE	840	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
PHENANTHRENE	3,000	45 J	160 U	67 UJ	NA	NA	NA	NA	240 J	NA	NA	NA
PHENOL	190 U	850 U	160 U	590 U	NA	NA	NA	NA	1,200 U	NA	NA	NA
PYRENE	13,000	80 J	34 J	130 J	NA	NA	NA	NA	590 J	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	53,000	400	290	860	NA	NA	NA	NA	2,200	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	6,400	45	U	U	NA	NA	NA	NA	600	NA	NA	NA
TOTAL PAHS	59,000	440	290	860	NA	NA	NA	NA	2,800	NA	NA	NA

Notes:

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Site 11 - Wood Hogger
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Point ID	WHSSBC06	WHSSBC08	WHSSBD01	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD07	WHSSBD07	WHSSBD07	WHSSBD07
Sample ID	281WHSSS075	281WHSSS020	281WHSSS044	281WHSSS059	281WHSSS060	281WHSSS061	281WHSSS062	281WHSSS063	281WHSSS012	281WHSSS013	281WHSSS014	281WHSSS015
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	07/19/1995	07/21/1995	07/25/1995	07/26/1995	07/25/1995	07/25/1995	07/26/1995	07/18/1995	07/18/1995	07/18/1995	07/18/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	4.50 - 5.80	9.50 - 10.40	18.50 - 20.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.30 - 10.00
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
1,2-DICHLOROBENZENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
1,3-DICHLOROBENZENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
1,4-DICHLOROBENZENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	4,600 U	3,600 U	2,600 U	6,400 U	NA	1,100 U	1,000 U	1,000 U
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2,4-DICHLOROPHENOL	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2,4-DINITROPHENOL	NA	NA	NA	NA	4,600 U	3,600 U	2,600 U	6,400 U	NA	1,100 U	1,000 U	1,000 U
2,4-DINITROTOLUENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2,6-DINITROTOLUENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2-CHLORONAPHTHALENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2-CHLOROPHENOL	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2-METHYLNAPHTHALENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2-METHYLPHENOL	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
2-NITROANILINE	NA	NA	NA	NA	4,600 U	3,600 U	2,600 U	6,400 U	NA	1,100 U	1,000 U	1,000 U
2-NITROPHENOL	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
3-NITROANILINE	NA	NA	NA	NA	4,600 U	3,600 U	2,600 U	6,400 U	NA	1,100 U	1,000 U	1,000 U
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	4,600 U	3,600 U	2,600 U	6,400 U	NA	1,100 U	1,000 U	1,000 U
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
4-CHLOROANILINE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
4-METHYLPHENOL	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
4-NITROANILINE	NA	NA	NA	NA	4,600 U	3,600 U	2,600 U	6,400 U	NA	1,100 U	1,000 U	1,000 U
4-NITROPHENOL	NA	NA	NA	NA	4,600 U	3,600 U	2,600 U	6,400 U	NA	1,100 U	1,000 U	1,000 U
ACENAPHTHENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
ACENAPHTHYLENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
ANTHRACENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
BENZO(A)ANTHRACENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
BENZO(A)PYRENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	07/19/1995	07/21/1995	07/25/1995	07/26/1995	07/25/1995	07/25/1995	07/26/1995	07/18/1995	07/18/1995	07/18/1995	07/18/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	4.50 - 5.80	9.50 - 10.40	18.50 - 20.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.30 - 10.00
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
CARBAZOLE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 UJ	420 U
CHRYSENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
DIBENZOFURAN	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
DIETHYLPHTHALATE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
DIMETHYLPHTHALATE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
FLUORANTHENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
FLUORENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
HEXACHLOROBENZENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
HEXACHLOROBUTADIENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	1,900 UJ	1,400 U	1,000 U	2,600 UJ	NA	430 U	410 UJ	420 UJ
HEXACHLOROETHANE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
ISOPHORONE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
NAPHTHALENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
NITROBENZENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
PENTACHLOROPHENOL	NA	NA	NA	NA	4,600 U	3,600 U	2,600 U	6,400 U	NA	1,100 U	1,000 U	1,000 U
PHENANTHRENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	2,600 U	NA	430 U	410 U	420 U
PHENOL	NA	NA	NA	NA	1,900 U	1,400 U	1,000 U	4,200	NA	1,500	410 U	420 U
PYRENE	NA	NA	NA	NA	1,900 U	1,400 U	1,000 UJ	2,600 U	NA	430 U	410 U	420 U
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	U	U	U	U	NA	U	U	U
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	U	U	U	U	NA	U	U	U
TOTAL PAHS	NA	NA	NA	NA	U	U	U	U	NA	U	U	U
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	1	0.7 J	0.1 U	5 J	NA	NA	NA	NA	1 U	NA	NA	NA
2,4'-DDE	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
2,4'-DDT	0.3	0.5 J	0.2 J	0.7 U	NA	NA	NA	NA	11	NA	NA	NA
4,4'-DDD	0.5	1	0.2 J	6	NA	NA	NA	NA	15	NA	NA	NA
4,4'-DDE	0.3	1	0.3	3	NA	NA	NA	NA	9	NA	NA	NA
4,4'-DDT	0.3	2 J	0.6	0.7 U	NA	NA	NA	NA	51	NA	NA	NA
ALDRIN	0.2 U	0.4	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
ALPHA-CHLORDANE	0.2	0.7	0.3	2 J	NA	NA	NA	NA	23	NA	NA	NA
DIELDRIN	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
GAMMA-BHC (LINDANE)	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBC06	WHSSBC08	WHSSBD01	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD07	WHSSBD07	WHSSBD07	WHSSBD07
Sample ID	281WHSSS075	281WHSSS020	281WHSSS044	281WHSSS059	281WHSSS060	281WHSSS061	281WHSSS062	281WHSSS063	281WHSSS012	281WHSSS013	281WHSSS014	281WHSSS015
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	07/19/1995	07/21/1995	07/25/1995	07/26/1995	07/25/1995	07/25/1995	07/26/1995	07/18/1995	07/18/1995	07/18/1995	07/18/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	4.50 - 5.80	9.50 - 10.40	18.50 - 20.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.30 - 10.00
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
HEPTACHLOR EPOXIDE	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
HEXACHLOROBENZENE	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
MIREX	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-101 (2,2',3,5,5')	0.2 U	0.2 J	0.1 U	0.8 J	NA	NA	NA	NA	1 J	NA	NA	NA
PCB-105 (2,3,3',4,4')	0.2 U	0.3 J	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-118 (2,3',4,4',5)	0.2 U	0.2 U	0.1 U	1	NA	NA	NA	NA	4 J	NA	NA	NA
PCB-126 (3,3',4,4',5)	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-128 (2,2',3,3',4,4')	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-138 (2,2',3,4,4',5')	0.3	0.5 J	0.1 U	2 J	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-153 (2,2',4,4',5,5')	0.2 U	0.4 J	0.1 U	0.7 U	NA	NA	NA	NA	4	NA	NA	NA
PCB-170 (2,2',3,3',4,4',5)	0.6	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 J	NA	NA	NA
PCB-18 (2,2',5)	0.2 U	0.2 J	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-180 (2,2',3,4,4',5,5')	0.2 U	0.3 J	0.1 U	2	NA	NA	NA	NA	4 J	NA	NA	NA
PCB-187 (2,2',3,4',5,5',6)	0.2 U	0.1 J	0.1 U	0.5 J	NA	NA	NA	NA	2	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	0.2 U	0.2 J	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	0.3	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-28 (2,4,4')	0.2 U	0.2 J	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-44 (2,2',3,5')	0.4	0.3 J	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-52 (2,2',5,5')	0.2 U	0.2 J	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-66 (2,3',4,4')	0.2	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-77 (3,3',4,4')	0.2 U	0.3 J	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
PCB-8 (2,4')	0.2 U	0.2 U	0.1 U	0.7 U	NA	NA	NA	NA	1 U	NA	NA	NA
TRANS-NONACHLOR	0.3	1	0.2 J	2 J	NA	NA	NA	NA	16	NA	NA	NA
TOTAL BHCS	U	U	U	U	NA	NA	NA	NA	U	NA	NA	NA
TOTAL CHLORDANES	0.2	0.7	0.3	2	NA	NA	NA	NA	23	NA	NA	NA
TOTAL DDTS	2	6	1	14	NA	NA	NA	NA	86	NA	NA	NA
TOTAL PCBS	4	6	U	13	NA	NA	NA	NA	32	NA	NA	NA
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	19 U	14 U	10 U	26 U	NA	7	4 U	4 U
4,4'-DDE	NA	NA	NA	NA	19 U	14 U	10 U	26 U	NA	2 J	4 U	4 U
4,4'-DDT	NA	NA	NA	NA	19 U	14 U	10 U	26 U	NA	4 J	4 U	4 U
ALDRIN	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 U	2 U	2 U
ALPHA-BHC	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 U	2 U	2 U
ALPHA-CHLORDANE	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 J	2 U	2 U
AROCLOR-1016	NA	NA	NA	NA	190 U	140 U	100 U	260 U	NA	43 U	41 U	42 U
AROCLOR-1221	NA	NA	NA	NA	370 U	290 U	210 U	510 U	NA	87 U	81 U	83 U

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Site 11 - Wood Hogger
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Point ID	WHSSBC06	WHSSBC08	WHSSBD01	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD03	WHSSBD07	WHSSBD07	WHSSBD07	WHSSBD07
Sample ID	281WHSSS075	281WHSSS020	281WHSSS044	281WHSSS059	281WHSSS060	281WHSSS061	281WHSSS062	281WHSSS063	281WHSSS012	281WHSSS013	281WHSSS014	281WHSSS015
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	07/19/1995	07/21/1995	07/25/1995	07/26/1995	07/25/1995	07/25/1995	07/26/1995	07/18/1995	07/18/1995	07/18/1995	07/18/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	4.50 - 5.80	9.50 - 10.40	18.50 - 20.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.30 - 10.00
Pesticides (in µg/Kg)												
AROCLOR-1232	NA	NA	NA	NA	190 U	140 U	100 U	260 U	NA	43 U	41 U	42 U
AROCLOR-1242	NA	NA	NA	NA	190 U	140 U	100 U	260 U	NA	43 U	41 U	42 U
AROCLOR-1248	NA	NA	NA	NA	190 U	140 U	100 U	260 U	NA	43 U	41 U	42 U
AROCLOR-1254	NA	NA	NA	NA	190 U	140 U	100 U	260 U	NA	43 U	41 U	42 U
AROCLOR-1260	NA	NA	NA	NA	190 U	140 U	100 U	260 U	NA	43 U	41 U	42 U
BETA-BHC	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 U	2 U	2 U
DELTA-BHC	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 U	2 U	2 U
DIELDRIN	NA	NA	NA	NA	19 U	14 U	10 U	26 U	NA	4 U	4 U	4 U
ENDOSULFAN I	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 U	2 U	2 U
ENDOSULFAN II	NA	NA	NA	NA	19 U	14 U	10 U	26 U	NA	4 U	4 U	4 U
ENDOSULFAN SULFATE	NA	NA	NA	NA	19 U	14 U	10 U	26 U	NA	4 U	4 U	4 U
ENDRIN	NA	NA	NA	NA	19 U	14 U	10 U	26 U	NA	4 U	4 U	4 U
ENDRIN ALDEHYDE	NA	NA	NA	NA	19 U	14 U	10 U	26 U	NA	4 U	4 U	4 U
ENDRIN KETONE	NA	NA	NA	NA	19 U	14 U	10 U	26 U	NA	4 U	4 U	4 U
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 U	2 U	2 U
GAMMA-CHLORDANE	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 U	2 U	2 U
HEPTACHLOR	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 U	2 U	2 U
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	9 U	7 U	5 U	13 U	NA	2 U	2 U	2 U
METHOXYCHLOR	NA	NA	NA	NA	93 U	72 U	52 U	130 U	NA	22 U	20 U	21 U
TOXAPHENE	NA	NA	NA	NA	930 U	720 U	520 U	1,300 U	NA	220 U	200 U	210 U
TOTAL BHCS	NA	NA	NA	NA	U	U	U	U	NA	U	U	U
TOTAL CHLORDANES	NA	NA	NA	NA	U	U	U	U	NA	2	U	U
TOTAL DDTS	NA	NA	NA	NA	U	U	U	U	NA	12	U	U
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
HMX	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
RDX	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA	NA	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	65 U	12 U	13 U

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Sample ID	281WHSSS075	281WHSSS020	281WHSSS044	281WHSSS059	281WHSSS060	281WHSSS061	281WHSSS062	281WHSSS063	281WHSSS012	281WHSSS013	281WHSSS014	281WHSSS015
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	07/19/1995	07/21/1995	07/25/1995	07/26/1995	07/25/1995	07/25/1995	07/26/1995	07/18/1995	07/18/1995	07/18/1995	07/18/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	4.50 - 5.80	9.50 - 10.40	18.50 - 20.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.30 - 10.00
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5 J	0.6 U	0.6 U
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	640	12 U	13 U
CLP Metals (in mg/Kg)												
ALUMINUM	14,400	16,900	14,300	18,000	15,500	22,400	17,400	2,050	7,850	7,770	14,700	11,100
ANTIMONY	0.93	2.2 J	0.52 U	2.5 UJ	2.3 UJ	1.8 UJ	1.3 UJ	3.3 UJ	2.2 J	0.84 J	0.60 J	0.53 UJ
ARSENIC	16.7 *	10.8 *	5.2 *	17.9 J *	9.8 J *	15.1 J *	7.0 J *	4.3 UJ	7.2 *	3.4 *	7.2 *	5.0 *
BARIUM	50.6	186	353	84.0	57.0	52.9	39.0	28.0	63.3	90.1	186	188
BERYLLIUM	0.21	0.030 U	0.020 U	0.12 U	0.11 U	0.090 U	0.14 U	0.16 U	0.020 U	0.030 U	0.020 U	0.18
CADMIUM	0.24	0.050 U	0.050 UJ	1.1 U	22.0 U	0.17 U	0.12 U	0.31 U	1.7	0.56	0.20	0.090
CALCIUM	14,100	3,830	5,880 J	5,590	9,760	6,630	4,470	9,250	5,760	4,990	5,450	8,560
CHROMIUM	24.9	49.2	32.9	55.5 J	50.8 J	71.5 J	58.3 J	7.5 U	25.5	20.2	43.6	25.8
COBALT	12.7	20.7	14.3	7.0	3.8	23.1	13.4	2.1 U	9.1	13.7	16.7	9.5
COPPER	57.5	56.3	30.0 J	103 J	22.7 J	27.5 J	33.3 J	20.4 J	43.7	55.8	45.4	26.5
IRON	21,700	32,800 *	25,800 *	22,100 J	11,200 J	36,600 J *	29,500 J *	2,900 J	25,000 *	16,700	30,400 *	15,300
LEAD	11.0	11.3 J	5.5 J	218 J *	9.8 J	12.3 J	9.1 J	2.7 U	90.9	49.6	8.0	8.8
MAGNESIUM	9,260	9,740	8,510	10,000	14,800	15,100	11,300	11,700	6,160	5,920	11,500	6,560
MANGANESE	217	772 J	622 J	185	126	353	440	94.0	319 J	255 J	508 J	149 J
MERCURY	0.16	0.14	0.14	0.58 U	0.27 UJ	0.22 UJ	0.16 UJ	0.39 UJ	0.22	0.080	0.11	0.080
MOLYBDENUM	0.35 U	0.23 U	0.21 UJ	3.2 U	6.4 U	6.6	0.56 U	4.4 U	1.1	0.23 U	0.22 U	0.35
NICKEL	19.5	100	56.7	58.9	35.6	97.7	59.3	15.3 U	21.2	31.3	114	46.6
POTASSIUM	1,390	2,840 J	1,800 J	3,510 J	5,610 J	5,810 J	4,210 J	1,620 J	1,010 J	932 J	1,300 J	1,710 J
SELENIUM	0.67	0.88 U	0.80 UJ	4.3 U	3.7 U	2.9 U	2.1 U	5.3 U	0.75 U	0.88 U	0.83 U	0.85 U
SILVER	0.31 U	0.16 U	0.14 U	0.78 U	0.65 U	0.52 U	0.37 U	0.93 U	0.22	0.16 U	0.15 U	0.15 U
SODIUM	3,210	4,260	2,660 J	7,790 J	55,800 J	33,300 J	17,500 J	35,600 J	1,430	1,220	545	6,550
THALLIUM	0.085 U	1.9	0.47 U	2.4	2.2 U	1.7 U	1.2 U	3.1 U	0.44 U	0.52 U	0.49 U	0.50 U
VANADIUM	47.7	90.6	64.5	83.8	58.6	78.4	42.2	13.1	32.2	38.2	82.5	51.4
ZINC	60.7	89.8	63.9 J	417	82.2 U	81.7 U	98.3	50.4 U	225	593	76.8	45.9
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	11.1 U	17.0 UJ	12.0 U	360	56.0 U	59.6 U	64.1 U	74.2 U	11.0 UJ	14.0 UJ	12.0 UJ	12.0 UJ
TOTAL ORGANIC CARBON	24,400	42,100 J	15,500	156,000	201,000	251,000	393,000	333,000	71,100	45,900	118 U	121 U
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample ID	281WHSSS075	281WHSSS020	281WHSSS044	281WHSSS059	281WHSSS060	281WHSSS061	281WHSSS062	281WHSSS063	281WHSSS012	281WHSSS013	281WHSSS014	281WHSSS015
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/09/1995	07/19/1995	07/21/1995	07/25/1995	07/26/1995	07/25/1995	07/25/1995	07/26/1995	07/18/1995	07/18/1995	07/18/1995	07/18/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.00	4.50 - 5.80	9.50 - 10.40	18.50 - 20.00	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.30 - 10.00
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	12.0	42.0	20.0	86.0	NA	NA	NA	NA	10.0	NA	NA	NA
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	7.34	8.9	7.6	7	6.6	6.9	7.4	7.2	6.1	7.1	7	7.8

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBE02	WHSSBE04	WHSSBE06	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF07
Sample ID	281WHSSS019	281WHSSS046	281WHSSS022	281WHSSS102	281WHSSS103	281WHSSS104	281WHSSS105	281WHSSS055A	281WHSSS056	281WHSSS057	281WHSSS058	281WHSSS007
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/19/1995	07/21/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	07/25/1995	07/25/1995	07/25/1995	07/25/1995	07/17/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	2.50 - 4.00	5.50 - 6.50	9.00 - 10.30	0.00 - 0.50	1.50 - 2.30	4.50 - 5.90	9.50 - 10.80	0.00 - 0.50
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
2-BUTANONE	NA	NA	NA	NA	26 U	12 U	290	NA	19 U	19 U	21 U	NA
2-HEXANONE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
ACETONE	NA	NA	NA	NA	110 U	64 U	1,000 U	NA	300	71 U	120 U	NA
BENZENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
BROMOFORM	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
BROMOMETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
CARBON DISULFIDE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	23	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
CHLOROBENZENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
CHLOROETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
CHLOROFORM	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
CHLOROMETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
ETHYLBENZENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	64 U	21 U	NA
STYRENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
TETRACHLOROETHENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
TOLUENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
TRICHLOROETHENE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
VINYL CHLORIDE	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA
XYLENE (TOTAL)	NA	NA	NA	NA	26 U	12 U	28 U	NA	19 U	19 U	21 U	NA

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Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBE02	WHSSBE04	WHSSBE06	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF07
Sample ID	281WHSSS019	281WHSSS046	281WHSSS022	281WHSSS102	281WHSSS103	281WHSSS104	281WHSSS105	281WHSSS055A	281WHSSS056	281WHSSS057	281WHSSS058	281WHSSS007
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/19/1995	07/21/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	07/25/1995	07/25/1995	07/25/1995	07/25/1995	07/17/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	2.50 - 4.00	5.50 - 6.50	9.00 - 10.30	0.00 - 0.50	1.50 - 2.30	4.50 - 5.90	9.50 - 10.80	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
1,2,4-TRICHLOROBENZENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
1,2-DICHLOROBENZENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
1,3-DICHLOROBENZENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
1,4-DICHLOROBENZENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
1-METHYLNAPHTHALENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
1-METHYLPHENANTHRENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2,2'-OXYBIS(1-CHLOROPROPANE)	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2,3,5-TRIMETHYLNAPHTHALENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2,4,5-TRICHLOROPHENOL	410 U	NA	5,500 U	320 U	NA	NA	NA	260 U	NA	NA	NA	2,500 U
2,4,6-TRICHLOROPHENOL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2,4-DICHLOROPHENOL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2,4-DIMETHYLPHENOL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2,4-DINITROPHENOL	410 U	NA	5,500 U	320 U	NA	NA	NA	260 U	NA	NA	NA	2,500 U
2,4-DINITROTOLUENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2,6-DIMETHYLNAPHTHALENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2,6-DINITROTOLUENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2-CHLORONAPHTHALENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2-CHLOROPHENOL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2-METHYLNAPHTHALENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2-METHYLPHENOL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
2-NITROANILINE	410 U	NA	5,500 U	320 U	NA	NA	NA	260 U	NA	NA	NA	2,500 U
2-NITROPHENOL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
3,3'-DICHLOROBENZIDINE	170 U	NA	2,300 U	130 UJ	NA	NA	NA	100 U	NA	NA	NA	1,000 U
3-NITROANILINE	410 U	NA	5,500 U	320 UJ	NA	NA	NA	260 U	NA	NA	NA	2,500 U
4,6-DINITRO-2-METHYLPHENOL	410 U	NA	5,500 U	320 U	NA	NA	NA	260 U	NA	NA	NA	2,500 U
4-BROMOPHENYL-PHENYLETHER	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
4-CHLORO-3-METHYLPHENOL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
4-CHLOROANILINE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
4-CHLOROPHENYL-PHENYLETHER	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
4-METHYLPHENOL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
4-NITROANILINE	410 U	NA	5,500 U	320 UJ	NA	NA	NA	260 U	NA	NA	NA	2,500 U
4-NITROPHENOL	410 U	NA	5,500 U	320 U	NA	NA	NA	260 U	NA	NA	NA	2,500 U
ACENAPHTHENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
ACENAPHTHYLENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
ANTHRACENE	170 U	NA	180 J	170	NA	NA	NA	14 J	NA	NA	NA	1,000 U
BENZO(A)ANTHRACENE	170 U	NA	500 J	310	NA	NA	NA	68 J	NA	NA	NA	1,000 U
BENZO(A)PYRENE	170 U	NA	570 J *	350 *	NA	NA	NA	77 J *	NA	NA	NA	1,000 U
BENZO(B)FLUORANTHENE	170 U	NA	1,200 J *	570	NA	NA	NA	130	NA	NA	NA	1,000 U

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Sample ID	281WHSSS019	281WHSSS046	281WHSSS022	281WHSSS102	281WHSSS103	281WHSSS104	281WHSSS105	281WHSSS055A	281WHSSS056	281WHSSS057	281WHSSS058	281WHSSS007
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/19/1995	07/21/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	07/25/1995	07/25/1995	07/25/1995	07/25/1995	07/17/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	2.50 - 4.00	5.50 - 6.50	9.00 - 10.30	0.00 - 0.50	1.50 - 2.30	4.50 - 5.90	9.50 - 10.80	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	170 U	NA	540 J	330	NA	NA	NA	88 J	NA	NA	NA	1,000 U
BENZO(G,H,I)PERYLENE	170 U	NA	520 J	300	NA	NA	NA	86 J	NA	NA	NA	1,000 U
BENZO(K)FLUORANTHENE	170 U	NA	850 J *	190	NA	NA	NA	68 J	NA	NA	NA	1,000 U
BENZOIC ACID	21 UJ	NA	5,500 U	830	NA	NA	NA	40 J	NA	NA	NA	1,000 U
BENZYL ALCOHOL	170 U	NA	2,300 U	130 UJ	NA	NA	NA	100 U	NA	NA	NA	1,000 U
BIS(2-CHLOROETHOXY)METHANE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
BIS(2-CHLOROETHYL)ETHER	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
BIS(2-ETHYLHEXYL)PHTHALATE	170 U	NA	2,300 U	130 U	NA	NA	NA	110 U	NA	NA	NA	1,000 U
BUTYLBENZYLPHTHALATE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
CARBAZOLE	170 U	NA	200 J	130	NA	NA	NA	18 J	NA	NA	NA	1,000 U
CHRYSENE	170 U	NA	1,200 J	390	NA	NA	NA	97 J	NA	NA	NA	1,000 U
DI-N-BUTYLPHTHALATE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
DI-N-OCTYLPHTHALATE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
DIBENZ(A,H)ANTHRACENE	170 U	NA	130 J *	110 J *	NA	NA	NA	32 J	NA	NA	NA	1,000 U
DIBENZOFURAN	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
DIBENZOTHIOPHENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
DIETHYLPHTHALATE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
DIMETHYLPHTHALATE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
FLUORANTHENE	170 U	NA	1,200 J	910	NA	NA	NA	130	NA	NA	NA	1,000 U
FLUORENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
HEXACHLOROBENZENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
HEXACHLOROBUTADIENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
HEXACHLOROCYCLOPENTADIENE	170 UJ	NA	2,300 UJ	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 UJ
HEXACHLOROETHANE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
INDENO(1,2,3-CD)PYRENE	170 U	NA	470 J	250	NA	NA	NA	70 J	NA	NA	NA	1,000 U
ISOPHORONE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
N-NITROSO-DI-N-PROPYLAMINE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
N-NITROSODIPHENYLAMINE (1)	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
NAPHTHALENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
NITROBENZENE	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
PENTACHLOROPHENOL	410 U	NA	5,500 U	250 J	NA	NA	NA	260 U	NA	NA	NA	2,500 U
PERYLENE	170 U	NA	150 J	130	NA	NA	NA	26 J	NA	NA	NA	1,000 U
PHENANTHRENE	170 U	NA	470 J	400	NA	NA	NA	49 J	NA	NA	NA	1,000 U
PHENOL	170 U	NA	2,300 U	130 U	NA	NA	NA	100 U	NA	NA	NA	1,000 U
PYRENE	170 U	NA	970 J	410	NA	NA	NA	110	NA	NA	NA	1,000 U
TOTAL HIGH MOLECULAR PAHS	U	NA	8,300	4,300	NA	NA	NA	980	NA	NA	NA	U
TOTAL LOW MOLECULAR PAHS	U	NA	650	570	NA	NA	NA	63	NA	NA	NA	U
TOTAL PAHS	U	NA	9,000	4,800	NA	NA	NA	1,000	NA	NA	NA	U

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Sample ID	281WHSSS019	281WHSSS046	281WHSSS022	281WHSSS102	281WHSSS103	281WHSSS104	281WHSSS105	281WHSSS055A	281WHSSS056	281WHSSS057	281WHSSS058	281WHSSS007
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/19/1995	07/21/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	07/25/1995	07/25/1995	07/25/1995	07/25/1995	07/17/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	2.50 - 4.00	5.50 - 6.50	9.00 - 10.30	0.00 - 0.50	1.50 - 2.30	4.50 - 5.90	9.50 - 10.80	0.00 - 0.50
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	2,100 U	960 U	2,200 U	NA	1,600 U	1,600 U	1,800 U	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	2,100 U	960 U	2,200 U	NA	1,600 U	1,600 U	1,800 U	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2-CHLOROPHENOL	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2-METHYLPHENOL	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
2-NITROANILINE	NA	NA	NA	NA	2,100 U	960 U	2,200 U	NA	1,600 U	1,600 U	1,800 U	NA
2-NITROPHENOL	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
3-NITROANILINE	NA	NA	NA	NA	2,100 U	960 U	2,200 U	NA	1,600 U	1,600 U	1,800 U	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	2,100 U	960 U	2,200 U	NA	1,600 U	1,600 U	1,800 U	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
4-CHLOROANILINE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
4-METHYLPHENOL	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
4-NITROANILINE	NA	NA	NA	NA	2,100 U	960 U	2,200 U	NA	1,600 U	1,600 U	1,800 U	NA
4-NITROPHENOL	NA	NA	NA	NA	2,100 U	960 U	2,200 U	NA	1,600 U	1,600 U	1,800 U	NA
ACENAPHTHENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
ACENAPHTHYLENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
ANTHRACENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
BENZO(A)PYRENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	440 J	710 U	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBE02	WHSSBE04	WHSSBE06	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF07
Sample ID	281WHSSS019	281WHSSS046	281WHSSS022	281WHSSS102	281WHSSS103	281WHSSS104	281WHSSS105	281WHSSS055A	281WHSSS056	281WHSSS057	281WHSSS058	281WHSSS007
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/19/1995	07/21/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	07/25/1995	07/25/1995	07/25/1995	07/25/1995	07/17/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	2.50 - 4.00	5.50 - 6.50	9.00 - 10.30	0.00 - 0.50	1.50 - 2.30	4.50 - 5.90	9.50 - 10.80	0.00 - 0.50
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
CARBAZOLE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	350 J	710 U	NA
CHRYSENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	330 J	710 U	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
DIBENZOFURAN	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
FLUORANTHENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	780	710 U	NA
FLUORENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
HEXACHLOROETHANE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
ISOPHORONE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
NAPHTHALENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
NITROBENZENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	710 U	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	2,100 U	960 U	2,200 U	NA	1,600 U	1,600 U	1,800 U	NA
PHENANTHRENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	490 J	710 U	NA
PHENOL	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	630 U	680 J	NA
PYRENE	NA	NA	NA	NA	870 U	400 U	920 U	NA	630 U	640	710 U	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	U	U	U	NA	U	2,200	U	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	U	U	U	NA	U	490	U	NA
TOTAL PAHS	NA	NA	NA	NA	U	U	U	NA	U	2,700	U	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	0.1 U	NA	5 U	2 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
2,4'-DDE	0.1 U	NA	5 U	0.6 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
2,4'-DDT	0.2 J	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
4,4'-DDD	0.1 U	NA	16 J	4	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
4,4'-DDE	0.3	NA	17	1	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
4,4'-DDT	0.5	NA	110	0.6 J	NA	NA	NA	0.1 U	NA	NA	NA	0.3 J
ALDRIN	0.1 U	NA	5 U	0.5	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
ALPHA-CHLORDANE	1 J	NA	19 J	2	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
DIELDRIN	0.1 U	NA	5 U	0.8	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
GAMMA-BHC (LINDANE)	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U

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Table E-1
Site 11 - Wood Hogger
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Point ID	WHSSBE02	WHSSBE04	WHSSBE06	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF07
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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/19/1995	07/21/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	07/25/1995	07/25/1995	07/25/1995	07/25/1995	07/17/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	2.50 - 4.00	5.50 - 6.50	9.00 - 10.30	0.00 - 0.50	1.50 - 2.30	4.50 - 5.90	9.50 - 10.80	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
HEPTACHLOR EPOXIDE	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
HEXACHLOROBENZENE	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.2 J	NA	NA	NA	0.2 U
MIREX	0.1 U	NA	5 U	0.2 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
PCB-101 (2,2',3,5,5')	0.1 U	NA	5 U	0.8 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-105 (2,3,3',4,4')	0.1 U	NA	5 U	0.4 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-118 (2,3',4,4',5)	0.1 U	NA	5 U	0.8	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-126 (3,3',4,4',5)	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-128 (2,2',3,3',4,4')	0.1 U	NA	5 U	0.3 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-138 (2,2',3,4,4',5')	0.1 U	NA	5 U	1 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-153 (2,2',4,4',5,5')	0.1 U	NA	5 U	1 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-170 (2,2',3,3',4,4',5)	0.1 U	NA	5 U	0.3 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-18 (2,2',5)	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-180 (2,2',3,4,4',5,5')	0.1 U	NA	5 U	0.7	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-187 (2,2',3,4',5,5',6)	0.1 U	NA	5 U	0.4	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-195 (2,2',3,3',4,4',5,6)	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-206 (2,2',3,3',4,4',5,5',6	0.1 U	NA	5 U	0.2 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-209 (2,2',3,3',4,4',5,5',6	0.1 U	NA	5 U	0.3 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-28 (2,4,4')	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-44 (2,2',3,5')	0.1 U	NA	5 U	0.2 UJ	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-52 (2,2',5,5')	0.1 U	NA	5 U	0.2 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-66 (2,3',4,4')	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-77 (3,3',4,4')	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
PCB-8 (2,4')	0.1 U	NA	5 U	0.2 U	NA	NA	NA	0.1 U	NA	NA	NA	0.2 UJ
TRANS-NONACHLOR	2 J	NA	16 J	1 J	NA	NA	NA	0.1 U	NA	NA	NA	0.2 U
TOTAL BHCS	U	NA	U	U	NA	NA	NA	U	NA	NA	NA	U
TOTAL CHLORDANES	1	NA	19	2	NA	NA	NA	U	NA	NA	NA	U
TOTAL DDTS	1	NA	140	8	NA	NA	NA	U	NA	NA	NA	0.3
TOTAL PCBS	U	NA	U	13	NA	NA	NA	U	NA	NA	NA	U
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	9 U	4 U	9 U	NA	6 U	9	7 U	NA
4,4'-DDE	NA	NA	NA	NA	9 U	4 U	9 U	NA	6 U	6 U	7 U	NA
4,4'-DDT	NA	NA	NA	NA	9 UJ	4 UJ	9 UJ	NA	6 U	11	7 U	NA
ALDRIN	NA	NA	NA	NA	4 UJ	2 UJ	5 UJ	NA	3 U	3 U	4 U	NA
ALPHA-BHC	NA	NA	NA	NA	4 U	2 U	5 U	NA	3 U	3 U	4 U	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	4 U	2 U	5 U	NA	3 U	3 U	4 U	NA
AROCLOR-1016	NA	NA	NA	NA	88 U	40 U	93 U	NA	63 U	63 U	71 U	NA
AROCLOR-1221	NA	NA	NA	NA	180 U	80 U	190 U	NA	130 U	130 U	140 U	NA

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Site 11 - Wood Hogger
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Point ID	WHSSBE02	WHSSBE04	WHSSBE06	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF07
Sample ID	281WHSSS019	281WHSSS046	281WHSSS022	281WHSSS102	281WHSSS103	281WHSSS104	281WHSSS105	281WHSSS055A	281WHSSS056	281WHSSS057	281WHSSS058	281WHSSS007
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/19/1995	07/21/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	07/25/1995	07/25/1995	07/25/1995	07/25/1995	07/17/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	2.50 - 4.00	5.50 - 6.50	9.00 - 10.30	0.00 - 0.50	1.50 - 2.30	4.50 - 5.90	9.50 - 10.80	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1232	NA	NA	NA	NA	88 U	40 U	93 U	NA	63 U	63 U	71 U	NA
AROCLOR-1242	NA	NA	NA	NA	88 U	40 U	93 U	NA	63 U	63 U	71 U	NA
AROCLOR-1248	NA	NA	NA	NA	88 U	40 U	93 U	NA	63 U	63 U	71 U	NA
AROCLOR-1254	NA	NA	NA	NA	88 U	40 U	93 U	NA	63 U	63 U	71 U	NA
AROCLOR-1260	NA	NA	NA	NA	88 U	40 U	93 U	NA	63 U	63 U	71 U	NA
BETA-BHC	NA	NA	NA	NA	4 U	2 U	5 U	NA	3 U	3 U	4 U	NA
DELTA-BHC	NA	NA	NA	NA	4 U	2 U	5 U	NA	3 U	3 U	4 U	NA
DIELDRIN	NA	NA	NA	NA	9 UJ	4 UJ	9 UJ	NA	6 U	6 U	7 U	NA
ENDOSULFAN I	NA	NA	NA	NA	4 U	2 U	5 U	NA	3 U	3 U	4 U	NA
ENDOSULFAN II	NA	NA	NA	NA	9 U	4 U	9 U	NA	6 U	6 U	7 U	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	9 U	4 U	9 U	NA	6 U	6 U	7 U	NA
ENDRIN	NA	NA	NA	NA	9 UJ	4 UJ	9 UJ	NA	6 U	6 U	7 U	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	9 U	4 U	9 U	NA	6 U	6 U	7 U	NA
ENDRIN KETONE	NA	NA	NA	NA	9 U	4 U	9 U	NA	6 U	6 U	7 U	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	4 UJ	2 UJ	5 UJ	NA	3 U	3 U	4 U	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	4 U	2 U	5 U	NA	3 U	3 U	4 U	NA
HEPTACHLOR	NA	NA	NA	NA	4 UJ	2 UJ	5 UJ	NA	3 U	3 U	4 U	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	4 U	2 U	5 U	NA	3 U	3 U	4 U	NA
METHOXYCHLOR	NA	NA	NA	NA	44 U	20 U	46 U	NA	31 U	31 U	35 U	NA
TOXAPHENE	NA	NA	NA	NA	440 U	200 U	460 U	NA	310 U	310 U	350 U	NA
TOTAL BHCS	NA	NA	NA	NA	U	U	U	NA	U	U	U	NA
TOTAL CHLORDANES	NA	NA	NA	NA	U	U	U	NA	U	U	U	NA
TOTAL DDTS	NA	NA	NA	NA	U	U	U	NA	U	20	U	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
HMX	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
RDX	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	120 U	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/19/1995	07/21/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	07/25/1995	07/25/1995	07/25/1995	07/25/1995	07/17/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	2.50 - 4.00	5.50 - 6.50	9.00 - 10.30	0.00 - 0.50	1.50 - 2.30	4.50 - 5.90	9.50 - 10.80	0.00 - 0.50
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	10,200	14,800	11,100	7,690	20,900	14,400	26,800	9,750	25,900	20,600	27,300	9,040
ANTIMONY	0.72 J	5.7 J	1.9 J	5.7 J	2.2 J	1.7 J	1.4 J	0.79 U	0.79 UJ	1.0 U	1.5 U	0.66 J
ARSENIC	3.3 *	15.4 *	6.3 *	5.2 *	8.4 *	8.2 *	19.3 *	6.7 J *	21.3 J *	19.3 J *	10.5 J *	4.8 *
BARIUM	146	103	145	63.2	546	189	58.8	233	70.6	130	57.4	111
BERYLLIUM	0.13	0.020 U	0.080	0.040 U	0.050 U	0.020 U	0.060 U	0.10 U	0.040 U	0.040 U	0.10 U	0.070
CADMIUM	0.050 U	16.2	0.040 U	0.080 U	0.10 U	0.050 U	0.11 U	4.1	0.080 U	1.9	0.080 U	0.28
CALCIUM	2,140	7,650 J	4,220	4,430	11,200	5,780	5,310	14,000	3,380	10,400	4,000	3,770
CHROMIUM	24.8	41.5	38.6	36.6	63.2	52.3	81.9	23.8 J	73.8 J	80.7 J	95.2 J	26.2
COBALT	8.7	18.3	10.9	6.6	29.1	18.6	35.6	11.9	13.2	16.0	19.6	8.8
COPPER	13.7	173	35.0	78.3	55.7	74.1	28.4	42.0 J	45.2 J	59.1 J	34.9 J	24.4 U
IRON	13,400	57,000 *	18,300	18,900	55,700 *	42,500 *	37,100 *	18,700 J	21,600 J	42,600 J *	44,400 J *	13,700
LEAD	11.1 J	593 *	91.2 J	320 *	24.5	47.4	12.7	49.1 J	29.9 J	728 J *	23.0 J	22.3
MAGNESIUM	3,720	8,990	5,150	5,540	14,400	10,300	13,600	6,970	8,750	9,640	15,600	5,710
MANGANESE	420 J	731 J	366 J	110	877	621	337	901	224	653	418	258 J
MERCURY	0.060 U	0.82	0.10	0.20	0.13 U	0.060 U	0.14 U	0.050 UJ	0.43 U	0.15 U	0.11 UJ	0.070 U
MOLYBDENUM	0.22 U	1.8 U	0.25	0.94 J	1.5 J	1.3 J	6.6 J	0.82 U	2.2 U	2.3	0.38 U	0.25 U
NICKEL	25.9	43.9	31.9	17.5	103	119	111	35.3	53.8	87.4	91.8	39.5
POTASSIUM	1,500 J	1,860 J	1,480 J	1,320 J	1,180 J	1,320 J	5,920 J	2,350 J	3,720 J	3,440 J	6,120 J	2,340 J
SELENIUM	0.83 U	0.69 U	0.72 U	1.3 U	1.8 U	0.82 U	1.9 U	0.72 U	1.3 U	1.3 U	1.4 U	0.94 U
SILVER	0.15 U	0.15 U	0.13 U	0.23	0.31 U	0.14 U	0.34 U	0.13 U	0.23 U	0.23 U	0.25 U	0.17 U
SODIUM	4,180	392 J	999	3,690	4,930	2,650	13,500	2,490 J	5,440 J	4,690 J	8,580 J	2,700
THALLIUM	0.49 U	0.40 U	0.42 U	0.77 U	2.2	0.48 U	1.1 U	0.96	0.76 U	0.75 U	0.85 U	0.55 U
VANADIUM	41.1	64.3	40.0	33.1	163	79.1	95.8	41.1	86.8	68.8	76.6	39.1
ZINC	88.6	544	155	244	141	136	92.3	285	89.1	1,440	122	92.8
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	60.0 J	NA	NA	NA	2,500 U	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	13.0 UJ	NA	11.0 UJ	18.8 UJ	NA	NA	1,380 J	12.2 U	16.8 U	103	22.2 U	15.0 UJ
TOTAL ORGANIC CARBON	3,380 J	NA	41,700 J	89,400	112 U	120 U	69,800	125 U	31,200	6,690	16,800	37,000
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBE02	WHSSBE04	WHSSBE06	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBE08	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF03	WHSSBF07
Sample ID	281WHSSS019	281WHSSS046	281WHSSS022	281WHSSS102	281WHSSS103	281WHSSS104	281WHSSS105	281WHSSS055A	281WHSSS056	281WHSSS057	281WHSSS058	281WHSSS007
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/19/1995	07/21/1995	07/19/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	07/25/1995	07/25/1995	07/25/1995	07/25/1995	07/17/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	2.50 - 4.00	5.50 - 6.50	9.00 - 10.30	0.00 - 0.50	1.50 - 2.30	4.50 - 5.90	9.50 - 10.80	0.00 - 0.50
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	23.0	NA	8.0	49.0	NA	NA	NA	20.0	NA	NA	NA	35.0
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	7.2	7.6	6.7	8.2	8.1	8.3	8	8.8	7.1	7.7	8.1	6.8

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBG02	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG08	WHSSBH03	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBI02
Sample ID	281WHSSS093	281WHSSS098	281WHSSS099	281WHSSS100	281WHSSS101	281WHSSS077	281WHSSS011	281WHSSS094	281WHSSS096	281WHSSS097	281WHSSS115	281WHSSS023
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/11/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	08/09/1995	07/18/1995	08/24/1995	08/24/1995	08/24/1995	08/31/1995	07/19/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	4.50 - 5.00	9.00 - 11.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	4.00 - 5.00	8.00 - 10.10	1.30 - 2.30	0.00 - 0.50
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
1,1,2-TRICHLOROETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
1,1-DICHLOROETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
1,1-DICHLOROETHENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
1,2-DICHLOROETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
1,2-DICHLOROPROPANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
2-BUTANONE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	100 U	59 U	NA	NA
2-HEXANONE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
4-METHYL-2-PENTANONE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
ACETONE	NA	15 U	54 U	70 U	200 U	NA	NA	NA	470 U	330 U	NA	NA
BENZENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
BROMODICHLOROMETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
BROMOFORM	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
BROMOMETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
CARBON DISULFIDE	NA	12 U	12 U	12 U	77 U	NA	NA	NA	40 U	59 U	NA	NA
CARBON TETRACHLORIDE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
CHLOROBENZENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
CHLOROETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
CHLOROFORM	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
CHLOROMETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
DIBROMOCHLOROMETHANE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
ETHYLBENZENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
METHYLENE CHLORIDE	NA	12 U	12 U	12 U	57 U	NA	NA	NA	47 U	66 U	NA	NA
STYRENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
TETRACHLOROETHENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
TOLUENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
TRICHLOROETHENE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
VINYL CHLORIDE	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA
XYLENE (TOTAL)	NA	12 U	12 U	12 U	36 U	NA	NA	NA	40 U	59 U	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBG02	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG08	WHSSBH03	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBI02
Sample ID	281WHSSS093	281WHSSS098	281WHSSS099	281WHSSS100	281WHSSS101	281WHSSS077	281WHSSS011	281WHSSS094	281WHSSS096	281WHSSS097	281WHSSS115	281WHSSS023
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/11/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	08/09/1995	07/18/1995	08/24/1995	08/24/1995	08/24/1995	08/31/1995	07/19/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	4.50 - 5.00	9.00 - 11.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	4.00 - 5.00	8.00 - 10.10	1.30 - 2.30	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
1,2,4-TRICHLOROBENZENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
1,2-DICHLOROBENZENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
1,3-DICHLOROBENZENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
1,4-DICHLOROBENZENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
1-METHYLNAPHTHALENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
1-METHYLPHENANTHRENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2,2'-OXYBIS(1-CHLOROPROPANE)	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2,3,5-TRIMETHYLNAPHTHALENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2,4,5-TRICHLOROPHENOL	810 U	98 U	NA	NA	NA	NA	2,200 U	110 U	NA	NA	NA	53,000 U
2,4,6-TRICHLOROPHENOL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2,4-DICHLOROPHENOL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2,4-DIMETHYLPHENOL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2,4-DINITROPHENOL	810 U	98 U	NA	NA	NA	NA	2,200 U	110 U	NA	NA	NA	53,000 U
2,4-DINITROTOLUENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2,6-DIMETHYLNAPHTHALENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2,6-DINITROTOLUENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2-CHLORONAPHTHALENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2-CHLOROPHENOL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2-METHYLNAPHTHALENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2-METHYLPHENOL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
2-NITROANILINE	810 U	98 U	NA	NA	NA	NA	2,200 U	110 U	NA	NA	NA	53,000 U
2-NITROPHENOL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
3,3'-DICHLOROBENZIDINE	320 U	39 UJ	NA	NA	NA	NA	920 U	43 UJ	NA	NA	NA	22,000 U
3-NITROANILINE	810 U	98 UJ	NA	NA	NA	NA	2,200 U	110 UJ	NA	NA	NA	53,000 U
4,6-DINITRO-2-METHYLPHENOL	810 U	98 U	NA	NA	NA	NA	2,200 U	110 U	NA	NA	NA	53,000 U
4-BROMOPHENYL-PHENYLETHER	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
4-CHLORO-3-METHYLPHENOL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
4-CHLOROANILINE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
4-CHLOROPHENYL-PHENYLETHER	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
4-METHYLPHENOL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
4-NITROANILINE	810 U	98 UJ	NA	NA	NA	NA	2,200 U	110 UJ	NA	NA	NA	53,000 U
4-NITROPHENOL	810 U	98 U	NA	NA	NA	NA	2,200 U	110 U	NA	NA	NA	53,000 U
ACENAPHTHENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
ACENAPHTHYLENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
ANTHRACENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
BENZO(A)ANTHRACENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
BENZO(A)PYRENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
BENZO(B)FLUORANTHENE	320 U	39 U	NA	NA	NA	NA	920 U	27 J	NA	NA	NA	22,000 U

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Sample ID	281WHSSS093	281WHSSS098	281WHSSS099	281WHSSS100	281WHSSS101	281WHSSS077	281WHSSS011	281WHSSS094	281WHSSS096	281WHSSS097	281WHSSS115	281WHSSS023
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/11/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	08/09/1995	07/18/1995	08/24/1995	08/24/1995	08/24/1995	08/31/1995	07/19/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	4.50 - 5.00	9.00 - 11.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	4.00 - 5.00	8.00 - 10.10	1.30 - 2.30	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	320 U	39 U	NA	NA	NA	NA	160 J	43 U	NA	NA	NA	22,000 U
BENZO(G,H,I)PERYLENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
BENZO(K)FLUORANTHENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
BENZOIC ACID	1,100 J	98 U	NA	NA	NA	NA	2,200 U	76 J	NA	NA	NA	53,000 U
BENZYL ALCOHOL	320 U	39 UJ	NA	NA	NA	NA	920 U	43 UJ	NA	NA	NA	22,000 U
BIS(2-CHLOROETHOXY)METHANE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
BIS(2-CHLOROETHYL)ETHER	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
BIS(2-ETHYLHEXYL)PHTHALATE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
BUTYLBENZYLPHTHALATE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
CARBAZOLE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
CHRYSENE	320 U	39 U	NA	NA	NA	NA	920 U	25 J	NA	NA	NA	22,000 U
DI-N-BUTYLPHTHALATE	320 U	39 U	NA	NA	NA	NA	920 U	44 U	NA	NA	NA	22,000 U
DI-N-OCTYLPHTHALATE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
DIBENZ(A,H)ANTHRACENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
DIBENZOFURAN	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
DIBENZOTHIOPHENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
DIETHYLPHTHALATE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
DIMETHYLPHTHALATE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
FLUORANTHENE	320 U	39 U	NA	NA	NA	NA	150 J	39 J	NA	NA	NA	22,000 U
FLUORENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
HEXACHLOROBENZENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
HEXACHLOROBUTADIENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
HEXACHLOROCYCLOPENTADIENE	320 UJ	39 U	NA	NA	NA	NA	920 UJ	43 U	NA	NA	NA	22,000 UJ
HEXACHLOROETHANE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
INDENO(1,2,3-CD)PYRENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
ISOPHORONE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
N-NITROSO-DI N-PROPYLAMINE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
N-NITROSODIPHENYLAMINE (1)	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
NAPHTHALENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
NITROBENZENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
PENTACHLOROPHENOL	810 U	98 U	NA	NA	NA	NA	2,200 U	110 U	NA	NA	NA	53,000 U
PERYLENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
PHENANTHRENE	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
PHENOL	320 U	39 U	NA	NA	NA	NA	920 U	43 U	NA	NA	NA	22,000 U
PYRENE	320 U	39 U	NA	NA	NA	NA	140 J	25 J	NA	NA	NA	22,000 U
TOTAL HIGH MOLECULAR PAHS	U	U	NA	NA	NA	NA	450	120	NA	NA	NA	U
TOTAL LOW MOLECULAR PAHS	U	U	NA	NA	NA	NA	U	U	NA	NA	NA	U
TOTAL PAHS	U	U	NA	NA	NA	NA	450	120	NA	NA	NA	U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBG02	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG08	WHSSBH03	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBI02
Sample ID	281WHSSS093	281WHSSS098	281WHSSS099	281WHSSS100	281WHSSS101	281WHSSS077	281WHSSS011	281WHSSS094	281WHSSS096	281WHSSS097	281WHSSS115	281WHSSS023
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/11/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	08/09/1995	07/18/1995	08/24/1995	08/24/1995	08/24/1995	08/31/1995	07/19/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	4.50 - 5.00	9.00 - 11.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	4.00 - 5.00	8.00 - 10.10	1.30 - 2.30	0.00 - 0.50
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
1,2-DICHLOROBENZENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
1,3-DICHLOROBENZENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
1,4-DICHLOROBENZENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2,4,5-TRICHLOROPHENOL	NA	NA	950 U	1,000 U	2,800 U	NA	NA	NA	3,300 U	4,900 U	800 U	NA
2,4,6-TRICHLOROPHENOL	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2,4-DICHLOROPHENOL	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2,4-DIMETHYLPHENOL	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2,4-DINITROPHENOL	NA	NA	950 U	1,000 U	2,800 U	NA	NA	NA	3,300 U	4,900 U	800 U	NA
2,4-DINITROTOLUENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2,6-DINITROTOLUENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2-CHLORONAPHTHALENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2-CHLOROPHENOL	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2-METHYLNAPHTHALENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2-METHYLPHENOL	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
2-NITROANILINE	NA	NA	950 U	1,000 U	2,800 U	NA	NA	NA	3,300 U	4,900 U	800 U	NA
2-NITROPHENOL	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
3,3'-DICHLOROBENZIDINE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
3-NITROANILINE	NA	NA	950 U	1,000 U	2,800 U	NA	NA	NA	3,300 UJ	4,900 UJ	800 U	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	950 U	1,000 U	2,800 U	NA	NA	NA	3,300 U	4,900 U	800 U	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
4-CHLOROANILINE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
4-METHYLPHENOL	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
4-NITROANILINE	NA	NA	950 U	1,000 U	2,800 U	NA	NA	NA	3,300 U	4,900 U	800 U	NA
4-NITROPHENOL	NA	NA	950 U	1,000 U	2,800 U	NA	NA	NA	3,300 U	4,900 U	800 U	NA
ACENAPHTHENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
ACENAPHTHYLENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
ANTHRACENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
BENZO(A)ANTHRACENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
BENZO(A)PYRENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 UJ	NA
BENZO(B)FLUORANTHENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 UJ	NA
BENZO(G,H,I)PERYLENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 UJ	NA
BENZO(K)FLUORANTHENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 UJ	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBG02	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG08	WHSSBH03	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBI02
Sample ID	281WHSSS093	281WHSSS098	281WHSSS099	281WHSSS100	281WHSSS101	281WHSSS077	281WHSSS011	281WHSSS094	281WHSSS096	281WHSSS097	281WHSSS115	281WHSSS023
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/11/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	08/09/1995	07/18/1995	08/24/1995	08/24/1995	08/24/1995	08/31/1995	07/19/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	4.50 - 5.00	9.00 - 11.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	4.00 - 5.00	8.00 - 10.10	1.30 - 2.30	0.00 - 0.50
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
CARBAZOLE	NA	NA	390 UJ	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
CHRYSENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
DI-N-BUTYLPHTHALATE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
DI-N-OCTYLPHTHALATE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 UJ	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
DIBENZOFURAN	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
DIETHYLPHTHALATE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
DIMETHYLPHTHALATE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
FLUORANTHENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
FLUORENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
HEXACHLOROBENZENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
HEXACHLOROBUTADIENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
HEXACHLOROETHANE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 UJ	NA
ISOPHORONE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
NAPHTHALENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
NITROBENZENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
PENTACHLOROPHENOL	NA	NA	950 U	1,000 U	2,800 U	NA	NA	NA	3,300 U	4,900 U	800 U	NA
PHENANTHRENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
PHENOL	NA	NA	390 U	410 U	4,600	NA	NA	NA	1,400	2,000 J	370	NA
PYRENE	NA	NA	390 U	410 U	1,200 U	NA	NA	NA	1,300 U	2,000 U	330 U	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	U	U	U	NA	NA	NA	U	U	U	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	U	U	U	NA	NA	NA	U	U	U	NA
TOTAL PAHS	NA	NA	U	U	U	NA	NA	NA	U	U	U	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	0.9	1 J	NA	NA	NA	NA	0.7 J	0.1 UJ	NA	NA	NA	1 J
2,4'-DDE	1	0.5 J	NA	NA	NA	NA	0.1 U	0.1 UJ	NA	NA	NA	0.7 U
2,4'-DDT	0.4 U	0.1 UJ	NA	NA	NA	NA	0.1	0.2 J	NA	NA	NA	0.7 U
4,4'-DDD	18	5 J	NA	NA	NA	NA	1	0.7 J	NA	NA	NA	3
4,4'-DDE	4	0.9 J	NA	NA	NA	NA	0.8	1 J	NA	NA	NA	2
4,4'-DDT	1	0.5 J	NA	NA	NA	NA	0.6	1 J	NA	NA	NA	2 J
ALDRIN	0.4 U	0.3 J	NA	NA	NA	NA	0.2	0.1 UJ	NA	NA	NA	0.7 U
ALPHA-CHLORDANE	2	1 J	NA	NA	NA	NA	0.6 J	1 J	NA	NA	NA	3
DIELDRIN	1	0.5 J	NA	NA	NA	NA	0.5	0.4 J	NA	NA	NA	1
GAMMA-BHC (LINDANE)	0.4 U	0.1 UJ	NA	NA	NA	NA	0.1 U	0.8 J	NA	NA	NA	0.7 U

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Point ID	WHSSBG02	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG08	WHSSBH03	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBI02
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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/11/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	08/09/1995	07/18/1995	08/24/1995	08/24/1995	08/24/1995	08/31/1995	07/19/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	4.50 - 5.00	9.00 - 11.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	4.00 - 5.00	8.00 - 10.10	1.30 - 2.30	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	0.4 U	0.1 UJ	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.7 U
HEPTACHLOR EPOXIDE	0.4 U	0.1 UJ	NA	NA	NA	NA	0.1 U	0.5 J	NA	NA	NA	0.7 U
HEXACHLOROBENZENE	0.4 U	0.2 J	NA	NA	NA	NA	0.2 J	0.1 U	NA	NA	NA	0.7 U
MIREX	0.4 U	0.7 J	NA	NA	NA	NA	0.2 J	0.1 UJ	NA	NA	NA	0.7 U
PCB-101 (2,2',3,5,5')	0.5	0.4 J	NA	NA	NA	NA	1 J	0.4 J	NA	NA	NA	3 J
PCB-105 (2,3,3',4,4')	0.8	0.3 J	NA	NA	NA	NA	0.4 J	0.4 J	NA	NA	NA	3 J
PCB-118 (2,3',4,4',5)	1	0.4 J	NA	NA	NA	NA	0.4 J	0.9 J	NA	NA	NA	2 J
PCB-126 (3,3',4,4',5)	0.4 U	0.1 UJ	NA	NA	NA	NA	0.1 UJ	0.1 UJ	NA	NA	NA	0.7 U
PCB-128 (2,2',3,3',4,4')	0.4 U	0.2 J	NA	NA	NA	NA	0.1 UJ	0.2 J	NA	NA	NA	0.7 U
PCB-138 (2,2',3,4,4',5')	2	0.5 J	NA	NA	NA	NA	1 J	0.5 J	NA	NA	NA	12
PCB-153 (2,2',4,4',5,5')	1	0.5 J	NA	NA	NA	NA	0.9 J	0.5 J	NA	NA	NA	10 J
PCB-170 (2,2',3,3',4,4',5)	0.4 U	0.2 J	NA	NA	NA	NA	0.1 UJ	0.2 J	NA	NA	NA	7 J
PCB-18 (2,2',5)	0.4 U	0.1 UJ	NA	NA	NA	NA	0.3 J	0.3 U	NA	NA	NA	0.7 U
PCB-180 (2,2',3,4,4',5,5')	1	0.1 UJ	NA	NA	NA	NA	0.5 J	0.3 J	NA	NA	NA	15
PCB-187 (2,2',3,4',5,5',6)	0.9	0.2 J	NA	NA	NA	NA	0.2 J	0.1 UJ	NA	NA	NA	7
PCB-195 (2,2',3,3',4,4',5,6)	0.4 U	0.1 UJ	NA	NA	NA	NA	0.6 J	0.1 UJ	NA	NA	NA	1 J
PCB-206 (2,2',3,3',4,4',5,5',6	0.7	0.1 UJ	NA	NA	NA	NA	0.1 UJ	0.4 J	NA	NA	NA	0.7 J
PCB-209 (2,2',3,3',4,4',5,5',6	0.4 U	0.2 U	NA	NA	NA	NA	0.1 UJ	0.3 J	NA	NA	NA	0.7 U
PCB-28 (2,4,4')	0.4 U	0.1 UJ	NA	NA	NA	NA	0.5 J	0.2 J	NA	NA	NA	2
PCB-44 (2,2',3,5')	0.4 UJ	0.1 UJ	NA	NA	NA	NA	0.6 J	1 J	NA	NA	NA	2 J
PCB-52 (2,2',5,5')	0.4 U	0.3 J	NA	NA	NA	NA	1 J	0.2	NA	NA	NA	1 J
PCB-66 (2,3',4,4')	0.4 U	0.5 J	NA	NA	NA	NA	0.1 UJ	0.4 J	NA	NA	NA	0.7 U
PCB-77 (3,3',4,4')	0.4 U	0.1 UJ	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	NA	0.7 U
PCB-8 (2,4')	0.4 U	0.1 UJ	NA	NA	NA	NA	0.5 J	1	NA	NA	NA	6 J
TRANS-NONACHLOR	2	0.6 J	NA	NA	NA	NA	0.4	1 J	NA	NA	NA	3
TOTAL BHCS	U	U	NA	NA	NA	NA	U	0.8	NA	NA	NA	U
TOTAL CHLORDANES	2	1	NA	NA	NA	NA	0.6	1	NA	NA	NA	3
TOTAL DDTS	25	8	NA	NA	NA	NA	3	3	NA	NA	NA	8
TOTAL PCBS	16	7	NA	NA	NA	NA	16	13	NA	NA	NA	140
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	4 U	4 U	12 U	NA	NA	NA	13 U	20 U	5 U	NA
4,4'-DDE	NA	NA	4 U	4 U	12 U	NA	NA	NA	13 U	20 U	5 U	NA
4,4'-DDT	NA	NA	4 UJ	4 UJ	12 UJ	NA	NA	NA	13 U	20 U	5 U	NA
ALDRIN	NA	NA	2 UJ	2 UJ	6 UJ	NA	NA	NA	7 U	10 U	3 U	NA
ALPHA-BHC	NA	NA	2 U	2 U	6 U	NA	NA	NA	7 U	10 U	3 U	NA
ALPHA-CHLORDANE	NA	NA	2 U	2 U	6 U	NA	NA	NA	7 U	10 U	3 U	NA
AROCLOR-1016	NA	NA	40 U	42 U	120 U	NA	NA	NA	130 U	200 U	50 U	NA
AROCLOR-1221	NA	NA	79 U	83 U	240 U	NA	NA	NA	270 U	390 U	100 U	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBG02	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG08	WHSSBH03	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBI02
Sample ID	281WHSSS093	281WHSSS098	281WHSSS099	281WHSSS100	281WHSSS101	281WHSSS077	281WHSSS011	281WHSSS094	281WHSSS096	281WHSSS097	281WHSSS115	281WHSSS023
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/11/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	08/09/1995	07/18/1995	08/24/1995	08/24/1995	08/24/1995	08/31/1995	07/19/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	4.50 - 5.00	9.00 - 11.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	4.00 - 5.00	8.00 - 10.10	1.30 - 2.30	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1232	NA	NA	40 U	42 U	120 U	NA	NA	NA	130 U	200 U	50 U	NA
AROCLOR-1242	NA	NA	40 U	42 U	120 U	NA	NA	NA	130 U	200 U	50 U	NA
AROCLOR-1248	NA	NA	40 U	42 U	120 U	NA	NA	NA	130 U	200 U	50 U	NA
AROCLOR-1254	NA	NA	40 U	42 U	120 U	NA	NA	NA	130 U	200 U	50 U	NA
AROCLOR-1260	NA	NA	40 U	42 U	120 U	NA	NA	NA	130 U	200 U	50 U	NA
BETA-BHC	NA	NA	2 U	2 U	6 U	NA	NA	NA	7 U	10 U	3 U	NA
DELTA-BHC	NA	NA	2 U	2 U	6 U	NA	NA	NA	7 U	10 U	3 U	NA
DIELDRIN	NA	NA	4 UJ	4 UJ	12 UJ	NA	NA	NA	13 U	20 U	5 U	NA
ENDOSULFAN I	NA	NA	2 U	2 U	6 U	NA	NA	NA	7 U	10 U	3 U	NA
ENDOSULFAN II	NA	NA	4 U	4 U	12 U	NA	NA	NA	13 U	20 U	5 U	NA
ENDOSULFAN SULFATE	NA	NA	4 U	4 U	12 U	NA	NA	NA	13 U	20 U	5 U	NA
ENDRIN	NA	NA	4 UJ	4 UJ	12 UJ	NA	NA	NA	13 U	20 U	5 U	NA
ENDRIN ALDEHYDE	NA	NA	4 U	4 U	12 U	NA	NA	NA	13 U	20 U	5 U	NA
ENDRIN KETONE	NA	NA	4 U	4 U	12 U	NA	NA	NA	13 U	20 U	5 U	NA
GAMMA-BHC (LINDANE)	NA	NA	2 UJ	2 UJ	6 UJ	NA	NA	NA	7 U	10 U	3 U	NA
GAMMA-CHLORDANE	NA	NA	2 U	2 U	6 U	NA	NA	NA	7 U	10 U	3 U	NA
HEPTACHLOR	NA	NA	2 UJ	2 UJ	6 UJ	NA	NA	NA	7 U	10 U	3 U	NA
HEPTACHLOR EPOXIDE	NA	NA	2 U	2 U	6 U	NA	NA	NA	7 U	10 U	3 U	NA
METHOXYCHLOR	NA	NA	20 U	21 U	60 U	NA	NA	NA	67 U	98 U	25 U	NA
TOXAPHENE	NA	NA	200 U	210 U	600 U	NA	NA	NA	670 U	980 U	250 U	NA
TOTAL BHCS	NA	NA	U	U	U	NA	NA	NA	U	U	U	NA
TOTAL CHLORDANES	NA	NA	U	U	U	NA	NA	NA	U	U	U	NA
TOTAL DDTS	NA	NA	U	U	U	NA	NA	NA	U	U	U	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
1,3-DINITROBENZENE	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
2,4,6-TRINITROTOLUENE	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
2,4-DINITROTOLUENE	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
2,6-DINITROTOLUENE	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
2-NITROTOLUENE	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
3-NITROTOLUENE	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
4-NITROTOLUENE	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
HMX	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	360	NA
NITROBENZENE	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
RDX	NA	NA	120 U	120 U	NA	NA	NA	NA	120 U	NA	120 U	NA
TETRYL	NA	NA	120 UJ	120 UJ	NA	NA	NA	NA	120 UJ	NA	120 U	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	12 U	12 U	13 U	NA	NA	NA	NA	NA	NA	NA	NA

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBG02	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG08	WHSSBH03	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBI02
Sample ID	281WHSSS093	281WHSSS098	281WHSSS099	281WHSSS100	281WHSSS101	281WHSSS077	281WHSSS011	281WHSSS094	281WHSSS096	281WHSSS097	281WHSSS115	281WHSSS023
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/11/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	08/09/1995	07/18/1995	08/24/1995	08/24/1995	08/24/1995	08/31/1995	07/19/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	4.50 - 5.00	9.00 - 11.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	4.00 - 5.00	8.00 - 10.10	1.30 - 2.30	0.00 - 0.50
Petroleum Indicators(in mg/kg)												
GASOLINE RANGE ORGANICS	NA	0.6 U	0.6 U	0.6 U	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	12 U	12 U	13 U	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	12,900	12,200	12,100	9,390	20,600	20,600	6,920	14,100	21,700	7,650	82.2	23,900
ANTIMONY	3.2	0.86 J	0.50 UJ	0.53 UJ	1.5 UJ	1.6 J	1.6 J	0.52 UJ	1.7 UJ	2.5 UJ	0.42 U	6.2 J
ARSENIC	27.1 *	2.9 *	3.9 *	5.5 *	3.3 *	10.3 *	4.6 *	5.2 U	24.6 *	15.1 *	0.56 U	21.2 *
BARIUM	109	107	529	233	57.5	95.5	72.3	70.8	65.9	61.4	1.1	179
BERYLLIUM	0.060 U	0.22	0.020 U	0.11	0.070 U	0.36	0.020 U	0.020 U	0.12 U	0.12 U	0.020 U	0.070 U
CADMIUM	1.7	0.050 U	0.050 U	0.050 U	0.14 U	0.51	5.4	0.050 U	0.17 U	0.24 U	0.040 U	20.8
CALCIUM	4,440	5,380	112,000	7,290	7,170	7,010	58,200	5,540	7,370	10,800	132	8,130
CHROMIUM	54.0	28.0	43.0	17.7	58.6	59.1	35.0	28.0	71.6	23.2	0.36 U	69.8
COBALT	5.8	11.3	10.3	8.5	7.4	21.6	7.8	16.7	8.4	4.5	0.13 U	24.8
COPPER	67.7	15.4	37.3	20.7	23.9	51.2	607	31.8	43.7	22.0	0.72	228
IRON	14,000 J	14,600	18,600	13,200	19,300	40,600 *	56,200 *	27,000 *	13,600	9,470	367 J	43,100 *
LEAD	103	7.2	6.1	7.0	8.1	18.3	134	15.3	13.9	4.4	0.35	195 J *
MAGNESIUM	8,050	5,180	6,070	6,520	15,400	11,400	6,080	10,400	11,600	14,000	81.6	16,300
MANGANESE	167	435	374	254	151	512	523 J	417	170	275	4.3	1,080 J
MERCURY	0.15 U	0.060 U	0.070	0.060 U	0.18 U	0.20	0.63	0.18	0.20 U	0.30 U	0.050 U	0.79
MOLYBDENUM	2.4	0.21 UJ	0.21 UJ	0.23 UJ	4.5 J	1.4	1.6	0.22 U	12.9	5.1	0.18 U	0.83
NICKEL	45.1	40.7	35.8	30.0	49.1	82.4	24.0	43.9	88.5	33.0	0.66 U	88.2
POTASSIUM	3,850 J	1,290 J	1,390 J	2,940 J	6,050 J	2,900	914 J	2,230 J	5,080 J	2,880 J	59.3	5,760 J
SELENIUM	2.1 U	0.81 U	0.81 U	0.85 U	2.4 U	1.7 U	0.78 U	0.85 U	2.7 U	4.0 U	0.68 U	2.3 U
SILVER	0.37 U	0.14 U	0.14 U	0.15 U	0.43 U	0.86 U	0.18	0.15 U	0.48 U	0.71 U	0.12 U	0.40 U
SODIUM	9,370 J	4,090	2,770	7,710	42,500	3,520	1,030	3,520 J	20,700 J	35,900 J	275,000	4,950
THALLIUM	1.2 U	0.48 U	0.48 U	0.50 U	1.4 U	0.32 U	0.46 U	0.69	1.6 U	2.4 U	0.40 UJ	1.3 U
VANADIUM	71.1	35.6	66.2	47.8	64.3	86.1	25.5	65.2	92.3	44.8	0.28	99.0
ZINC	342 J	35.7	48.8	50.0	59.4	150	2,540	79.0	81.4	40.7	7.7 U	3,010
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	50.0 U	NA	NA	NA	NA	NA	500 U	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	58.1 J	11.3 UJ	11.7 UJ	76.0 J	43.3 UJ	NA	11.0 UJ	12.5 UJ	46.2 UJ	56.1 UJ	115 J	9,490 J
TOTAL ORGANIC CARBON	118,000	1,670	121 U	258	284,000	NA	43,200	44,400 J	190,000 J	294,000 J	355,000	94,600 J
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBG02	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG06	WHSSBG08	WHSSBH03	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBH07	WHSSBI02
Sample ID	281WHSSS093	281WHSSS098	281WHSSS099	281WHSSS100	281WHSSS101	281WHSSS077	281WHSSS011	281WHSSS094	281WHSSS096	281WHSSS097	281WHSSS115	281WHSSS023
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	08/11/1995	08/25/1995	08/25/1995	08/25/1995	08/25/1995	08/09/1995	07/18/1995	08/24/1995	08/24/1995	08/24/1995	08/31/1995	07/19/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	1.10 - 2.00	4.50 - 5.00	9.00 - 11.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	4.00 - 5.00	8.00 - 10.10	1.30 - 2.30	0.00 - 0.50
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	66.0	16.0	NA	NA	NA	NA	10.0	23.0	NA	NA	NA	70.0
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	7	7.9	8.8	9.1	7.6	8.02	8.4	8.7	7.9	8	7.3 J	8

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Site 11 - Wood Hogger
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Point ID	WHSSBI06	WHSSBI08	WHSSBJ05	WHSSBJ07	WHSSBK04	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK08	WHSSBL05	WHSSBL07
Sample ID	281WHSSS029	281WHSSS079	281WHSSS030	281WHSSS031	281WHSSS032	281WHSSS033	281WHSSS034	281WHSSS035	281WHSSS036	281WHSSS078	281WHSSS024	281WHSSS038
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	08/09/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	08/09/1995	07/19/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.50 - 10.40	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Aromatic Volatiles (in µg/Kg)												
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	55 U	720	20 J	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	340 U	1,700 U	110 U	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	25 U	28 J	27	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	25 U	37 U	24 U	NA	NA	NA

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Point ID	WHSSBI06	WHSSBI08	WHSSBJ05	WHSSBJ07	WHSSBK04	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK08	WHSSBL05	WHSSBL07
Sample ID	281WHSSS029	281WHSSS079	281WHSSS030	281WHSSS031	281WHSSS032	281WHSSS033	281WHSSS034	281WHSSS035	281WHSSS036	281WHSSS078	281WHSSS024	281WHSSS038
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	08/09/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	08/09/1995	07/19/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.50 - 10.40	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
1,1'-BIPHENYL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
1,2,4-TRICHLOROBENZENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
1,2-DICHLOROBENZENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
1,3-DICHLOROBENZENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
1,4-DICHLOROBENZENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
1-METHYLNAPHTHALENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
1-METHYLPHENANTHRENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2,3,5-TRIMETHYLNAPHTHALENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2,4,5-TRICHLOROPHENOL	NA	2,800 U	NA	NA	350 U	1,900 U	NA	NA	NA	110 U	7,000 U	6,500 U
2,4,6-TRICHLOROPHENOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2,4-DICHLOROPHENOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2,4-DIMETHYLPHENOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2,4-DINITROPHENOL	NA	2,800 U	NA	NA	350 U	1,900 U	NA	NA	NA	110 U	7,000 U	6,500 U
2,4-DINITROTOLUENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2,6-DIMETHYLNAPHTHALENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	37 J	2,900 U	2,700 U
2,6-DINITROTOLUENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2-CHLORONAPHTHALENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2-CHLOROPHENOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2-METHYLNAPHTHALENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2-METHYLPHENOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
2-NITROANILINE	NA	2,800 U	NA	NA	350 U	1,900 U	NA	NA	NA	110 U	7,000 U	6,500 U
2-NITROPHENOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
3,3'-DICHLOROBENZIDINE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
3-NITROANILINE	NA	2,800 U	NA	NA	350 U	1,900 U	NA	NA	NA	110 U	7,000 U	6,500 U
4,6-DINITRO-2-METHYLPHENOL	NA	2,800 U	NA	NA	350 U	1,900 U	NA	NA	NA	110 U	7,000 U	6,500 U
4-BROMOPHENYL-PHENYLETHER	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
4-CHLORO-3-METHYLPHENOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
4-CHLOROANILINE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
4-CHLOROPHENYL-PHENYLETHER	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
4-METHYLPHENOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
4-NITROANILINE	NA	2,800 U	NA	NA	350 U	1,900 U	NA	NA	NA	110 U	7,000 U	6,500 U
4-NITROPHENOL	NA	2,800 U	NA	NA	350 U	1,900 U	NA	NA	NA	110 U	7,000 U	6,500 U
ACENAPHTHENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
ACENAPHTHYLENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
ANTHRACENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BENZO(A)ANTHRACENE	NA	1,100 U	NA	NA	12 J	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BENZO(A)PYRENE	NA	1,100 U	NA	NA	19 J	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BENZO(B)FLUORANTHENE	NA	1,100 U	NA	NA	25 J	770 U	NA	NA	NA	46 U	2,900 U	2,700 U

Notes:

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Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* - Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBI06	WHSSBI08	WHSSBJ05	WHSSBJ07	WHSSBK04	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK08	WHSSBL05	WHSSBL07
Sample ID	281WHSSS029	281WHSSS079	281WHSSS030	281WHSSS031	281WHSSS032	281WHSSS033	281WHSSS034	281WHSSS035	281WHSSS036	281WHSSS078	281WHSSS024	281WHSSS038
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	08/09/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	08/09/1995	07/19/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.50 - 10.40	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/Kg)												
BENZO(E)PYRENE	NA	1,100 U	NA	NA	19 J	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BENZO(G,H,I)PERYLENE	NA	1,100 U	NA	NA	21 J	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BENZO(K)FLUORANTHENE	NA	1,100 U	NA	NA	20 J	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BENZOIC ACID	NA	2,800 U	NA	NA	350 U	1,900 U	NA	NA	NA	110 U	7,000 U	6,500 U
BENZYL ALCOHOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BIS(2-CHLOROETHOXY)METHANE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BIS(2-CHLOROETHYL)ETHER	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
BUTYLBENZYLPHTHALATE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
CARBAZOLE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
CHRYSENE	NA	1,100 U	NA	NA	23 J	770 U	NA	NA	NA	46 U	2,900 U	150 J
DI-N-BUTYLPHTHALATE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
DI-N-OCTYLPHTHALATE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
DIBENZ(A,H)ANTHRACENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
DIBENZOFURAN	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
DIBENZOTHIOPHENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
DIETHYLPHTHALATE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
DIMETHYLPHTHALATE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
FLUORANTHENE	NA	1,100 U	NA	NA	14 J	770 U	NA	NA	NA	91	180 J	200 J
FLUORENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
HEXACHLOROBENZENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
HEXACHLOROBUTADIENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
HEXACHLOROCYCLOPENTADIENE	NA	1,100 UJ	NA	NA	140 UJ	770 U	NA	NA	NA	46 UJ	2,900 U	2,700 U
HEXACHLOROETHANE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
INDENO(1,2,3-CD)PYRENE	NA	1,100 U	NA	NA	17 J	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
ISOPHORONE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
N-NITROSO-DI-N-PROPYLAMINE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
N-NITROSODIPHENYLAMINE (1)	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
NAPHTHALENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
NITROBENZENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
PENTACHLOROPHENOL	NA	2,800 U	NA	NA	350 U	1,900 U	NA	NA	NA	110 U	7,000 U	6,500 U
PERYLENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
PHENANTHRENE	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
PHENOL	NA	1,100 U	NA	NA	140 U	770 U	NA	NA	NA	46 U	2,900 U	2,700 U
PYRENE	NA	1,100 U	NA	NA	19 J	770 U	NA	NA	NA	72	140 J	150 J
TOTAL HIGH MOLECULAR PAHS	NA	U	NA	NA	190	U	NA	NA	NA	160	320	500
TOTAL LOW MOLECULAR PAHS	NA	U	NA	NA	U	U	NA	NA	NA	U	U	U
TOTAL PAHS	NA	U	NA	NA	190	U	NA	NA	NA	160	320	500

Notes:

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Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBI06	WHSSBI08	WHSSBJ05	WHSSBJ07	WHSSBK04	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK08	WHSSBL05	WHSSBL07
Sample ID	281WHSSS029	281WHSSS079	281WHSSS030	281WHSSS031	281WHSSS032	281WHSSS033	281WHSSS034	281WHSSS035	281WHSSS036	281WHSSS078	281WHSSS024	281WHSSS038
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	08/09/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	08/09/1995	07/19/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.50 - 10.40	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	2,900 U	2,600 U	1,900 U	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	2,900 U	2,600 U	1,900 U	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	2,900 U	2,600 U	1,900 U	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 UJ	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	2,900 U	2,600 UJ	1,900 U	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	2,900 U	2,600 U	1,900 U	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	2,900 U	2,600 U	1,900 U	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	2,900 U	2,600 U	1,900 U	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA

Notes:

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Point ID	WHSSBI06	WHSSBI08	WHSSBJ05	WHSSBJ07	WHSSBK04	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK08	WHSSBL05	WHSSBL07
Sample ID	281WHSSS029	281WHSSS079	281WHSSS030	281WHSSS031	281WHSSS032	281WHSSS033	281WHSSS034	281WHSSS035	281WHSSS036	281WHSSS078	281WHSSS024	281WHSSS038
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	08/09/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	08/09/1995	07/19/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.50 - 10.40	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/Kg)												
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	1,100 UJ	1,000 UJ	740 U	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	2,900 U	2,600 U	1,900 U	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	2,600	1,000 U	740 U	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	1,100 U	1,000 U	740 U	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	U	U	U	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	U	U	U	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	U	U	U	NA	NA	NA
Low Level Pesticides (in µg/Kg)												
2,4'-DDD	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.4 J	0.1 U
2,4'-DDE	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
2,4'-DDT	NA	0.7 UJ	NA	NA	0.2 J	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.5
4,4'-DDD	NA	2 J	NA	NA	0.4	0.1 U	NA	NA	NA	0.1 U	0.4	0.1 U
4,4'-DDE	NA	2 J	NA	NA	0.3	0.1 U	NA	NA	NA	0.1 U	0.5	0.7
4,4'-DDT	NA	0.7 UJ	NA	NA	0.9	0.4	NA	NA	NA	0.1 U	0.1 U	2 J
ALDRIN	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
ALPHA-CHLORDANE	NA	0.7 UJ	NA	NA	0.5	0.2 J	NA	NA	NA	0.1 U	0.3 J	0.4
DIELDRIN	NA	0.7 UJ	NA	NA	2	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.2
GAMMA-BHC (LINDANE)	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBI06	WHSSBI08	WHSSBJ05	WHSSBJ07	WHSSBK04	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK06	WHSSBK08	WHSSBL05	WHSSBL07
Sample ID	281WHSSS029	281WHSSS079	281WHSSS030	281WHSSS031	281WHSSS032	281WHSSS033	281WHSSS034	281WHSSS035	281WHSSS036	281WHSSS078	281WHSSS024	281WHSSS038
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	08/09/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	08/09/1995	07/19/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.50 - 10.40	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)												
HEPTACHLOR	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
HEPTACHLOR EPOXIDE	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 UJ	0.1 U	0.1 U
HEXACHLOROBENZENE	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
MIREX	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
PCB-101 (2,2',3,5,5')	NA	0.7 UJ	NA	NA	0.3 J	0.1 U	NA	NA	NA	0.1 U	0.4 J	0.3 J
PCB-105 (2,3,3',4,4')	NA	0.7 UJ	NA	NA	0.2 J	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.2 J
PCB-118 (2,3',4,4',5)	NA	0.7 UJ	NA	NA	0.3 J	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.3 J
PCB-126 (3,3',4,4',5)	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
PCB-128 (2,2',3,3',4,4')	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
PCB-138 (2,2',3,4,4',5')	NA	0.7 UJ	NA	NA	0.6 J	0.1 U	NA	NA	NA	0.1 U	0.2 J	0.5 J
PCB-153 (2,2',4,4',5,5')	NA	0.7 UJ	NA	NA	0.4	0.1 U	NA	NA	NA	0.1 U	0.1 J	0.3
PCB-170 (2,2',3,3',4,4',5)	NA	0.7 UJ	NA	NA	0.1 J	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
PCB-18 (2,2',5)	NA	0.8 J	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.4 J	0.1 U
PCB-180 (2,2',3,4,4',5,5')	NA	0.7 UJ	NA	NA	0.3 J	0.1 U	NA	NA	NA	0.1 U	0.2 J	0.2 J
PCB-187 (2,2',3,4',5,5',6)	NA	0.7 UJ	NA	NA	0.1 J	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.09 J
PCB-195 (2,2',3,3',4,4',5,6)	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
PCB-206 (2,2',3,3',4,4',5,5',6	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.2 J	0.4 J
PCB-209 (2,2',3,3',4,4',5,5',6	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
PCB-28 (2,4,4')	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
PCB-44 (2,2',3,5')	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 UJ	0.1 U	0.1 U
PCB-52 (2,2',5,5')	NA	1 J	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 J	0.08 J
PCB-66 (2,3',4,4')	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
PCB-77 (3,3',4,4')	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
PCB-8 (2,4')	NA	0.7 UJ	NA	NA	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
TRANS-NONACHLOR	NA	0.7 UJ	NA	NA	0.5	0.2 J	NA	NA	NA	0.1 U	0.3 J	0.6
TOTAL BHCS	NA	U	NA	NA	U	U	NA	NA	NA	U	U	U
TOTAL CHLORDANES	NA	U	NA	NA	0.5	0.2	NA	NA	NA	U	0.3	0.4
TOTAL DDTS	NA	3	NA	NA	2	0.4	NA	NA	NA	U	1	3
TOTAL PCBS	NA	4	NA	NA	5	U	NA	NA	NA	U	3	5
Pesticides (in µg/Kg)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	11 U	10 U	7 U	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	11 U	10 U	7 U	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	11 U	10 U	7 U	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	110 U	100 U	74 U	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	230 U	210 U	150 U	NA	NA	NA

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	08/09/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	08/09/1995	07/19/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.50 - 10.40	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Pesticides (in µg/Kg)												
AROCLOR-1232	NA	NA	NA	NA	NA	NA	110 U	100 U	74 U	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	110 U	100 U	74 U	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	110 U	100 U	74 U	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	110 U	100 U	74 U	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	110 U	100 U	74 U	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	11 U	10 U	7 U	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	11 U	10 U	7 U	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	11 U	10 U	7 U	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	11 U	10 U	7 U	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	11 U	10 U	7 U	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	11 U	10 U	7 U	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	6 U	5 U	4 U	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	57 U	52 U	37 U	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	570 U	520 U	370 U	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	U	U	U	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	U	U	U	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	U	U	U	NA	NA	NA
Explosives (in µg/Kg)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
HMX	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
RDX	NA	NA	NA	NA	NA	NA	120 U	120 U	NA	NA	NA	NA
TETRYL	NA	NA	NA	NA	NA	NA	120 UJ	120 U	NA	NA	NA	NA
Petroleum Indicators(in mg/Kg)												
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	08/09/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	08/09/1995	07/19/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.50 - 10.40	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Petroleum Indicators(in mg/Kg)												
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)												
ALUMINUM	10,200	25,500	12,400	10,300	17,600	11,800	14,900	16,400	18,500	21,700	15,000	15,200
ANTIMONY	0.94 J	2.6 UJ	1.4 J	1.4 J	0.94 J	0.86 J	4.6 J	5.7 J	2.0 J	0.71 J	1.1 J	1.4 J
ARSENIC	5.2 *	15.9 *	5.5 *	3.3 *	4.2 *	3.3 *	15.1 *	37.0 *	15.0 *	7.8 *	4.6 *	6.7 *
BARIUM	176	120	165	105	112	129	134	80.4	51.2	212	171	189
BERYLLIUM	0.12	0.46	0.14	0.14	0.020 U	0.11	0.070 U	0.060 U	0.11	0.51	0.030 U	0.080
CADMIUM	0.040 U	1.8	0.040 U	0.050 U	0.040 U	0.050 U	0.14 U	0.13 U	0.090 U	0.35	0.070 U	0.050 U
CALCIUM	7,270	8,550	6,290	3,000	9,550	3,380	8,390	4,630	3,620	14,200	84,000	12,700
CHROMIUM	22.8	70.9	26.4	25.5	24.2	24.2	57.7	64.6	70.0	44.2	41.3	31.0
COBALT	10.6	20.0	9.8	7.5	15.9	11.5	16.9	11.9	16.8	16.6	14.7	11.8
COPPER	22.6	78.7	24.4	15.4	43.2	35.7	54.1	59.5	44.1	33.6	27.8	24.9
IRON	15,600	61,200 *	17,100	14,100	25,600 *	14,500	69,300 *	90,300 *	37,100 *	31,200 *	23,800 *	21,900
LEAD	40.9 J	43.1	41.5 J	14.6 J	25.7 J	11.6 J	94.7 J	66.2 J	24.6 J	10.8	32.9 J	28.4 J
MAGNESIUM	5,360	12,600	5,420	5,700	9,980	4,150	8,250	8,160	11,500	11,100	10,700	7,830
MANGANESE	424 J	1,000	375 J	266 J	452 J	488 J	287 J	372 J	263 J	656	781 J	433 J
MERCURY	0.090	0.34	0.050	0.060 U	0.50	0.070	0.32	0.20	0.12	0.080	0.090 U	0.16
MOLYBDENUM	0.19 U	5.6	0.38	0.23 U	0.19 U	0.21 U	1.2	5.0	0.92	0.57	0.31 U	0.23 U
NICKEL	25.0	84.4	26.2	34.5	23.0	26.8	66.1	47.9	77.5	73.4	60.6	46.8
POTASSIUM	2,100 J	4,420	2,580 J	2,270 J	2,140 J	1,220 J	2,950 J	4,010 J	4,550 J	3,360	3,620 J	2,710 J
SELENIUM	0.72 U	3.3 U	0.71 U	0.86 U	0.71 U	0.80 U	2.3 U	2.1 U	1.5 U	0.77 U	1.2 U	0.87 U
SILVER	0.13 U	1.6 U	0.12 U	0.15 U	0.12 U	0.14 U	0.41 U	0.38 U	0.27 U	0.38 U	0.20 U	0.15 U
SODIUM	639	9,070	549	3,760	163	1,540	5,960	8,710	7,460	2,730	2,050	2,510
THALLIUM	0.42 U	0.56 U	0.42 U	0.50 U	0.42 U	0.47 U	1.4 U	1.3 U	0.89 U	0.080 U	0.93	1.7
VANADIUM	38.4	94.9	41.0	37.2	61.7	41.7	73.4	71.8	64.2	70.2	63.3	58.1
ZINC	116	339	120	68.8	128	54.6	264	240	114	87.5	95.1	71.2
Hexavalent Chromium (in mg/Kg)												
HEXAVALENT CHROMIUM	NA	NA	NA	NA	NA	50.0 UJ	NA	NA	NA	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)												
SULFIDE	NA	18,000	NA	NA	11.0 UJ	12.0 UJ	12.0 UJ	24.0 UJ	21.0 UJ	33.1	729 J	12.0 UJ
TOTAL ORGANIC CARBON	NA	57,100	NA	NA	110 UJ	8,450 J	3,910 J	59,200 J	28,900 J	554	909 J	29,200 J
Dioxin (in µg/Kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	08/09/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	07/20/1995	08/09/1995	07/19/1995	07/20/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.50 - 2.30	4.50 - 5.30	9.50 - 10.40	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Dioxin (in µg/Kg)												
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)												
PERCENT MOISTURE	NA	85.0	NA	NA	9.0	15.0	NA	NA	NA	28.0	23.0	18.0
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous												
PH	7.6	7.77	7.4	7.8	7.2	6.8	6.9	6.6	7.4	8.41	8.4	7.7

Notes:

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Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBM04	WHSSBM06	WHSSBM08	WHSSBM08	WHSSBM08	WHSSBM08
Sample ID	281WHSSS039	281WHSSS041	281WHSSS064	281WHSSS065	281WHSSS066	281WHSSS067
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	07/20/1995	07/28/1995	07/28/1995	07/28/1995	07/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 1.70	4.10 - 5.20	9.00 - 10.50
Aromatic Volatiles (in µg/Kg)						
BENZENE	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA
Volatiles (in µg/Kg)						
1,1,1-TRICHLOROETHANE	NA	NA	NA	12 U	12 U	43 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	12 U	12 U	43 U
1,1,2-TRICHLOROETHANE	NA	NA	NA	12 U	12 U	43 U
1,1-DICHLOROETHANE	NA	NA	NA	12 U	12 U	43 U
1,1-DICHLOROETHENE	NA	NA	NA	12 U	12 U	43 U
1,2-DICHLOROETHANE	NA	NA	NA	12 U	12 U	43 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	12 U	12 U	43 U
1,2-DICHLOROPROPANE	NA	NA	NA	12 U	12 U	43 U
2-BUTANONE	NA	NA	NA	12 U	12 U	43 U
2-HEXANONE	NA	NA	NA	12 U	12 U	43 U
4-METHYL-2-PENTANONE	NA	NA	NA	12 U	12 U	43 U
ACETONE	NA	NA	NA	12 U	23 U	340 U
BENZENE	NA	NA	NA	12 U	12 U	43 U
BROMODICHLOROMETHANE	NA	NA	NA	12 U	12 U	43 U
BROMOFORM	NA	NA	NA	12 U	12 U	43 U
BROMOMETHANE	NA	NA	NA	12 U	12 U	43 U
CARBON DISULFIDE	NA	NA	NA	12 U	12 U	110
CARBON TETRACHLORIDE	NA	NA	NA	12 U	12 U	43 U
CHLOROBENZENE	NA	NA	NA	12 U	12 U	43 U
CHLOROETHANE	NA	NA	NA	12 U	12 U	43 U
CHLOROFORM	NA	NA	NA	12 U	12 U	43 U
CHLOROMETHANE	NA	NA	NA	12 U	12 U	43 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	12 U	12 U	43 U
DIBROMOCHLOROMETHANE	NA	NA	NA	12 U	12 U	43 U
ETHYLBENZENE	NA	NA	NA	12 U	12 U	43 U
METHYLENE CHLORIDE	NA	NA	NA	12 U	12 U	43 U
STYRENE	NA	NA	NA	12 U	12 U	43 U
TETRACHLOROETHENE	NA	NA	NA	12 U	12 U	43 U
TOLUENE	NA	NA	NA	12 U	12 U	43 U
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	12 U	12 U	43 U
TRICHLOROETHENE	NA	NA	NA	12 U	12 U	43 U
VINYL CHLORIDE	NA	NA	NA	12 U	12 U	43 U
XYLENE (TOTAL)	NA	NA	NA	12 U	12 U	43 U

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Site 11 - Wood Hogger
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Point ID	WHSSBM04	WHSSBM06	WHSSBM08	WHSSBM08	WHSSBM08	WHSSBM08
Sample ID	281WHSSS039	281WHSSS041	281WHSSS064	281WHSSS065	281WHSSS066	281WHSSS067
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	07/20/1995	07/28/1995	07/28/1995	07/28/1995	07/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 1.70	4.10 - 5.20	9.00 - 10.50
Low Level Semivolatiles (in µg/kg)						
1,1'-BIPHENYL	NA	460 U	190 U	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	460 U	190 U	NA	NA	NA
1,2-DICHLOROBENZENE	NA	460 U	190 U	NA	NA	NA
1,3-DICHLOROBENZENE	NA	460 U	190 U	NA	NA	NA
1,4-DICHLOROBENZENE	NA	460 U	190 U	NA	NA	NA
1-METHYLNAPHTHALENE	NA	460 U	190 U	NA	NA	NA
1-METHYLPHENANTHRENE	NA	460 U	30 J	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	460 U	190 U	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	460 U	190 U	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	1,200 U	460 U	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	460 U	190 U	NA	NA	NA
2,4-DICHLOROPHENOL	NA	460 U	190 U	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	460 U	190 U	NA	NA	NA
2,4-DINITROPHENOL	NA	1,200 U	460 U	NA	NA	NA
2,4-DINITROTOLUENE	NA	460 U	190 U	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	460 U	190 U	NA	NA	NA
2,6-DINITROTOLUENE	NA	460 U	190 U	NA	NA	NA
2-CHLORONAPHTHALENE	NA	460 U	190 U	NA	NA	NA
2-CHLOROPHENOL	NA	460 U	190 U	NA	NA	NA
2-METHYLNAPHTHALENE	NA	460 U	190 U	NA	NA	NA
2-METHYLPHENOL	NA	460 U	190 U	NA	NA	NA
2-NITROANILINE	NA	1,200 U	460 U	NA	NA	NA
2-NITROPHENOL	NA	460 U	190 U	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	460 U	190 U	NA	NA	NA
3-NITROANILINE	NA	1,200 U	460 U	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	1,200 U	460 U	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	460 U	190 U	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	460 U	190 U	NA	NA	NA
4-CHLOROANILINE	NA	460 U	190 U	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	460 U	190 U	NA	NA	NA
4-METHYLPHENOL	NA	460 U	190 U	NA	NA	NA
4-NITROANILINE	NA	1,200 U	460 U	NA	NA	NA
4-NITROPHENOL	NA	1,200 U	460 U	NA	NA	NA
ACENAPHTHENE	NA	460 U	190 U	NA	NA	NA
ACENAPHTHYLENE	NA	460 U	190 U	NA	NA	NA
ANTHRACENE	NA	460 U	26 J	NA	NA	NA
BENZO(A)ANTHRACENE	NA	310 J	50 J	NA	NA	NA
BENZO(A)PYRENE	NA	120 J *	47 J	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	590	130 J	NA	NA	NA

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Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBM04	WHSSBM06	WHSSBM08	WHSSBM08	WHSSBM08	WHSSBM08
Sample ID	281WHSSS039	281WHSSS041	281WHSSS064	281WHSSS065	281WHSSS066	281WHSSS067
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	07/20/1995	07/28/1995	07/28/1995	07/28/1995	07/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 1.70	4.10 - 5.20	9.00 - 10.50
Low Level Semivolatiles (in µg/kg)						
BENZO(E)PYRENE	NA	230 J	78 J	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	460 U	41 J	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	460 U	130 J	NA	NA	NA
BENZOIC ACID	NA	1,200 UJ	460 UJ	NA	NA	NA
BENZYL ALCOHOL	NA	460 U	190 U	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	460 U	190 U	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	460 U	190 U	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	460 U	190 U	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	460 U	190 U	NA	NA	NA
CARBAZOLE	NA	140 J	89 J	NA	NA	NA
CHRYSENE	NA	720	290	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	460 U	190 U	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	460 U	190 U	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	460 U	190 U	NA	NA	NA
DIBENZOFURAN	NA	460 U	190 U	NA	NA	NA
DIBENZOTHIOPHENE	NA	460 U	190 U	NA	NA	NA
DIETHYLPHTHALATE	NA	460 U	190 U	NA	NA	NA
DIMETHYLPHTHALATE	NA	460 U	190 U	NA	NA	NA
FLUORANTHENE	NA	1,100	860	NA	NA	NA
FLUORENE	NA	460 U	190 U	NA	NA	NA
HEXACHLOROBENZENE	NA	460 U	190 U	NA	NA	NA
HEXACHLOROBUTADIENE	NA	460 U	190 U	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	460 U	190 U	NA	NA	NA
HEXACHLOROETHANE	NA	460 U	190 U	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	460 U	38 J	NA	NA	NA
ISOPHORONE	NA	460 U	190 U	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	460 U	190 U	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	460 U	190 U	NA	NA	NA
NAPHTHALENE	NA	460 U	190 U	NA	NA	NA
NITROBENZENE	NA	460 U	190 U	NA	NA	NA
PENTACHLOROPHENOL	NA	1,200 U	460 U	NA	NA	NA
PERYLENE	NA	460 U	190 U	NA	NA	NA
PHENANTHRENE	NA	440 J	630	NA	NA	NA
PHENOL	NA	460 U	190 U	NA	NA	NA
PYRENE	NA	910	740	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	4,000	2,400	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	440	690	NA	NA	NA
TOTAL PAHS	NA	4,400	3,100	NA	NA	NA

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Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBM04	WHSSBM06	WHSSBM08	WHSSBM08	WHSSBM08	WHSSBM08
Sample ID	281WHSSS039	281WHSSS041	281WHSSS064	281WHSSS065	281WHSSS066	281WHSSS067
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	07/20/1995	07/28/1995	07/28/1995	07/28/1995	07/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 1.70	4.10 - 5.20	9.00 - 10.50
Semivolatiles (in µg/Kg)						
1,2,4-TRICHLOROBENZENE	NA	NA	NA	410 U	400 U	1,400 U
1,2-DICHLOROBENZENE	NA	NA	NA	410 U	400 U	1,400 U
1,3-DICHLOROBENZENE	NA	NA	NA	410 U	400 U	1,400 U
1,4-DICHLOROBENZENE	NA	NA	NA	410 U	400 U	1,400 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	410 U	400 U	1,400 U
2,4,5-TRICHLOROPHENOL	NA	NA	NA	1,000 U	990 U	3,600 U
2,4,6-TRICHLOROPHENOL	NA	NA	NA	410 U	400 U	1,400 U
2,4-DICHLOROPHENOL	NA	NA	NA	410 U	400 U	1,400 U
2,4-DIMETHYLPHENOL	NA	NA	NA	410 U	400 U	1,400 U
2,4-DINITROPHENOL	NA	NA	NA	1,000 U	990 U	3,600 U
2,4-DINITROTOLUENE	NA	NA	NA	410 U	400 U	1,400 U
2,6-DINITROTOLUENE	NA	NA	NA	410 U	400 U	1,400 U
2-CHLORONAPHTHALENE	NA	NA	NA	410 U	400 U	1,400 U
2-CHLOROPHENOL	NA	NA	NA	410 U	400 U	1,400 U
2-METHYLNAPHTHALENE	NA	NA	NA	410 U	400 U	1,400 U
2-METHYLPHENOL	NA	NA	NA	410 U	400 U	1,400 U
2-NITROANILINE	NA	NA	NA	1,000 U	990 U	3,600 U
2-NITROPHENOL	NA	NA	NA	410 U	400 U	1,400 U
3,3'-DICHLOROBENZIDINE	NA	NA	NA	410 U	400 U	1,400 U
3-NITROANILINE	NA	NA	NA	1,000 U	990 U	3,600 U
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	1,000 U	990 U	3,600 U
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	410 U	400 U	1,400 U
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	410 U	400 U	1,400 U
4-CHLOROANILINE	NA	NA	NA	410 U	400 U	1,400 U
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	410 U	400 U	1,400 U
4-METHYLPHENOL	NA	NA	NA	410 U	400 U	1,400 U
4-NITROANILINE	NA	NA	NA	1,000 U	990 U	3,600 U
4-NITROPHENOL	NA	NA	NA	1,000 U	990 U	3,600 U
ACENAPHTHENE	NA	NA	NA	410 U	400 U	1,400 U
ACENAPHTHYLENE	NA	NA	NA	410 U	400 U	1,400 U
ANTHRACENE	NA	NA	NA	410 U	400 U	1,400 U
BENZO(A)ANTHRACENE	NA	NA	NA	410 U	400 U	1,400 U
BENZO(A)PYRENE	NA	NA	NA	410 U	400 U	1,400 U
BENZO(B)FLUORANTHENE	NA	NA	NA	410 U	400 U	1,400 U
BENZO(G,H,I)PERYLENE	NA	NA	NA	410 U	400 U	1,400 U
BENZO(K)FLUORANTHENE	NA	NA	NA	410 U	400 U	1,400 U
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	410 U	400 U	1,400 U
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	410 U	400 U	1,400 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	410 U	400 U	1,400 U

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Point ID	WHSSBM04	WHSSBM06	WHSSBM08	WHSSBM08	WHSSBM08	WHSSBM08
Sample ID	281WHSSS039	281WHSSS041	281WHSSS064	281WHSSS065	281WHSSS066	281WHSSS067
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	07/20/1995	07/28/1995	07/28/1995	07/28/1995	07/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 1.70	4.10 - 5.20	9.00 - 10.50
Semivolatiles (in µg/Kg)						
BUTYLBENZYLPHTHALATE	NA	NA	NA	410 U	400 U	1,400 U
CARBAZOLE	NA	NA	NA	410 U	400 U	1,400 U
CHRYSENE	NA	NA	NA	410 U	400 U	1,400 U
DI-N-BUTYLPHTHALATE	NA	NA	NA	410 U	400 U	1,400 U
DI-N-OCTYLPHTHALATE	NA	NA	NA	410 U	400 U	1,400 U
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	410 U	400 U	1,400 U
DIBENZOFURAN	NA	NA	NA	410 U	400 U	1,400 U
DIETHYLPHTHALATE	NA	NA	NA	410 U	400 U	1,400 U
DIMETHYLPHTHALATE	NA	NA	NA	410 U	400 U	1,400 U
FLUORANTHENE	NA	NA	NA	410 U	400 U	1,400 U
FLUORENE	NA	NA	NA	410 U	400 U	1,400 U
HEXACHLOROBENZENE	NA	NA	NA	410 U	400 U	1,400 U
HEXACHLOROBUTADIENE	NA	NA	NA	410 U	400 U	1,400 U
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	410 U	400 U	1,400 U
HEXACHLOROETHANE	NA	NA	NA	410 U	400 U	1,400 U
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	410 U	400 U	1,400 U
ISOPHORONE	NA	NA	NA	410 U	400 U	1,400 U
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	410 U	400 U	1,400 U
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	410 U	400 U	1,400 U
NAPHTHALENE	NA	NA	NA	410 U	400 U	1,400 U
NITROBENZENE	NA	NA	NA	410 U	400 U	1,400 U
PENTACHLOROPHENOL	NA	NA	NA	1,000 U	990 U	3,600 U
PHENANTHRENE	NA	NA	NA	410 U	400 U	1,400 U
PHENOL	NA	NA	NA	410 U	400 U	1,600
PYRENE	NA	NA	NA	410 U	400 U	1,400 U
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	U	U	U
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	U	U	U
TOTAL PAHS	NA	NA	NA	U	U	U
Low Level Pesticides (in µg/Kg)						
2,4'-DDD	NA	0.5 J	0.5 J	NA	NA	NA
2,4'-DDE	NA	0.1 UJ	0.1 U	NA	NA	NA
2,4'-DDT	NA	0.1 UJ	0.2 J	NA	NA	NA
4,4'-DDD	NA	0.1 UJ	0.4 U	NA	NA	NA
4,4'-DDE	NA	0.2 J	0.4	NA	NA	NA
4,4'-DDT	NA	0.5 J	0.4 U	NA	NA	NA
ALDRIN	NA	0.1 UJ	0.1 U	NA	NA	NA
ALPHA-CHLORDANE	NA	0.2 J	0.2 J	NA	NA	NA
DIELDRIN	NA	0.1 UJ	0.1 U	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	0.1 UJ	0.1 U	NA	NA	NA

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Sample ID	281WHSSS039	281WHSSS041	281WHSSS064	281WHSSS065	281WHSSS066	281WHSSS067
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	07/20/1995	07/28/1995	07/28/1995	07/28/1995	07/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 1.70	4.10 - 5.20	9.00 - 10.50
Low Level Pesticides (in µg/Kg)						
HEPTACHLOR	NA	0.1 UJ	0.1 U	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	0.1 UJ	0.1 U	NA	NA	NA
HEXACHLOROBENZENE	NA	0.1 UJ	0.1 U	NA	NA	NA
MIREX	NA	0.6 J	0.1 U	NA	NA	NA
PCB-101 (2,2',3,5,5')	NA	0.07 J	0.1 U	NA	NA	NA
PCB-105 (2,3,3',4,4')	NA	0.4 J	0.1 U	NA	NA	NA
PCB-118 (2,3',4,4',5)	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-126 (3,3',4,4',5)	NA	0.1 J	0.1 J	NA	NA	NA
PCB-128 (2,2',3,3',4,4')	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-138 (2,2',3,4,4',5')	NA	0.8 J	0.2 J	NA	NA	NA
PCB-153 (2,2',4,4',5,5')	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-170 (2,2',3,3',4,4',5)	NA	0.9 J	0.1 U	NA	NA	NA
PCB-18 (2,2',5)	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-180 (2,2',3,4,4',5,5')	NA	0.1 J	0.1 U	NA	NA	NA
PCB-187 (2,2',3,4',5,5',6)	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-206 (2,2',3,3',4,4',5,5',6	NA	0.1 UJ	0.3 J	NA	NA	NA
PCB-209 (2,2',3,3',4,4',5,5',6	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-28 (2,4,4')	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-44 (2,2',3,5')	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-52 (2,2',5,5')	NA	0.1 UJ	0.3 J	NA	NA	NA
PCB-66 (2,3',4,4')	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-77 (3,3',4,4')	NA	0.1 UJ	0.1 U	NA	NA	NA
PCB-8 (2,4')	NA	0.1 UJ	0.1 U	NA	NA	NA
TRANS-NONACHLOR	NA	0.3 J	0.1 U	NA	NA	NA
TOTAL BHCS	NA	U	U	NA	NA	NA
TOTAL CHLORDANES	NA	0.2	0.2	NA	NA	NA
TOTAL DDTS	NA	1	1	NA	NA	NA
TOTAL PCBS	NA	5	1	NA	NA	NA
Pesticides (in µg/Kg)						
4,4'-DDD	NA	NA	NA	4 U	4 U	14 U
4,4'-DDE	NA	NA	NA	4 U	4 U	14 U
4,4'-DDT	NA	NA	NA	4 U	4 U	14 U
ALDRIN	NA	NA	NA	2 U	2 U	7 U
ALPHA-BHC	NA	NA	NA	2 U	2 U	7 U
ALPHA-CHLORDANE	NA	NA	NA	2 U	2 U	7 U
AROCLOR-1016	NA	NA	NA	41 U	40 U	140 U
AROCLOR-1221	NA	NA	NA	81 U	79 U	290 U

Notes:

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBM04	WHSSBM06	WHSSBM08	WHSSBM08	WHSSBM08	WHSSBM08
Sample ID	281WHSSS039	281WHSSS041	281WHSSS064	281WHSSS065	281WHSSS066	281WHSSS067
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	07/20/1995	07/28/1995	07/28/1995	07/28/1995	07/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 1.70	4.10 - 5.20	9.00 - 10.50
Pesticides (in µg/Kg)						
AROCLOR-1232	NA	NA	NA	41 U	40 U	140 U
AROCLOR-1242	NA	NA	NA	41 U	40 U	140 U
AROCLOR-1248	NA	NA	NA	41 U	40 U	140 U
AROCLOR-1254	NA	NA	NA	41 U	40 U	140 U
AROCLOR-1260	NA	NA	NA	41 U	40 U	140 U
BETA-BHC	NA	NA	NA	2 U	2 U	7 U
DELTA-BHC	NA	NA	NA	2 U	2 U	7 U
DIELDRIN	NA	NA	NA	4 U	4 U	14 U
ENDOSULFAN I	NA	NA	NA	2 U	2 U	7 U
ENDOSULFAN II	NA	NA	NA	4 U	4 U	14 U
ENDOSULFAN SULFATE	NA	NA	NA	4 U	4 U	14 U
ENDRIN	NA	NA	NA	4 U	4 U	14 U
ENDRIN ALDEHYDE	NA	NA	NA	4 U	4 U	14 U
ENDRIN KETONE	NA	NA	NA	4 U	4 U	14 U
GAMMA-BHC (LINDANE)	NA	NA	NA	2 U	2 U	7 U
GAMMA-CHLORDANE	NA	NA	NA	2 U	2 U	7 U
HEPTACHLOR	NA	NA	NA	2 U	2 U	7 U
HEPTACHLOR EPOXIDE	NA	NA	NA	2 U	2 U	7 U
METHOXYCHLOR	NA	NA	NA	20 U	20 U	72 U
TOXAPHENE	NA	NA	NA	200 U	200 U	720 U
TOTAL BHCS	NA	NA	NA	U	U	U
TOTAL CHLORDANES	NA	NA	NA	U	U	U
TOTAL DDTS	NA	NA	NA	U	U	U
Explosives (in µg/Kg)						
1,3,5-TRINITROBENZENE	NA	NA	NA	120 U	120 U	NA
1,3-DINITROBENZENE	NA	NA	NA	120 U	120 U	NA
2,4,6-TRINITROTOLUENE	NA	NA	NA	120 U	120 U	NA
2,4-DINITROTOLUENE	NA	NA	NA	120 U	120 U	NA
2,6-DINITROTOLUENE	NA	NA	NA	120 U	120 U	NA
2-NITROTOLUENE	NA	NA	NA	120 U	120 U	NA
3-NITROTOLUENE	NA	NA	NA	120 U	120 U	NA
4-NITROTOLUENE	NA	NA	NA	120 U	120 U	NA
HMX	NA	NA	NA	120 U	120 U	NA
NITROBENZENE	NA	NA	NA	120 U	120 U	NA
RDX	NA	NA	NA	120 U	120 U	NA
TETRYL	NA	NA	NA	120 U	120 U	NA
Petroleum Indicators(in mg/Kg)						
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA

Notes:

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBM04	WHSSBM06	WHSSBM08	WHSSBM08	WHSSBM08	WHSSBM08
Sample ID	281WHSSS039	281WHSSS041	281WHSSS064	281WHSSS065	281WHSSS066	281WHSSS067
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	07/20/1995	07/28/1995	07/28/1995	07/28/1995	07/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 1.70	4.10 - 5.20	9.00 - 10.50
Petroleum Indicators(in mg/Kg)						
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA
MOTOR OIL RANGE ORGANICS	NA	NA	NA	NA	NA	NA
CLP Metals (in mg/Kg)						
ALUMINUM	12,400	13,000	9,100	15,200	9,230	7,140
ANTIMONY	0.65 U	0.45 UJ	1.7 U	1.5 U	0.98 U	1.8 U
ARSENIC	8.6 *	8.3 *	14.6 *	5.8 *	5.0 *	3.7 U
BARIUM	214	142	71.1	198	230	31.7
BERYLLIUM	0.13 U	0.020 U	0.030 U	0.020 U	0.020 U	0.090 U
CADMIUM	0.050 U	0.040 U	0.050 U	0.050 U	0.050 U	0.17 U
CALCIUM	4,070 J	9,800 J	7,950 J	15,900 J	3,830 J	7,940 J
CHROMIUM	24.9	40.2	37.0	42.1	23.1	21.2 U
COBALT	12.3	14.2	11.1	18.6	11.7	3.7
COPPER	20.8	16.2	45.4	32.7	12.7	17.6 U
IRON	17,300	21,800	42,500 *	26,500 *	16,900	8,830
LEAD	28.1	16.6	27.7 J	25.3 J	6.9 J	3.9 U
MAGNESIUM	7,310	8,040	6,350	10,000	5,320	10,500
MANGANESE	777 J	494 J	295	626	194	53.1
MERCURY	0.12	7.0	0.12 U	0.14 U	0.12 U	0.35 U
MOLYBDENUM	0.21 U	0.19 U	1.5	0.25 U	0.64 U	3.8 U
NICKEL	36.8	55.1	52.8	75.3	26.1	25.0
POTASSIUM	2,330 J	2,010 J	1,940 J	2,370 J	2,130 J	2,850 J
SELENIUM	0.79 U	0.72 U	0.91 U	0.83 U	0.81 U	3.0 U
SILVER	0.14 U	0.13 U	0.16	0.15 U	0.14 U	0.52 U
SODIUM	582 J	61.3 J	1,140 J	5,040 J	4,490 J	35,900 J
THALLIUM	0.46 U	0.42 U	0.53 U	0.49 U	0.47 U	1.7 U
VANADIUM	40.0	52.5	42.4	77.1	45.0	44.9
ZINC	59.2	59.5	70.2	73.2	45.6	39.8 U
Hexavalent Chromium (in mg/Kg)						
HEXAVALENT CHROMIUM	NA	NA	50.0 U	NA	NA	NA
Anions, Solids, Sulfides, and TOC (in mg/kg)						
SULFIDE	NA	10.0 U	13.9 U	12.1 U	12.3 U	46.9 U
TOTAL ORGANIC CARBON	NA	7,140	1,970 J	743 J	124 UJ	355,000 J
Dioxin (in µg/Kg)						
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA

Notes:

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07/12/03

Table E-1
Site 11 - Wood Hogger
Soil Analytical Results

Point ID	WHSSBM04	WHSSBM06	WHSSBM08	WHSSBM08	WHSSBM08	WHSSBM08
Sample ID	281WHSSS039	281WHSSS041	281WHSSS064	281WHSSS065	281WHSSS066	281WHSSS067
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date	07/20/1995	07/20/1995	07/28/1995	07/28/1995	07/28/1995	07/28/1995
Sample Depth (in feet)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	1.00 - 1.70	4.10 - 5.20	9.00 - 10.50
Dioxin (in µg/Kg)						
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)						
PERCENT MOISTURE	NA	5.0	29.0	NA	NA	NA
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA
Miscellaneous						
PH	7.8	8.7	8.2	8.1	8.7	8.2

Notes:

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07/12/03

TABLE E-2

ANALYTICAL RESULTS FOR SURFACE WATER
WOOD HOGGER (SITE 11)

WOOD HOGGER SURFACE WATER DATASET FOR TABLE E-2
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT
SWATER	WHSSW004	281WHSSW005	13-Jul-95
SWATER	WHSSW004	281WHSSW104	17-Oct-95
SWATER	WHSSW004	281WHSSW104A	26-Oct-95
SWATER	WHSSW004	281WHSSW205	30-Jan-96
SWATER	WHSSW004	281WHSSW305	1-May-96
SWATER	WHSSW005	281WHSSW006	13-Jul-95
SWATER	WHSSW005	281WHSSW105	17-Oct-95
SWATER	WHSSW005	281WHSSW206	30-Jan-96
SWATER	WHSSW005	281WHSSW306	1-May-96
SWATER	WHSSW006	281WHSSW008	13-Jul-95
SWATER	WHSSW006	281WHSSW106	17-Oct-95
SWATER	WHSSW006	281WHSSW207	30-Jan-96
SWATER	WHSSW006	281WHSSW307	1-May-96

Notes:

MATRIX	Media Sampled
SWATER	Surface Water
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected

Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW005	WHSSW005	WHSSW005	WHSSW005	WHSSW006	WHSSW006	WHSSW006
Sample ID	281WHSSW005	281WHSSW104	281WHSSW104A	281WHSSW205	281WHSSW305	281WHSSW006	281WHSSW105	281WHSSW206	281WHSSW306	281WHSSW008	281WHSSW106	281WHSSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/13/1995	10/17/1995	10/26/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/L)												
1,1,1-TRICHLOROETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	14 U	10 U	10 U	10 U
BENZENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	8 J	10 U	10 U
Semivolatiles (in µg/L)												
1,2,4-TRICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	NA	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	NA	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	NA	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U	5 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW005	WHSSW005	WHSSW005	WHSSW005	WHSSW006	WHSSW006	WHSSW006
Sample ID	281WHSSW005	281WHSSW104	281WHSSW104A	281WHSSW205	281WHSSW305	281WHSSW006	281WHSSW105	281WHSSW206	281WHSSW306	281WHSSW008	281WHSSW106	281WHSSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/13/1995	10/17/1995	10/26/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	NA	25 U	26 U	25 U	25 U	120 U	26 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	25 U	NA	25 U	26 U	25 U	25 U	120 U	26 U	25 U	25 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	NA	25 U	26 U	25 U	25 U	120 U	26 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 UJ	10 U	10 U	10 U	10 U
3-NITROANILINE	25 U	25 U	NA	25 U	26 U	25 U	25 U	120 U	26 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	NA	25 U	26 U	25 U	25 U	120 U	26 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	NA	25 U	26 U	25 U	25 U	120 U	26 U	25 U	25 U	25 U
4-NITROPHENOL	25 U	25 U	NA	25 U	26 U	25 U	25 U	120 U	26 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	NA	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	NA	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	NA	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	NA	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	13 U	4 U	NA	4 U	4 U	4 U	7 U	20 U	4 U	4 U	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
CHRYSENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW005	WHSSW005	WHSSW005	WHSSW005	WHSSW006	WHSSW006	WHSSW006
Sample ID	281WHSSW005	281WHSSW104	281WHSSW104A	281WHSSW205	281WHSSW305	281WHSSW006	281WHSSW105	281WHSSW206	281WHSSW306	281WHSSW008	281WHSSW106	281WHSSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/13/1995	10/17/1995	10/26/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
DI-N-OCTYLPHTHALATE	10 U	10 U	NA	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U
DIBENZ(A,H)ANTHRACENE	10 U	10 U	NA	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U
DIBENZOFURAN	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
FLUORENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 UJ	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	NA	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	25 U	NA	25 U	26 U	25 U	25 U	120 U	26 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	NA	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U
TOTAL HIGH MOLECULAR PAHS	U	U	NA	U	U	U	U	U	U	U	U	U
TOTAL LOW MOLECULAR PAHS	U	U	NA	U	U	U	U	U	U	U	U	U
TOTAL PAHS	U	U	NA	U	U	U	U	U	U	U	U	U
Pesticides (in µg/L)												
4,4'-DDD	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ
4,4'-DDE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ
4,4'-DDT	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ
ALDRIN	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ
ALPHA-BHC	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ
ALPHA-CHLORDANE	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ
AROCLOR-1016	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
AROCLOR-1221	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
AROCLOR-1232	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
AROCLOR-1242	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
AROCLOR-1248	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
AROCLOR-1254	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
AROCLOR-1260	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
BETA-BHC	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW005	WHSSW005	WHSSW005	WHSSW005	WHSSW006	WHSSW006	WHSSW006
Sample ID	281WHSSW005	281WHSSW104	281WHSSW104A	281WHSSW205	281WHSSW305	281WHSSW006	281WHSSW105	281WHSSW206	281WHSSW306	281WHSSW008	281WHSSW106	281WHSSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/13/1995	10/17/1995	10/26/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/L)												
DELTA-BHC	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ
DIELDRIN	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ
ENDOSULFAN I	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ
ENDOSULFAN II	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ
ENDOSULFAN SULFATE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ
ENDRIN	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ
ENDRIN ALDEHYDE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ
ENDRIN KETONE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ
GAMMA-CHLORDANE	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ
HEPTACHLOR	0.05 U	0.05 U	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ
HEPTACHLOR EPOXIDE	0.01 U	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ
METHOXYCHLOR	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
TOXAPHENE	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 UJ
TOTAL BHCS	U	U	NA	U	U	U	U	U	U	U	U	U
TOTAL CHLORDANES	U	U	NA	U	U	U	U	U	U	U	U	U
TOTAL DDTS	U	U	NA	U	U	U	U	U	U	U	U	U
Explosives (in µg/L)												
1,3,5-TRINITROBENZENE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,3-DINITROBENZENE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,4,6-TRINITROTOLUENE	0.1 U	0.1 U	NA	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U
2,4-DINITROTOLUENE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-DINITROTOLUENE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-NITROTOLUENE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
3-NITROTOLUENE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-NITROTOLUENE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
HMX	0.1 U	0.1 U	NA	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U
NITROBENZENE	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDX	0.1 U	0.1 U	NA	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U
TETRYL	0.1 U	0.1 UJ	NA	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U
TCLP Metals (in µg/L)												
ALUMINUM	187	1,510	NA	1,180	2,100	141 U	123 U	206	748	128 U	428	166
ANTIMONY	2.1 U	3.0 U	NA	1.6 U	2.3 U	2.1 U	3.6	1.6 U	2.6	2.4 U	3.0 U	1.6 U
ARSENIC	3.6 U	2.8 U	NA	2.6	3.6 U	6.7 U	2.8 U	2.4	3.6 U	5.4 U	2.8 U	2.4
BARIUM	64.0	64.6	NA	43.9	64.1	94.5	173	36.5	106	85.2	110	130
BERYLLIUM	0.10 U	0.10 U	NA	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U
CADMIUM	0.20 U	0.20 U	NA	0.20 U	0.51	1.4 U	0.31 U	0.63 U	2.5	0.20 U	0.20 U	0.20 U
CALCIUM	48,100	57,600	NA	36,300	44,700	56,400	87,700	40,300	50,600	47,100	76,300	108,000
CHROMIUM	1.8 U	4.8	NA	3.9	6.1	1.8 U	0.50 U	1.2 U	1.5	1.8 U	1.1	0.61 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW004	WHSSW005	WHSSW005	WHSSW005	WHSSW005	WHSSW006	WHSSW006	WHSSW006
Sample ID	281WHSSW005	281WHSSW104	281WHSSW104A	281WHSSW205	281WHSSW305	281WHSSW006	281WHSSW105	281WHSSW206	281WHSSW306	281WHSSW008	281WHSSW106	281WHSSW207
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	07/13/1995	10/17/1995	10/26/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996	05/01/1996	07/13/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
CLP Metals (in µg/L)												
COBALT	0.82	1.4	NA	1.4 U	1.2	1.0	0.59	0.72 U	1.1 U	0.52	0.78	0.56
COPPER	6.2 U	7.7	NA	7.8	6.9	11.6	5.7	11.6	13.7	9.5	6.1	3.0 U
IRON	788	3,240	NA	2,460	3,300	1,500	537	720	2,500	782	693	583
LEAD	1.5 U	2.5 U	NA	1.7 U	1.1 U	2.8	2.0 U	2.1 U	3.7	1.5 U	2.0 U	0.80 U
MAGNESIUM	113,000	154,000	NA	67,100	92,100	100,000	268,000	50,100	129,000	80,200	179,000	155,000
MANGANESE	115	278	NA	147	157 J	311	122	144	170 J	330	107	469
MERCURY	0.10 U	0.10 U	NA	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.20	0.10 U	0.10 U	0.10 U
MOLYBDENUM	1.2 U	1.3	NA	1.3 U	1.9 U	1.8 U	3.0	3.2 U	7.3	1.1 U	1.8	1.7 U
NICKEL	3.3 U	7.6	NA	6.1	7.1	3.3 U	4.9	3.2	5.9	3.3 U	3.6	2.6
POTASSIUM	34,900	45,000	NA	19,500	34,400	31,600	73,300	15,100	58,100	23,400	52,500	29,300
SELENIUM	3.4 U	3.9 U	NA	2.3 U	3.5 U	3.4 U	3.9 U	2.3 U	3.5 U	3.4 U	3.9 U	2.3 U
SILVER	0.60 U	0.70 U	NA	0.50 U	1.2 U	0.60 U	0.70 U	0.50 U	1.2 U	0.60 U	0.70 U	0.50 U
SODIUM	910,000	1,240,000	NA	499,000	715,000	834,000	2,200,000	415,000	1,250,000	654,000	1,470,000	989,000
THALLIUM	2.0 U	2.4	NA	1.9 U	3.6 U	2.0 U	1.9 U	1.9 U	3.6 U	2.0 U	1.9 U	1.9 U
VANADIUM	3.4 U	9.7	NA	7.5	11.3	2.8 U	1.9 U	2.1 U	5.1	3.9 U	2.9 U	1.7 U
ZINC	67.7 J	74.2 U	NA	32.5	38.8	329 J	160	110	318	69.8 J	51.1 U	6.7 U
Anions, Solids, Sulfides, and TOC (in mg/L)												
SULFIDE	NA	NA	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	7.1	6.6	NA	11.6	5.4	17.0	23.6	14.6	6.5	13.3	9.5	14.2
TOTAL SUSPENDED SOLIDS	14.0	30.0	NA	28.0	53.7	9.0 J	139	10.0 U	51.4	9.0 J	25.0	24.0

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW006
Sample ID	281WHSSW307
Matrix	SWATER
Sample Date	05/01/1996
Sample Depth (in feet)	0.00 - 0.00
Volatiles (in µg/L)	
1,1,1-TRICHLOROETHANE	10 U
1,1,2,2-TETRACHLOROETHANE	10 U
1,1,2-TRICHLOROETHANE	10 U
1,1-DICHLOROETHANE	10 U
1,1-DICHLOROETHENE	10 U
1,2-DICHLOROETHANE	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U
1,2-DICHLOROPROPANE	10 U
2-BUTANONE	10 U
2-HEXANONE	10 U
4-METHYL-2-PENTANONE	10 U
ACETONE	12 U
BENZENE	10 U
BROMODICHLOROMETHANE	10 U
BROMOFORM	10 U
BROMOMETHANE	10 U
CARBON DISULFIDE	10 U
CARBON TETRACHLORIDE	10 U
CHLOROBENZENE	10 U
CHLOROETHANE	10 U
CHLOROFORM	10 U
CHLOROMETHANE	10 U
CIS-1,3-DICHLOROPROPENE	10 U
DIBROMOCHLOROMETHANE	10 U
ETHYLBENZENE	10 U
METHYLENE CHLORIDE	10 U
STYRENE	10 U
TETRACHLOROETHENE	10 U
TOLUENE	10 U
TRANS-1,3-DICHLOROPROPENE	10 U
TRICHLOROETHENE	10 U
VINYL CHLORIDE	10 U
XYLENE (TOTAL)	10 U
Semi-volatiles (in µg/L)	
1,2,4-TRICHLOROBENZENE	10 U
1,2-DICHLOROBENZENE	5 U
1,3-DICHLOROBENZENE	5 U
1,4-DICHLOROBENZENE	5 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW006
Sample ID	281WHSSW307
Matrix	SWATER
Sample Date	05/01/1996
Sample Depth (in feet)	0.00 - 0.00
Semivolatiles (in µg/L)	
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U
2,4,5-TRICHLOROPHENOL	25 U
2,4,6-TRICHLOROPHENOL	10 U
2,4-DICHLOROPHENOL	10 U
2,4-DIMETHYLPHENOL	10 U
2,4-DINITROPHENOL	25 U
2,4-DINITROTOLUENE	10 U
2,6-DINITROTOLUENE	10 U
2-CHLORONAPHTHALENE	10 U
2-CHLOROPHENOL	10 U
2-METHYLNAPHTHALENE	10 U
2-METHYLPHENOL	10 U
2-NITROANILINE	25 U
2-NITROPHENOL	10 U
3,3'-DICHLOROBENZIDINE	10 U
3-NITROANILINE	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U
4-BROMOPHENYL-PHENYLETHER	10 U
4-CHLORO-3-METHYLPHENOL	10 U
4-CHLOROANILINE	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U
4-METHYLPHENOL	10 U
4-NITROANILINE	25 U
4-NITROPHENOL	25 U
ACENAPHTHENE	10 U
ACENAPHTHYLENE	10 U
ANTHRACENE	10 U
BENZO(A)ANTHRACENE	10 U
BENZO(A)PYRENE	10 U
BENZO(B)FLUORANTHENE	10 U
BENZO(G,H,I)PERYLENE	10 U
BENZO(K)FLUORANTHENE	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U
BIS(2-CHLOROETHYL)ETHER	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U
BUTYLBENZYLPHTHALATE	10 U
CARBAZOLE	10 U
CHRYSENE	10 U
DI-N-BUTYLPHTHALATE	10 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW006
Sample ID	281WHSSW307
Matrix	SWATER
Sample Date	05/01/1996
Sample Depth (in feet)	0.00 - 0.00
Semivolatiles (in µg/L)	
DI-N-OCTYLPHTHALATE	10 U
DIBENZ(A,H)ANTHRACENE	10 U
DIBENZOFURAN	10 U
DIETHYLPHTHALATE	10 U
DIMETHYLPHTHALATE	10 U
FLUORANTHENE	10 U
FLUORENE	10 U
HEXACHLOROBENZENE	10 U
HEXACHLOROBUTADIENE	10 U
HEXACHLOROCYCLOPENTADIENE	10 U
HEXACHLOROETHANE	10 U
INDENO(1,2,3-CD)PYRENE	10 U
ISOPHORONE	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U
N-NITROSODIPHENYLAMINE (1)	10 U
NAPHTHALENE	10 U
NITROBENZENE	10 U
PENTACHLOROPHENOL	25 U
PHENANTHRENE	10 U
PHENOL	10 U
PYRENE	10 U
TOTAL HIGH MOLECULAR PAHS	U
TOTAL LOW MOLECULAR PAHS	U
TOTAL PAHS	U
Pesticides (in µg/L)	
4,4'-DDD	0.1 U
4,4'-DDE	0.1 U
4,4'-DDT	0.1 U
ALDRIN	0.05 U
ALPHA-BHC	0.05 U
ALPHA-CHLORDANE	0.05 U
AROCLOR-1016	0.5 U
AROCLOR-1221	0.5 U
AROCLOR-1232	0.5 U
AROCLOR-1242	0.5 U
AROCLOR-1248	0.5 U
AROCLOR-1254	0.5 U
AROCLOR-1260	0.5 U
BETA-BHC	0.05 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter
Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.
Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW006
Sample ID	281WHSSW307
Matrix	SWATER
Sample Date	05/01/1996
Sample Depth (in feet)	0.00 - 0.00
Pesticides (in µg/L)	
DELTA-BHC	0.05 U
DIELDRIN	0.1 U
ENDOSULFAN I	0.05 U
ENDOSULFAN II	0.1 U
ENDOSULFAN SULFATE	0.1 U
ENDRIN	0.1 U
ENDRIN ALDEHYDE	0.1 U
ENDRIN KETONE	0.1 U
GAMMA-BHC (LINDANE)	0.05 U
GAMMA-CHLORDANE	0.05 U
HEPTACHLOR	0.05 U
HEPTACHLOR EPOXIDE	0.01 U
METHOXYCHLOR	0.5 U
TOXAPHENE	3 U
TOTAL BHCS	U
TOTAL CHLORDANES	U
TOTAL DDTS	U
Explosives (in µg/L)	
1,3,5-TRINITROBENZENE	0.1 U
1,3-DINITROBENZENE	0.1 U
2,4,6-TRINITROTOLUENE	0.1 UJ
2,4-DINITROTOLUENE	0.1 U
2,6-DINITROTOLUENE	0.1 U
2-NITROTOLUENE	0.1 U
3-NITROTOLUENE	0.1 U
4-NITROTOLUENE	0.1 U
HMX	0.1 UJ
NITROBENZENE	0.1 U
RDX	0.1 UJ
TETRYL	0.1 U
TCLP Metals (in µg/L)	
ALUMINUM	332
ANTIMONY	2.3 U
ARSENIC	11.8
BARIUM	119
BERYLLIUM	0.20 U
CADMIUM	0.54
CALCIUM	51,500
CHROMIUM	1.9

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table E-2
Site 11 - Wood Hogger
Surface Water Analytical Results

Point ID	WHSSW006
Sample ID	281WHSSW307
Matrix	SWATER
Sample Date	05/01/1996
Sample Depth (in feet)	0.00 - 0.00
CLP Metals (in µg/L)	
COBALT	1.1 U
COPPER	3.0
IRON	1,530
LEAD	1.1 U
MAGNESIUM	75,200
MANGANESE	1,950 J
MERCURY	0.20 U
MOLYBDENUM	3.7 U
NICKEL	6.2
POTASSIUM	34,700
SELENIUM	3.5 U
SILVER	1.2 U
SODIUM	640,000
THALLIUM	3.6 U
VANADIUM	10.4
ZINC	24.3
Anions, Solids, Sulfides, and TOC (in mg/L)	
SULFIDE	NA
TOTAL ORGANIC CARBON	11.3
TOTAL SUSPENDED SOLIDS	38.5

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

TABLE E-3

ANALYTICAL RESULTS FOR TISSUE
WOOD HOGGER (SITE 11)

WOOD HOGGER TISSUE DATASET FOR TABLE E-3
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT
PWTISSUE	WHSB021	217WHST1509	25-Jun-98
MOTISSUE	WHSC001	217WHC1	6-Sep-98
MOTISSUE	WHSC002	217WHC2	6-Sep-98
MOTISSUE	WHSC003	217WHC3	6-Sep-98

Notes:

MATRIX	Media Sampled
MOTISSUE	Mouse Tissue
PWTISSUE	Pickleweed Tissue
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected

Table E-3
Site 11 - Wood Hogger
Tissue Analytical Results

Point ID	WHSB021	WHSC001	WHSC002	WHSC003
Sample ID	217WHST1509	217WHC1	217WHC2	217WHC3
Matrix	PWTISSUE	MOTISSUE	MOTISSUE	MOTISSUE
Sample Date	06/25/1998	09/06/1998	09/06/1998	09/06/1998
Low Level Pesticides (in µg/kg)				
2,4'-DDD	NA	1 U	1 U	0.9 U
2,4'-DDE	NA	0.6 U	0.6 U	0.5 U
2,4'-DDT	NA	0.4 UJ	0.4 UJ	0.3 UJ
4,4'-DDD	NA	1 U	1 U	1 U
4,4'-DDE	NA	5 U	5 U	4 U
4,4'-DDT	NA	0.4 UJ	0.4 UJ	0.3 UJ
ALDRIN	NA	0.2 U	0.2 J	0.3 J
ALPHA-BHC	NA	0.7 J	0.6 J	0.4 U
ALPHA-CHLORDANE	NA	0.7 U	0.7 U	0.6 U
BETA-BHC	NA	0.3 U	0.2 U	0.2 U
CIS-NONACHLOR	NA	3 U	3 U	2 U
DELTA-BHC	NA	0.3 U	0.3 U	0.2 U
DIELDRIN	NA	0.3 U	0.2 U	0.2 U
ENDOSULFAN I	NA	0.2 U	0.3	0.2 U
ENDOSULFAN II	NA	2 U	2 U	1 U
ENDOSULFAN SULFATE	NA	0.3 UJ	0.3 UJ	0.2 UJ
ENDRIN	NA	0.8 J	1 J	0.2 UJ
ENDRIN ALDEHYDE	NA	0.2 U	0.2 U	0.2 U
ENDRIN KETONE	NA	0.3 U	0.3 U	0.3 U
GAMMA-BHC (LINDANE)	NA	0.2 U	0.2 U	0.2 U
GAMMA-CHLORDANE	NA	0.4 U	0.4 U	0.3 U
HEPTACHLOR	NA	0.3 UJ	0.3 UJ	0.2 UJ
HEPTACHLOR EPOXIDE	NA	0.2 U	0.2 U	0.2 U
HEXACHLOROBENZENE	NA	0.4 U	0.4 U	0.3 U
METHOXYCHLOR	NA	4 J	0.7 UJ	0.6 UJ
MIREX	NA	0.4 U	0.4 U	0.4
OXYCHLORDANE	NA	0.4 U	0.4 U	0.3 U
PCB-101 (2,2',3,5,5')	NA	2 UJ	2 UJ	2 UJ
PCB-105 (2,3,3',4,4')	NA	0.5 U	0.5 U	0.4 U
PCB-114 (2,3,4,4',5)	NA	0.4 UJ	0.4 UJ	0.7 J
PCB-118 (2,3',4,4',5)	NA	2 U	2 U	1 U
PCB-123 (2',3,4,4',5)	NA	0.8 UJ	0.8 UJ	0.7 UJ
PCB-126 (3,3',4,4',5)	NA	0.6 U	0.6 U	0.5 U
PCB-128 (2,2',3,3',4,4')	NA	0.4 UJ	0.4 UJ	0.3 UJ
PCB-138 (2,2',3,4,4',5')	NA	3 UJ	3 UJ	2 UJ
PCB-153 (2,2',4,4',5,5')	NA	3 U	3 UJ	2 UJ
PCB-156 (2,3,3',4,4',5)	NA	0.2 U	0.2 U	0.2
PCB-157 (2,3,3',4,4',5')	NA	0.4 U	0.4 U	0.3 U
PCB-167 (2,3',4,4',5,5')	NA	0.9 UJ	0.9 UJ	0.8 UJ
PCB-169 (3,3',4,4',5,5')	NA	0.2 U	0.2 U	0.2 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/16/03

Table E-3
Site 11 - Wood Hogger
Tissue Analytical Results

Point ID	WHSB021	WHSC001	WHSC002	WHSC003
Sample ID	217WHST1509	217WHC1	217WHC2	217WHC3
Matrix	PWTISSUE	MOTISSUE	MOTISSUE	MOTISSUE
Sample Date	06/25/1998	09/06/1998	09/06/1998	09/06/1998
Low Level Pesticides (in µg/Kg)				
PCB-170 (2,2',3,3',4,4',5)	NA	0.8 U	1 J	0.7 J
PCB-18 (2,2',5)	NA	1 UJ	1 UJ	0.8 UJ
PCB-180 (2,2',3,4,4',5,5')	NA	0.6 U	0.6 U	0.8 J
PCB-187 (2,2',3,4',5,5',6)	NA	1 UJ	1 U	0.8 UJ
PCB-189 (2,3,3',4,4',5,5')	NA	0.2 U	0.2 U	0.2 U
PCB-195 (2,2',3,3',4,4',5,6)	NA	0.2 UJ	0.2 UJ	0.2 UJ
PCB-206 (2,2',3,3',4,4',5,5',6	NA	0.3 UJ	0.3 UJ	0.2 UJ
PCB-209 (2,2',3,3',4,4',5,5',6	NA	0.5 UJ	0.5 UJ	0.4 UJ
PCB-28 (2,4,4')	NA	0.2 U	0.2 U	0.2 U
PCB-44 (2,2',3,5')	NA	0.8 UJ	0.8 UJ	0.7 UJ
PCB-52 (2,2',5,5')	NA	0.4 UJ	0.4 UJ	0.4 UJ
PCB-66 (2,3',4,4')	NA	0.6 U	0.6 U	0.5 U
PCB-77 (3,3',4,4')	NA	0.4 U	0.4 U	0.4 U
PCB-8 (2,4')	NA	0.7 U	2	4 J
TOXAPHENE	NA	99 U	97 U	82 U
TRANS-NONACHLOR	NA	0.7 U	0.6 U	0.5 U
TOTAL BHCS	NA	0.7	0.6	U
TOTAL CHLORDANES	NA	U	U	U
TOTAL DDTS	NA	U	U	U
TOTAL PCBS	NA	U	6	11
CLP Metals (in mg/Kg)				
ALUMINUM	5.6 J	21.0	25.7	5.8 UJ
ANTIMONY	0.18 U	0.23 U	0.24 U	0.24 U
ARSENIC	0.24 U	0.21 UJ	0.22 UJ	0.21 UJ
BARIUM	0.62 J	0.88 J	2.3 J	3.2 J
BERYLLIUM	0.020 U	0.0038 U	0.0040 U	0.0039 U
CADMIUM	0.020 U	0.050 UJ	0.030 UJ	0.030 UJ
CALCIUM	860	4,840	9,020	8,720
CHROMIUM	0.060 U	0.10 UJ	0.20 UJ	0.16 UJ
COBALT	0.11 U	0.080 UJ	0.080 UJ	0.080 UJ
COPPER	0.54 J	2.0	2.4	2.3
IRON	25.2	64.3 J	73.1 J	64.8 J
LEAD	0.14 J	0.45	0.66	0.55
MAGNESIUM	1,160	297	392	423
MANGANESE	4.5	1.5	1.5	1.6
MERCURY	0.010 U	0.020 U	0.010 U	0.020 U
MOLYBDENUM	0.10 U	0.17 J	0.17 J	0.17 J
NICKEL	0.15 U	0.15 J	0.10 J	0.16 J
POTASSIUM	2,830	2,290 J	2,860 J	2,840 J
SELENIUM	0.18 U	0.36 J	0.51 J	0.44 J
SILVER	0.070 U	0.050 U	0.050 U	0.050 U

Notes:

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07/16/03

Table E-3
Site 11 - Wood Hogger
Tissue Analytical Results

Point ID	WHSB021	WHSC001	WHSC002	WHSC003
Sample ID	217WHST1509	217WHC1	217WHC2	217WHC3
Matrix	PWTISSUE	MOTISSUE	MOTISSUE	MOTISSUE
Sample Date	06/25/1998	09/06/1998	09/06/1998	09/06/1998
CLP Metals (in mg/Kg)				
SODIUM	6,120	941	1,120	1,040
THALLIUM	0.31 U	0.20 U	0.21 U	0.20 U
VANADIUM	0.32 J	0.090 U	0.23 J	0.090 U
ZINC	8.0	36.3 J	48.4 J	27.2 J
Dioxin (in µg/Kg)				
1,2,3,4,6,7,8,9-OCDD	NA	0.09	0.09	NA
1,2,3,4,6,7,8,9-OCDF	NA	0.004 J	0.003 EMPCJ	NA
1,2,3,4,6,7,8-HPCDD	NA	0.04	0.04	NA
1,2,3,4,6,7,8-HPCDF	NA	0.01	0.008	NA
1,2,3,4,7,8,9-HPCDF	NA	0.001 J	0.0008 EMPCJ	NA
1,2,3,4,7,8-HXCDD	NA	0.0008 J	0.0007 EMPCJ	NA
1,2,3,4,7,8-HXCDF	NA	0.002 J	0.002 J	NA
1,2,3,6,7,8-HXCDD	NA	0.003	0.003	NA
1,2,3,6,7,8-HXCDF	NA	0.002 J	0.001 J	NA
1,2,3,7,8,9-HXCDD	NA	0.0009 J	0.001 J	NA
1,2,3,7,8,9-HXCDF	NA	0.0001 U	0.00006 U	NA
1,2,3,7,8-PECDD	NA	0.0006 J	0.0008 J	NA
1,2,3,7,8-PECDF	NA	0.00009 U	0.00005 U	NA
2,3,4,6,7,8-HXCDF	NA	0.002 J	0.001 EMPCJ	NA
2,3,4,7,8-PECDF	NA	0.001 J	0.001 J	NA
2,3,7,8-TCDD	NA	0.0001 U	0.00006 U	NA
2,3,7,8-TCDF	NA	0.00008 U	0.00004 U	NA
TOTAL HPCDD	NA	0.04	0.04	NA
TOTAL HPCDF	NA	0.02 J	0.01 EMPCJ	NA
TOTAL HXCDD	NA	0.005	0.008 EMPCJ	NA
TOTAL HXCDF	NA	0.007 EMPCJ	0.005 EMPCJ	NA
TOTAL PECDD	NA	0.0006	0.0008	NA
TOTAL PECDF	NA	0.001	0.001	NA
TOTAL TCDD	NA	0.00003 U	0.00002 U	NA
TOTAL TCDF	NA	0.00002 U	0.00001 U	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/16/03

APPENDIX F

ANALYTICAL DATA TABLES – TIDAL AREA OTTER SLUICE SITE

LIST OF TABLES

Table

F-1 ANALYTICAL RESULTS FOR SEDIMENT, OTTER SLUICE

F-2 ANALYTICAL RESULTS FOR SURFACE WATER, OTTER SLUICE

F-3 ANALYTICAL RESULTS FOR TISSUE, OTTER SLUICE

Notes:

Point ID	Location of the sample.
Sample ID	Number assigned before the sample is sent to the analytical laboratory. The sample ID is separate from the point (location) ID to ensure that samples are sent blind to the laboratory.
Matrix	Sample media (soil, sediment, surface water, tissue).
Sample Date	Date of sample collection.
Sample Depth	Depth, in feet below ground surface (bgs). Soil or sediment samples collected from a depth of 0 to 0.5 feet bgs are considered surface soil or sediment, and samples collected below 0.5 feet bgs are considered subsurface samples. Surface water samples are collected at a depth of 0 feet bgs.
Result	Listed by analytical group; the concentration shown is the detected concentration. When the sample is not detected, the detection limit is shown.
Detection Limit	The detection limit achieved by the laboratory that is specific to the sample and analyte. The detection limit is different from the sample quantitation limit, which is not sample-specific and instead applies to the methodology.

TABLE F-1

ANALYTICAL RESULTS FOR SEDIMENT
OTTER SLUICE

OTTER SLUICE SEDIMENT DATASET FOR TABLE F-1
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT	TOPDEPTH	BOTDEPTH
SEDIMENT	OSLSL001	217OSLSS001	15-Jun-98	0	0
SEDIMENT	OSLSL002	217OSLSS002	15-Jun-98	0	0
SEDIMENT	OSLSL003	217OSLSS003	17-Jun-98	0	0
SEDIMENT	OSLSL004	217OSLSS004	17-Jun-98	0	0
SEDIMENT	OSLSL005	217OSLSS005	17-Jun-98	0	0
SEDIMENT	OSLSL005	033OSLSS005-D	17-Jun-98	0	0
SEDIMENT	OSLSL006	217OSLSS006	16-Jun-98	0	0
SEDIMENT	OSLSL006	033OSLSS006-D	16-Jun-98	0	0
SEDIMENT	OSLSL007	217OSLSS007	16-Jun-98	0	0
SEDIMENT	OSLSL007	033OSLSS007-D	16-Jun-98	0	0
SEDIMENT	OSLSL008	217OSLSS008	29-Jun-98	0	0
SEDIMENT	OSLSL008	033OSLSS008-D	29-Jun-98	0	0
SEDIMENT	OSLSL009	217OSLSS009	29-Jun-98	0	0
SEDIMENT	RADSL001	281RADST001	2-Aug-95	0	0.5
SEDIMENT	RADSL002	281RADST002	2-Aug-95	0	0.5
SEDIMENT	WHSSL001	281WHSST001	8-Aug-95	0	0.5
SEDIMENT	WHSSL002	281WHSST002	8-Aug-95	0	0.5
SEDIMENT	WHSSL003	281WHSST003	8-Aug-95	0	0.5

Notes:

MATRIX	Media Sampled
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected
TOPDEPTH	Top depth of the sample
BOTDEPTH	Bottom depth of the sample

Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007	OSLSL008	OSLSL008
Sample ID	2170SLSS001	2170SLSS002	2170SLSS003	2170SLSS004	0330SLSS005-D	2170SLSS005	0330SLSS006-D	2170SLSS006	0330SLSS007-D	2170SLSS007	0330SLSS008-D	2170SLSS008
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Semivolatiles (ug/kg)												
1,1'-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007	OSLSL008	OSLSL008
Sample ID	217OSLSS001	217OSLSS002	217OSLSS003	217OSLSS004	033OSLSS005-D	217OSLSS005	033OSLSS006-D	217OSLSS006	033OSLSS007-D	217OSLSS007	033OSLSS008-D	217OSLSS008
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Semivolatiles (in µg/kg)												
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOTHIOPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

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Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007	OSLSL008	OSLSL008
Sample ID	2170SLSS001	2170SLSS002	2170SLSS003	2170SLSS004	0330SLSS005-D	2170SLSS005	0330SLSS006-D	2170SLSS006	0330SLSS007-D	2170SLSS007	0330SLSS008-D	2170SLSS008
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/kg)												
1,2,4-TRICHLOROBENZENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
1,2-DICHLOROBENZENE	500 U	590 U	620 U	1,100 U	NA	640 U	NA	730 U	NA	570 U	NA	1,400 U
1,3-DICHLOROBENZENE	500 U	590 U	620 U	1,100 U	NA	640 U	NA	730 U	NA	570 U	NA	1,400 U
1,4-DICHLOROBENZENE	500 U	590 U	620 U	1,100 U	NA	640 U	NA	730 U	NA	570 U	NA	1,400 U
2,2'-OXYBIS(1-CHLOROPROPANE)	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2,4,5-TRICHLOROPHENOL	2,600 U	3,100 U	3,200 U	2,900 U	NA	3,300 U	NA	3,800 U	NA	3,000 U	NA	7,500 U
2,4,6-TRICHLOROPHENOL	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2,4-DICHLOROPHENOL	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2,4-DIMETHYLPHENOL	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2,4-DINITROPHENOL	2,600 UJ	3,100 UJ	3,200 UJ	2,900 UJ	NA	3,300 UJ	NA	3,800 UJ	NA	3,000 UJ	NA	7,500 U
2,4-DINITROTOLUENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2,6-DINITROTOLUENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2-CHLORONAPHTHALENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2-CHLOROPHENOL	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2-METHYLNAPHTHALENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2-METHYLPHENOL	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
2-NITROANILINE	2,600 U	3,100 U	3,200 U	2,900 U	NA	3,300 U	NA	3,800 U	NA	3,000 U	NA	7,500 U
2-NITROPHENOL	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
3,3'-DICHLOROBENZIDINE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
3-NITROANILINE	2,600 U	3,100 U	3,200 U	2,900 U	NA	3,300 U	NA	3,800 U	NA	3,000 U	NA	7,500 U
4,6-DINITRO-2-METHYLPHENOL	2,600 UJ	3,100 UJ	3,200 UJ	2,900 UJ	NA	3,300 UJ	NA	3,800 UJ	NA	3,000 UJ	NA	7,500 U
4-BROMOPHENYL-PHENYLETHER	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
4-CHLORO-3-METHYLPHENOL	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
4-CHLOROANILINE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
4-CHLOROPHENYL-PHENYLETHER	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
4-METHYLPHENOL	1,000 U	64 J	1,300 U	1,100 U	NA	200 J	NA	1,500 U	NA	92 J	NA	3,000 U
4-NITROANILINE	2,600 U	3,100 U	3,200 U	2,900 U	NA	3,300 U	NA	3,800 U	NA	3,000 U	NA	7,500 U
4-NITROPHENOL	2,600 U	3,100 U	3,200 U	2,900 U	NA	3,300 U	NA	3,800 U	NA	3,000 U	NA	7,500 U
ACENAPHTHENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
ACENAPHTHYLENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
ANTHRACENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
BENZO(A)ANTHRACENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
BENZO(A)PYRENE	56 J	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 UJ
BENZO(B)FLUORANTHENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 UJ
BENZO(G,H,I)PERYLENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 UJ
BENZO(K)FLUORANTHENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 UJ
BIS(2-CHLOROETHOXY)METHANE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
BIS(2-CHLOROETHYL)ETHER	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
BIS(2-ETHYLHEXYL)PHTHALATE	460 UJ	520 UJ	500 U	1,100 U	NA	520 UJ	NA	590 U	NA	460 U	NA	1,200 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007	OSLSL008	OSLSL008
Sample ID	2170SLSS001	2170SLSS002	2170SLSS003	2170SLSS004	0330SLSS005-D	2170SLSS005	0330SLSS006-D	2170SLSS006	0330SLSS007-D	2170SLSS007	0330SLSS008-D	2170SLSS008
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/kg)												
BUTYLBENZYLPHTHALATE	1,000 UJ	1,200 UJ	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
CARBAZOLE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
CHRYSENE	70 J	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
DI-N-BUTYLPHTHALATE	1,000 UJ	1,200 UJ	1,300 UJ	1,100 UJ	NA	1,300 U	NA	1,500 UJ	NA	1,200 U	NA	3,000 U
DI-N-OCTYLPHTHALATE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 UJ
DIBENZ(A,H)ANTHRACENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 UJ
DIBENZOFURAN	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
DIETHYLPHTHALATE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
DIMETHYLPHTHALATE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
FLUORANTHENE	120 J	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	72 J	NA	1,200 U	NA	3,000 U
FLUORENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
HEXACHLOROBENZENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
HEXACHLOROBUTADIENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
HEXACHLOROCYCLOPENTADIENE	1,000 UJ	1,200 UJ	1,300 UJ	1,100 UJ	NA	1,300 UJ	NA	1,500 UJ	NA	1,200 UJ	NA	3,000 U
HEXACHLOROETHANE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
INDENO(1,2,3-CD)PYRENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 UJ
ISOPHORONE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
N-NITROSO-DI-N-PROPYLAMINE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
N-NITROSODIPHENYLAMINE (1)	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
NAPHTHALENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
NITROBENZENE	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
PENTACHLOROPHENOL	2,600 U	3,100 U	3,200 U	2,900 U	NA	3,300 U	NA	3,800 U	NA	3,000 U	NA	7,500 U
PHENANTHRENE	48 J	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
PHENOL	1,000 U	1,200 U	1,300 U	1,100 U	NA	1,300 U	NA	1,500 U	NA	1,200 U	NA	3,000 U
PYRENE	1,000 UJ	1,200 U	1,300 U	1,100 U	NA	1,300 UJ	NA	1,500 U	NA	1,200 U	NA	160 J
TOTAL HIGH MOLECULAR PAHS	250	U	U	U	NA	U	NA	72	NA	U	NA	160
TOTAL LOW MOLECULAR PAHS	48	U	U	U	NA	U	NA	U	NA	U	NA	U
TOTAL PAHS	290	U	U	U	NA	U	NA	72	NA	U	NA	160
Low Level Pesticides (in µg/kg)												
2,4'-DDD	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
2,4'-DDE	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
2,4'-DDT	0.3 U	0.4 UJ	0.4 U	0.3 U	NA	0.4 U	NA	0.4 UJ	NA	0.4 UJ	NA	0.9 U
4,4'-DDD	0.3 U	0.4	0.6 U	0.7 U	NA	0.7	NA	0.8 J	NA	0.6 J	NA	2
4,4'-DDE	2 J	1	2	1	NA	0.4 U	NA	2	NA	1	NA	2
4,4'-DDT	0.5 U	0.6 U	0.6 UJ	0.6 UJ	NA	0.6 UJ	NA	0.7 U	NA	0.6 U	NA	1 U
ALDRIN	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
ALPHA-BHC	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.6 U	NA	0.4 U	NA	0.5	NA	0.9 UJ
ALPHA-CHLORDANE	0.3	0.4 UJ	0.4 U	0.3 U	NA	0.4 U	NA	0.7 J	NA	0.5 J	NA	1
BETA-BHC	0.3 U	0.4 UJ	0.4 U	0.3 U	NA	0.4 U	NA	0.4 UJ	NA	0.4 UJ	NA	0.9 U

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07/12/03

Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007	OSLSL008	OSLSL008
Sample ID	2170SLSS001	2170SLSS002	2170SLSS003	2170SLSS004	0330SLSS005-D	2170SLSS005	0330SLSS006-D	2170SLSS006	0330SLSS007-D	2170SLSS007	0330SLSS008-D	2170SLSS008
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Pesticides (in µg/Kg)												
CIS-NONACHLOR	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
DELTA-BHC	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
DIELDRIN	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
ENDOSULFAN I	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
ENDOSULFAN II	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
ENDOSULFAN SULFATE	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
ENDRIN	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
ENDRIN ALDEHYDE	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 UJ
ENDRIN KETONE	0.3 U	0.4 U	0.4 UJ	0.3 UJ	NA	0.4 UJ	NA	0.4 U	NA	0.4 U	NA	0.9 U
GAMMA-BHC (LINDANE)	0.3 U	0.4 UJ	0.4 U	0.3 U	NA	0.4 U	NA	0.6 J	NA	0.4 UJ	NA	0.9 U
GAMMA-CHLORDANE	0.3 U	0.4 UJ	0.4 U	0.3 U	NA	0.4 U	NA	0.7 J	NA	0.4 UJ	NA	0.9 U
HEPTACHLOR	0.3 U	0.4 UJ	0.4 U	0.3 U	NA	0.4 U	NA	0.4 UJ	NA	0.4 UJ	NA	0.9 U
HEPTACHLOR EPOXIDE	0.3 U	0.4 UJ	0.4 U	0.3 U	NA	0.4 U	NA	0.4 UJ	NA	0.4 UJ	NA	0.9 U
HEXACHLOROBENZENE	0.4 J	0.6 U	0.6 U	0.6 U	NA	0.7 U	NA	0.8 U	NA	0.4 J	NA	2 U
METHOXYCHLOR	1 U	1 UJ	1 UJ	1 UJ	NA	1 UJ	NA	2 UJ	NA	1 UJ	NA	5 J
MIREX	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
OXYCHLORDANE	0.3 U	0.4 UJ	0.4 U	0.3 U	NA	0.4 U	NA	0.4 UJ	NA	0.4 UJ	NA	0.9 U
PCB-101 (2,2',3,5,5')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-105 (2,3,3',4,4')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-114 (2,3,4,4',5)	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-118 (2,3',4,4',5)	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-123 (2',3,4,4',5)	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-126 (3,3',4,4',5)	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-128 (2,2',3,3',4,4')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-138 (2,2',3,4,4',5')	0.3 U	0.4 U	0.4 U	0.6 J	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	1
PCB-153 (2,2',4,4',5,5')	0.3 U	0.4 U	0.5	0.8	NA	0.5	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-156 (2,3,3',4,4',5)	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-157 (2,3,3',4,4',5')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 UJ
PCB-167 (2,3',4,4',5,5')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-169 (3,3',4,4',5,5')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-170 (2,2',3,3',4,4',5)	0.3 U	0.4 U	0.4 U	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	1 J
PCB-18 (2,2',5)	0.5 U	0.6 U	0.6 U	0.6 U	NA	0.7 U	NA	0.8 U	NA	0.6 U	NA	2 U
PCB-180 (2,2',3,4,4',5,5')	0.3 U	0.4 U	0.4 U	0.7	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-187 (2,2',3,4',5,5',6)	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-189 (2,3,3',4,4',5,5')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-195 (2,2',3,3',4,4',5,6)	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-206 (2,2',3,3',4,4',5,5',6	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-209 (2,2',3,3',4,4',5,5',6	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-28 (2,4,4')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U

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07/12/03

Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007	OSLSL008	OSLSL008
Sample ID	217OSLSS001	217OSLSS002	217OSLSS003	217OSLSS004	033OSLSS005-D	217OSLSS005	033OSLSS006-D	217OSLSS006	033OSLSS007-D	217OSLSS007	033OSLSS008-D	217OSLSS008
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Pesticides (in µg/Kg)												
PCB-44 (2,2',3,5')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-52 (2,2',5,5')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-66 (2,3',4,4')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-77 (3,3',4,4')	0.3 U	0.4 U	0.4 U	0.3 U	NA	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.9 U
PCB-8 (2,4')	2 U	3 U	3 U	3 U	NA	3 U	NA	3 U	NA	3 U	NA	7 U
TOXAPHENE	160 U	180 U	190 U	170 U	NA	200 U	NA	230 U	NA	180 U	NA	450 U
TRANS-NONACHLOR	0.3 U	0.4 UJ	0.4 U	0.3 U	NA	0.4 U	NA	0.6 J	NA	0.5 J	NA	0.9 U
TOTAL BHCS	U	U	U	U	NA	U	NA	0.6	NA	0.5	NA	U
TOTAL CHLORDANES	0.3	U	U	U	NA	U	NA	1	NA	0.5	NA	1
TOTAL DDTS	2	1	2	1	NA	0.7	NA	3	NA	2	NA	4
TOTAL PCBS	U	U	1	4	NA	1	NA	U	NA	U	NA	4
CLP Metals (in mg/Kg)												
ALUMINUM	18,700 J	17,300 J	16,700 J	15,300 J	NA	16,900 J	NA	15,800 J	NA	16,900 J	NA	27,900
ANTIMONY	1.7 J	1.3 J	1.7 J	1.2 J	NA	1.8 J	NA	1.4 J	NA	1.1 J	NA	9.3 J
ARSENIC	6.8 J *	6.9 J *	6.3 J *	13.7 J *	NA	14.0 J *	NA	12.1 J *	NA	12.1 J *	NA	21.2 *
BARIUM	55.6 J	56.4 J	53.2 J	53.9 J	NA	56.8 J	NA	61.3 J	NA	71.0 J	NA	157 J
BERYLLIUM	0.20 J	0.22 J	0.21 J	0.23 J	NA	0.29 J	NA	0.23 J	NA	0.11 J	NA	0.94 J
CADMIUM	0.71 J	0.77 J	0.69 J	0.87 J	NA	1.9 J	NA	1.6 J	NA	0.80 J	NA	0.61 UJ
CALCIUM	2,760 J	2,550 J	2,810 J	3,320 J	NA	3,200 J	NA	3,400 J	NA	2,720 J	NA	5,740 J
CHROMIUM	54.5 J	55.0 J	52.7 J	50.6 J	NA	53.2 J	NA	53.6 J	NA	54.5 J	NA	95.0
COBALT	12.2 J	12.1 J	11.6 J	13.4 J	NA	19.5 J	NA	15.5 J	NA	13.6 J	NA	23.3 J
COPPER	41.0 J	41.3 J	40.1 J	44.1 J	NA	53.5 J	NA	56.8 J	NA	42.7 J	NA	101
IRON	26,300 J *	28,400 J *	27,100 J *	28,700 J *	NA	34,900 J *	NA	34,900 J *	NA	29,800 J *	NA	58,700 *
LEAD	24.1 J	16.3 J	16.8 J	20.1 J	NA	31.1 J	NA	34.1 J	NA	21.7 J	NA	55.4
MAGNESIUM	8,130 J	8,700 J	8,280 J	7,970 J	NA	8,440 J	NA	8,940 J	NA	8,330 J	NA	17,400
MANGANESE	280 J	270 J	251 J	279 J	NA	370 J	NA	341 J	NA	607 J	NA	499
MERCURY	0.22 UJ	0.14 U	0.16 UJ	0.16 U	NA	0.18 U	NA	0.29 UJ	NA	0.13 U	NA	0.33 U
MOLYBDENUM	0.22 UJ	0.25 UJ	0.27 UJ	0.58 J	NA	0.83 J	NA	0.45 J	NA	0.58 J	NA	3.5 J
NICKEL	56.8 J	58.9 J	56.3 J	55.5 J	NA	66.3 J	NA	60.6 J	NA	60.5 J	NA	112
POTASSIUM	1,970	2,090	2,010	1,880	NA	2,220	NA	2,240	NA	1,990	NA	5,000 J
SELENIUM	1.2	0.74 U	0.82 U	1.5	NA	1.2	NA	0.98 U	NA	1.3	NA	5.8 UJ
SILVER	0.32 J	0.32 J	0.24 U	0.26 J	NA	0.40 J	NA	0.60 J	NA	0.32 J	NA	2.3 U
SODIUM	613 J	1,360	1,030	614 J	NA	1,220	NA	1,610	NA	927	NA	8,660
THALLIUM	1.8	1.8	1.8 J	1.5 J	NA	2.0	NA	1.6 J	NA	2.8	NA	2.8 U
VANADIUM	53.6 J	52.5 J	52.1 J	58.9 J	NA	62.9 J	NA	64.1 J	NA	59.7 J	NA	106
ZINC	89.5 J	89.7 J	89.4 J	97.0 J	NA	166 J	NA	157 J	NA	119 J	NA	285
Anions, Sulfide, and TOC (in mg/kg)												
SULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Otter Sluice
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Sample ID	2170SLSS001	2170SLSS002	2170SLSS003	2170SLSS004	0330SLSS005-D	2170SLSS005	0330SLSS006-D	2170SLSS006	0330SLSS007-D	2170SLSS007	0330SLSS008-D	2170SLSS008
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Anions, Solids, Sulfides, and TOC (in mg/kg)												
TOTAL ORGANIC CARBON	22,000	19,600	17,600	30,700	NA	31,600	NA	39,900	NA	39,400	NA	66,100
Dioxin (in µg/kg)												
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	1 U	NA	0.8 J	NA	2 U	NA	4 U	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	0.9 U	NA	1 U	NA	1 U	NA	2 U	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	1 U	NA	2 U	NA	2 U	NA	3 U	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	0.4 U	NA	0.7 U	NA	0.5 U	NA	1 U	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	0.5 U	NA	0.9 U	NA	0.7 U	NA	2 U	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	0.7 U	NA	1 U	NA	0.9 U	NA	2 U	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	0.2 U	NA	0.4 U	NA	0.3 U	NA	0.7 U	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	0.7 U	NA	1 U	NA	0.9 U	NA	2 U	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	0.2 U	NA	0.4 U	NA	0.3 U	NA	0.7 U	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	0.7 U	NA	1 U	NA	0.9 U	NA	2 U	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	0.3 U	NA	0.5 U	NA	0.4 U	NA	0.9 U	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	0.5 U	NA	1 U	NA	0.6 U	NA	2 U	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	0.3 U	NA	0.5 U	NA	0.4 U	NA	0.8 U	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	0.2 U	NA	0.4 U	NA	0.3 U	NA	0.7 U	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	0.3 U	NA	0.5 U	NA	0.4 U	NA	0.8 U	NA
2,3,7,8-TCDD	NA	NA	NA	NA	0.3 U	NA	0.6 U	NA	0.3 U	NA	1 U	NA
2,3,7,8-TCDF	NA	NA	NA	NA	0.2 U	NA	0.3 U	NA	0.3 U	NA	0.6 U	NA
TOTAL HPCDD	NA	NA	NA	NA	41 EMPC	NA	38 J(EM)	NA	2 U	NA	3 U	NA
TOTAL HPCDF	NA	NA	NA	NA	0.4 U	NA	0.7 U	NA	0.5 U	NA	1 U	NA
TOTAL HXCDD	NA	NA	NA	NA	0.7 U	NA	1 EMPC	NA	0.9 U	NA	2 U	NA
TOTAL HXCDF	NA	NA	NA	NA	0.2 U	NA	0.4 U	NA	0.3 U	NA	0.7 U	NA
TOTAL PECDD	NA	NA	NA	NA	0.5 U	NA	1 U	NA	0.6 U	NA	2 U	NA
TOTAL PECDF	NA	NA	NA	NA	0.3 U	NA	0.5 U	NA	0.4 U	NA	0.8 U	NA
TOTAL TCDD	NA	NA	NA	NA	9 EMPC	NA	10 EMPC	NA	8 EMPC	NA	24 EMPC	NA
TOTAL TCDF	NA	NA	NA	NA	0.2 U	NA	0.3 U	NA	0.3 U	NA	0.6 U	NA
Percent Moisture (percent)												
PERCENT MOISTURE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERCENT SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.1
Miscellaneous												
ACID VOLATILE SULFIDE	423 J	2,160 J	1,840	1,480	NA	2,400	NA	2,570 J	NA	308 J	NA	5,840 J
CADMIUM	.28 UJ	.29 UJ	.25 UJ	.28 UJ	NA	1.1	NA	.92 UJ	NA	.33	NA	.5 J
COPPER	32.9 J	34.9 J	15.3 J	13 J	NA	17.3 J	NA	23 J	NA	26.1 J	NA	57
LEAD	20.5 J	16.1 J	15.2 J	14.2 J	NA	22.9 J	NA	25.9 J	NA	15.3 J	NA	44.2
MERCURY	.02	.01 J	.01	.005 U	NA	.01 J	NA	.01 U	NA	.03	NA	.01 UJ
NICKEL	30.2 J	34.6 J	23.9 J	19 J	NA	17.7 J	NA	18.3 J	NA	19.6 J	NA	35.4 J
PH	7.4	7.7	7.8	7.6	NA	7.8	NA	7.7	NA	7	NA	7.6

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007	OSLSL008	OSLSL008
Sample ID	2170SLSS001	2170SLSS002	2170SLSS003	2170SLSS004	0330SLSS005-D	2170SLSS005	0330SLSS006-D	2170SLSS006	0330SLSS007-D	2170SLSS007	0330SLSS008-D	2170SLSS008
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Miscellaneous												
ZINC	74.4 J	77.4 J	63.4 J	56.5 J	NA	115 J	NA	108 J	NA	72.1 J	NA	205 J

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Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL009	RADSL001	RADSL002	WHSSL001	WHSSL002	WHSSL003
Sample ID	2170SLSS009	281RADST001	281RADST002	281WHSST001	281WHSST002	281WHSST003
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/29/1998	08/02/1995	08/02/1995	08/08/1995	08/08/1995	08/08/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in µg/kg)						
1,1'-BIPHENYL	NA	110 U	380 U	460 U	430 U	320 U
1,2,4-TRICHLOROBENZENE	NA	110 U	380 U	460 U	430 U	320 U
1,2-DICHLOROBENZENE	NA	110 U	380 U	460 U	430 U	320 U
1,3-DICHLOROBENZENE	NA	110 U	380 U	460 U	430 U	320 U
1,4-DICHLOROBENZENE	NA	110 U	380 U	460 U	430 U	320 U
1-METHYLNAPHTHALENE	NA	110 U	380 U	460 U	430 U	320 U
1-METHYLPHENANTHRENE	NA	110 U	380 U	460 U	430 U	320 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	110 U	380 U	460 U	430 U	320 U
2,3,5-TRIMETHYLNAPHTHALENE	NA	110 U	380 U	460 U	430 U	320 U
2,4,5-TRICHLOROPHENOL	NA	270 U	950 U	1,100 U	1,100 U	800 U
2,4,6-TRICHLOROPHENOL	NA	110 U	380 U	460 U	430 U	320 U
2,4-DICHLOROPHENOL	NA	110 U	380 U	460 U	430 U	320 U
2,4-DIMETHYLPHENOL	NA	110 U	380 U	460 U	430 U	320 U
2,4-DINITROPHENOL	NA	270 U	950 U	1,100 U	1,100 U	800 U
2,4-DINITROTOLUENE	NA	110 U	380 U	460 U	430 U	320 U
2,6-DIMETHYLNAPHTHALENE	NA	13 J	380 U	460 U	430 U	320 U
2,6-DINITROTOLUENE	NA	110 U	380 U	460 U	430 U	320 U
2-CHLORONAPHTHALENE	NA	110 U	380 U	460 U	430 U	320 U
2-CHLOROPHENOL	NA	110 U	380 U	460 U	430 U	320 U
2-METHYLNAPHTHALENE	NA	110 U	380 U	460 U	430 U	320 U
2-METHYLPHENOL	NA	110 U	380 U	460 U	430 U	320 U
2-NITROANILINE	NA	270 U	950 U	1,100 U	1,100 U	800 U
2-NITROPHENOL	NA	110 U	380 U	460 U	430 U	320 U
3,3'-DICHLOROBENZIDINE	NA	110 U	380 U	460 U	430 U	320 U
3-NITROANILINE	NA	270 U	950 U	1,100 U	1,100 U	800 U
4,6-DINITRO-2-METHYLPHENOL	NA	270 U	950 U	1,100 U	1,100 U	800 U
4-BROMOPHENYL-PHENYLETHER	NA	110 U	380 U	460 U	430 U	320 U
4-CHLORO-3-METHYLPHENOL	NA	110 U	380 U	460 U	430 U	320 U
4-CHLOROANILINE	NA	110 U	380 U	460 U	430 U	320 U
4-CHLOROPHENYL-PHENYLETHER	NA	110 U	380 U	460 U	430 U	320 U
4-METHYLPHENOL	NA	110 U	380 U	460 U	430 U	320 U
4-NITROANILINE	NA	270 U	950 U	1,100 U	1,100 U	800 U
4-NITROPHENOL	NA	270 U	950 U	1,100 U	1,100 U	800 U
ACENAPHTHENE	NA	110 U	380 U	460 U	430 U	320 U
ACENAPHTHYLENE	NA	110 U	380 U	460 U	430 U	320 U
ANTHRACENE	NA	24 J	380 U	460 U	430 U	320 U
BENZO(A)ANTHRACENE	NA	110	380 U	460 U	430 U	320 U
BENZO(A)PYRENE	NA	140 *	39 J	460 U	430 U	320 U
BENZO(B)FLUORANTHENE	NA	130	380 U	460 U	430 U	320 U

Notes:

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Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL009	RADSL001	RADSL002	WHSSL001	WHSSL002	WHSSL003
Sample ID	217OSLSS009	281RADST001	281RADST002	281WHSST001	281WHSST002	281WHSST003
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/29/1998	08/02/1995	08/02/1995	08/08/1995	08/08/1995	08/08/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Semivolatiles (in ug/kg)						
BENZO(E)PYRENE	NA	99 J	380 U	460 U	430 U	320 U
BENZO(G,H,I)PERYLENE	NA	110	380 U	460 U	430 U	320 U
BENZO(K)FLUORANTHENE	NA	130	380 U	460 U	430 U	320 U
BENZOIC ACID	NA	270 U	950 U	1,100 U	1,100 U	800 U
BENZYL ALCOHOL	NA	110 U	380 U	460 U	430 U	320 U
BIS(2-CHLOROETHOXY)METHANE	NA	110 U	380 U	460 U	430 U	320 U
BIS(2-CHLOROETHYL)ETHER	NA	110 U	380 U	460 U	430 U	320 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	110 U	380 U	460 U	430 U	320 U
BUTYLBENZYLPHTHALATE	NA	110 U	380 U	460 U	430 U	320 U
CARBAZOLE	NA	110 U	380 U	460 U	430 U	320 U
CHRYSENE	NA	140	380 U	460 U	430 U	320 U
DI-N-BUTYLPHTHALATE	NA	110 U	380 U	460 U	430 U	320 U
DI-N-OCTYLPHTHALATE	NA	110 U	380 U	460 U	430 U	320 U
DIBENZ(A,H)ANTHRACENE	NA	110 U	380 U	460 U	430 U	320 U
DIBENZOFURAN	NA	110 U	380 U	460 U	430 U	320 U
DIBENZOTHIOPHENE	NA	110 U	380 U	460 U	430 U	320 U
DIETHYLPHTHALATE	NA	110 U	380 U	460 U	430 U	320 U
DIMETHYLPHTHALATE	NA	110 U	380 U	460 U	430 U	320 U
FLUORANTHENE	NA	220	53 J	460 U	430 U	320 U
FLUORENE	NA	110 U	380 U	460 U	430 U	320 U
HEXACHLOROBENZENE	NA	110 U	380 U	460 U	430 U	320 U
HEXACHLOROBUTADIENE	NA	110 U	380 U	460 U	430 U	320 U
HEXACHLOROCYCLOPENTADIENE	NA	110 U	380 U	460 UJ	430 UJ	320 UJ
HEXACHLOROETHANE	NA	110 U	380 U	460 U	430 U	320 U
INDENO(1,2,3-CD)PYRENE	NA	76 J	380 U	460 U	430 U	320 U
ISOPHORONE	NA	110 U	380 U	460 U	430 U	320 U
N-NITROSO-DI-N-PROPYLAMINE	NA	110 U	380 U	460 U	430 U	320 U
N-NITROSODIPHENYLAMINE (1)	NA	110 U	380 U	460 U	430 U	320 U
NAPHTHALENE	NA	110 U	380 U	460 U	430 U	320 U
NITROBENZENE	NA	110 U	380 U	460 U	430 U	320 U
PENTACHLOROPHENOL	NA	270 U	950 U	1,100 U	1,100 U	800 U
PERYLENE	NA	59 J	160 J	460 U	430 U	320 U
PHENANTHRENE	NA	59 J	380 U	460 U	430 U	320 U
PHENOL	NA	110 U	380 U	460 U	430 U	320 U
PYRENE	NA	410	68 J	460 U	430 U	320 U
TOTAL HIGH MOLECULAR PAHS	NA	1,600	320	U	U	U
TOTAL LOW MOLECULAR PAHS	NA	83	U	U	U	U
TOTAL PAHS	NA	1,700	320	U	U	U

Notes:

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Otter Sluice
Sediment Analytical Results

Point ID	OSLSL009	RADSL001	RADSL002	WHSSL001	WHSSL002	WHSSL003
Sample ID	2170SLSS009	281RADST001	281RADST002	281WHSST001	281WHSST002	281WHSST003
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/29/1998	08/02/1995	08/02/1995	08/08/1995	08/08/1995	08/08/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)						
1,2,4-TRICHLOROBENZENE	2,200 U	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	1,100 U	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	1,100 U	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	1,100 U	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	2,200 U	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	5,500 U	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	2,200 U	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	2,200 U	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	2,200 U	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	5,500 U	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	2,200 U	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	2,200 U	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	2,200 U	NA	NA	NA	NA	NA
2-CHLOROPHENOL	2,200 U	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	2,200 U	NA	NA	NA	NA	NA
2-METHYLPHENOL	2,200 U	NA	NA	NA	NA	NA
2-NITROANILINE	5,500 U	NA	NA	NA	NA	NA
2-NITROPHENOL	2,200 U	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	2,200 U	NA	NA	NA	NA	NA
3-NITROANILINE	5,500 U	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	5,500 U	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	2,200 U	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	2,200 U	NA	NA	NA	NA	NA
4-CHLOROANILINE	2,200 U	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	2,200 U	NA	NA	NA	NA	NA
4-METHYLPHENOL	2,200 U	NA	NA	NA	NA	NA
4-NITROANILINE	5,500 U	NA	NA	NA	NA	NA
4-NITROPHENOL	5,500 U	NA	NA	NA	NA	NA
ACENAPHTHENE	2,200 U	NA	NA	NA	NA	NA
ACENAPHTHYLENE	2,200 U	NA	NA	NA	NA	NA
ANTHRACENE	2,200 U	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	2,200 U	NA	NA	NA	NA	NA
BENZO(A)PYRENE	2,200 U	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	2,200 U	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	2,200 U	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	2,200 U	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	2,200 U	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	2,200 U	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	870 U	NA	NA	NA	NA	NA

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Sediment Analytical Results

Point ID	OSLSL009	RADSL001	RADSL002	WHSSL001	WHSSL002	WHSSL003
Sample ID	217OSLSS009	281RADST001	281RADST002	281WHSST001	281WHSST002	281WHSST003
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/29/1998	08/02/1995	08/02/1995	08/08/1995	08/08/1995	08/08/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Semivolatiles (in µg/kg)						
BUTYLBENZYLPHTHALATE	2,200 U	NA	NA	NA	NA	NA
CARBAZOLE	2,200 U	NA	NA	NA	NA	NA
CHRYSENE	2,200 U	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	2,200 U	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	2,200 U	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	2,200 U	NA	NA	NA	NA	NA
DIBENZOFURAN	2,200 U	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	2,200 U	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	2,200 U	NA	NA	NA	NA	NA
FLUORANTHENE	2,200 U	NA	NA	NA	NA	NA
FLUORENE	2,200 U	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	2,200 U	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	2,200 U	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	2,200 U	NA	NA	NA	NA	NA
HEXACHLOROETHANE	2,200 U	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	2,200 U	NA	NA	NA	NA	NA
ISOPHORONE	2,200 U	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	2,200 U	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	2,200 U	NA	NA	NA	NA	NA
NAPHTHALENE	2,200 U	NA	NA	NA	NA	NA
NITROBENZENE	2,200 U	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	5,500 U	NA	NA	NA	NA	NA
PHENANTHRENE	2,200 U	NA	NA	NA	NA	NA
PHENOL	2,200 U	NA	NA	NA	NA	NA
PYRENE	2,200 U	NA	NA	NA	NA	NA
TOTAL HIGH MOLECULAR PAHS	U	NA	NA	NA	NA	NA
TOTAL LOW MOLECULAR PAHS	U	NA	NA	NA	NA	NA
TOTAL PAHS	U	NA	NA	NA	NA	NA
Low Level Pesticides (in µg/kg)						
2,4'-DDD	0.7 U	0.6	0.3 U	0.7 J	0.4 U	0.3 UJ
2,4'-DDE	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
2,4'-DDT	0.7 U	0.3	0.3 U	0.5 UJ	0.4 U	0.3 UJ
4,4'-DDD	1	0.8	0.8 J	1 J	1	1 J
4,4'-DDE	1	1	1	2 J	2	1 J
4,4'-DDT	1 U	0.4	0.3 U	0.5 UJ	0.4 U	0.3 UJ
ALDRIN	0.7 U	0.2 U	0.3 U	0.5 U	0.4 U	0.3 UJ
ALPHA-BHC	0.7 UJ	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	0.7 U	0.6	0.3 U	1 J	0.4 U	0.6 J
BETA-BHC	0.7 U	NA	NA	NA	NA	NA

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Otter Sluice
Sediment Analytical Results

Point ID	OSLSL009	RADSL001	RADSL002	WHSSL001	WHSSL002	WHSSL003
Sample ID	217OSLSS009	281RADST001	281RADST002	281WHSST001	281WHSST002	281WHSST003
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/29/1998	08/02/1995	08/02/1995	08/08/1995	08/08/1995	08/08/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/Kg)						
CIS-NONACHLOR	0.7 U	NA	NA	NA	NA	NA
DELTA-BHC	0.7 U	NA	NA	NA	NA	NA
DIELDRIN	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
ENDOSULFAN I	0.7 U	NA	NA	NA	NA	NA
ENDOSULFAN II	0.7 U	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	0.7 U	NA	NA	NA	NA	NA
ENDRIN	0.7 U	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	0.7 UJ	NA	NA	NA	NA	NA
ENDRIN KETONE	0.7 U	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	0.7 U	0.2 U	0.3 U	0.5 U	0.4 U	0.3 UJ
GAMMA-CHLORDANE	0.7 U	NA	NA	NA	NA	NA
HEPTACHLOR	0.7 U	0.2 U	0.3 U	2	0.4 U	0.3 UJ
HEPTACHLOR EPOXIDE	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 UJ	0.3 UJ
HEXACHLOROBENZENE	1 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
METHOXYCHLOR	2 UJ	NA	NA	NA	NA	NA
MIREX	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
OXYCHLORDANE	0.7 U	NA	NA	NA	NA	NA
PCB-101 (2,2',3,5,5')	0.7 U	0.09 J	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-105 (2,3,3',4,4')	0.7 U	0.2	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-114 (2,3,4,4',5)	0.7 U	NA	NA	NA	NA	NA
PCB-118 (2,3',4,4',5)	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-123 (2',3,4,4',5)	0.7 U	NA	NA	NA	NA	NA
PCB-126 (3,3',4,4',5)	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-128 (2,2',3,3',4,4')	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-138 (2,2',3,4,4',5')	0.7 U	0.2	0.3 U	0.8 U	0.6 U	0.7 U
PCB-153 (2,2',4,4',5,5')	0.7 U	0.2	0.2 J	0.5 UJ	0.4 U	0.3 UJ
PCB-156 (2,3,3',4,4',5)	0.7 U	NA	NA	NA	NA	NA
PCB-157 (2,3,3',4,4',5')	0.7 UJ	NA	NA	NA	NA	NA
PCB-167 (2,3',4,4',5,5')	0.7 U	NA	NA	NA	NA	NA
PCB-169 (3,3',4,4',5,5')	0.7 U	NA	NA	NA	NA	NA
PCB-170 (2,2',3,3',4,4',5)	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-18 (2,2',5)	1 U	0.2 U	0.3 U	0.5 U	0.4 U	0.3 UJ
PCB-180 (2,2',3,4,4',5,5')	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-187 (2,2',3,4',5,5',6)	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-189 (2,3,3',4,4',5,5')	0.7 U	NA	NA	NA	NA	NA
PCB-195 (2,2',3,3',4,4',5,6)	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-206 (2,2',3,3',4,4',5,5',6	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-209 (2,2',3,3',4,4',5,5',6	0.7 U	0.2 U	0.3 U	0.5 UJ	0.4 U	0.3 UJ
PCB-28 (2,4,4')	0.7 U	0.2 U	0.3 U	0.5 U	0.4 U	0.3 UJ

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL009	RADSL001	RADSL002	WHSSL001	WHSSL002	WHSSL003
Sample ID	217OSLSS009	281RADST001	281RADST002	281WHSST001	281WHSST002	281WHSST003
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/29/1998	08/02/1995	08/02/1995	08/08/1995	08/08/1995	08/08/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Low Level Pesticides (in µg/kg)						
PCB-44 (2,2',3,5')	0.7 U	0.2 U	0.3 U	0.5 J	0.4 UJ	0.6 J
PCB-52 (2,2',5,5')	0.7 U	0.2 U	0.3 U	0.8	0.9 J	0.3 UJ
PCB-66 (2,3',4,4')	0.7 U	0.2	0.3 U	0.5 UJ	0.4 UJ	0.3 UJ
PCB-77 (3,3',4,4')	0.7 U	0.2 U	0.3 U	0.5 U	0.4 U	0.3 UJ
PCB-8 (2,4')	5 U	0.6	0.3 U	0.5 UJ	0.4 UJ	0.7 J
TOXAPHENE	330 U	NA	NA	NA	NA	NA
TRANS-NONACHLOR	0.7 U	0.4	0.3 U	0.9 J	0.4 U	0.3 UJ
TOTAL BHCS	U	U	U	U	U	U
TOTAL CHLORDANES	U	0.6	U	1	U	0.6
TOTAL DDTS	2	3	2	4	3	2
TOTAL PCBS	U	3	0.3	2	2	3
CLP Metals (in mg/kg)						
ALUMINUM	18,500	13,400	28,700	28,700	26,500	35,200
ANTIMONY	6.0 UJ	1.6 U	2.7 U	1.8 J	2.2	1.5 J
ARSENIC	13.8 *	12.7 *	18.0 *	21.4 *	12.2 *	25.9 *
BARIUM	106 J	65.1 J	80.6 J	89.8	86.7	82.9
BERYLLIUM	0.38 J	0.040 U	0.060 U	0.68	0.59	0.72
CADMIUM	0.38 U	0.070 U	0.12 UJ	0.12 U	0.15 UJ	0.10 U
CALCIUM	3,930 J	2,970	4,400	4,530	3,800	2,710
CHROMIUM	61.0	48.3	95.5	85.5	85.0	94.7
COBALT	15.2 J	17.8	25.1	24.8	19.6	13.1
COPPER	58.7	63.9	76.3	76.1	71.9	73.5
IRON	38,300 *	25,500 *	49,500 *	51,100 *	48,600 *	37,900 *
LEAD	35.8	89.5	40.4	41.5	40.2	52.2
MAGNESIUM	11,600	8,010	14,600	12,900	13,200	10,200
MANGANESE	447	293	419	490	430	205
MERCURY	0.31 U	1.6	0.51	0.35 J	0.37 J	0.51 J
MOLYBDENUM	2.0 U	0.34 U	0.56 UJ	1.3	1.6	3.0
NICKEL	67.4	61.3	98.3	95.5	90.5	75.6
POTASSIUM	3,020 J	2,760 J	4,900 J	4,190	4,310	4,070
SELENIUM	3.6 U	1.3 U	2.1 U	1.5 U	1.8 U	1.3
SILVER	1.4 U	0.26 U	0.38 U	0.31 U	0.40 U	0.25 U
SODIUM	5,850	3,240	2,610	2,470	5,430	6,190
THALLIUM	2.0 U	0.75 UJ	1.2 UJ	0.51 U	0.70 U	0.58 U
VANADIUM	66.6	54.9	105	103	92.3	119
ZINC	177	178 J	214 J	203	200	107
Anions, Solids, Sulfides, and TOC (in mg/kg)						
SULFIDE	NA	102 J	3,050 J	2,920 J	6,400 J	6,990 J

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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07/12/03

Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL009	RADSL001	RADSL002	WHSSL001	WHSSL002	WHSSL003
Sample ID	2170SLSS009	281RADST001	281RADST002	281WHSST001	281WHSST002	281WHSST003
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/29/1998	08/02/1995	08/02/1995	08/08/1995	08/08/1995	08/08/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Anions, Solids, Sulfides, and TOC (in mg/kg)						
TOTAL ORGANIC CARBON	49,800	9,420	22,800	37,700	22,500	26,200
Dioxin (in µg/kg)						
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA
Percent Moisture (percent)						
PERCENT MOISTURE	NA	38.0	71.0	71.0	69.0	59.0
PERCENT SOLIDS	15.4	NA	NA	NA	NA	NA
Miscellaneous						
ACID VOLATILE SULFIDE	4,710 J	NA	NA	NA	NA	NA
CADMIUM	.2 J	NA	NA	NA	NA	NA
COPPER	36.6	NA	NA	NA	NA	NA
LEAD	29.4	NA	NA	NA	NA	NA
MERCURY	.01 UJ	NA	NA	NA	NA	NA
NICKEL	23.6 J	NA	NA	NA	NA	NA
PH	7.8	8.1	7.8	7.91	8.45	7.69

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

* = Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002).

07/12/03

Table F-1
Otter Sluice
Sediment Analytical Results

Point ID	OSLSL009	RADSL001	RADSL002	WHSSL001	WHSSL002	WHSSL003
Sample ID	2170SLSS009	281RADST001	281RADST002	281WHSST001	281WHSST002	281WHSST003
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Date	06/29/1998	08/02/1995	08/02/1995	08/08/1995	08/08/1995	08/08/1995
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50	0.00 - 0.50
Miscellaneous						
ZINC	135 J	NA	NA	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

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07/12/03

TABLE F-2

ANALYTICAL RESULTS FOR SURFACE WATER
OTTER SLUICE

OTTER SLUICE SURFACE WATER DATASET FOR TABLE F-2
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT
SWATER	OSLSL001	217OSLSW010	15-Jun-98
SWATER	OSLSL002	217OSLSW011	15-Jun-98
SWATER	OSLSL003	217OSLSW012	17-Jun-98
SWATER	OSLSL004	217OSLSW013	17-Jun-98
SWATER	OSLSL005	217OSLSW014	17-Jun-98
SWATER	OSLSL006	217OSLSW015	16-Jun-98
SWATER	OSLSL007	217OSLSW016	16-Jun-98
SWATER	OSLSL008	217OSLSW017	29-Jun-98
SWATER	OSLSL009	217OSLSW018	29-Jun-98
SWATER	RADSW001	281RADSW001	11-Jul-95
SWATER	RADSW001	281RADSW101	17-Oct-95
SWATER	RADSW001	281RADSW201	30-Jan-96
SWATER	RADSW001	281RADSW301	29-Apr-96
SWATER	RADSW002	281RADSW002	11-Jul-95
SWATER	RADSW002	281RADSW102	17-Oct-95
SWATER	RADSW002	281RADSW202	31-Jan-96
SWATER	RADSW002	281RADSW302	1-May-96
SWATER	RADSW003	281RADSW003	11-Jul-95
SWATER	RADSW003	281RADSW103	17-Oct-95
SWATER	RADSW003	281RADSW203	31-Jan-96
SWATER	RADSW003	281RADSW303	1-May-96
SWATER	WHSSW001	281WHSSW001	13-Jul-95
SWATER	WHSSW001	281WHSSW101	17-Oct-95
SWATER	WHSSW001	281WHSSW201	31-Jan-96
SWATER	WHSSW001	281WHSSW301	1-May-96
SWATER	WHSSW002	281WHSSW002	13-Jul-95
SWATER	WHSSW002	281WHSSW102	17-Oct-95
SWATER	WHSSW002	281WHSSW202	31-Jan-96
SWATER	WHSSW002	281WHSSW302	1-May-96
SWATER	WHSSW003	281WHSSW003	13-Jul-95
SWATER	WHSSW003	281WHSSW103	17-Oct-95
SWATER	WHSSW003	281WHSSW203	31-Jan-96
SWATER	WHSSW003	281WHSSW303	1-May-96

Notes:

MATRIX	Media Sampled
SWATER	Surface Water
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL006	OSLSL007	OSLSL008	OSLSL009	RADSW001	RADSW001	RADSW001
Sample ID	2170SLSW010	2170SLSW011	2170SLSW012	2170SLSW013	2170SLSW014	2170SLSW015	2170SLSW016	2170SLSW017	2170SLSW018	281RADSW001	281RADSW101	281RADSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998	07/11/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/L)												
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	11	10 U	10 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
Semivolatiles (in µg/L)												
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL006	OSLSL007	OSLSL008	OSLSL009	RADSW001	RADSW001	RADSW001
Sample ID	2170SLSW010	2170SLSW011	2170SLSW012	2170SLSW013	2170SLSW014	2170SLSW015	2170SLSW016	2170SLSW017	2170SLSW018	281RADSW001	281RADSW101	281RADSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998	07/11/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	26 U	26 U	26 U	26 U	26 U	26 U	26 U	25 U	26 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	25 U	26 U	25 U	25 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	26 U	26 U	26 U	26 U	26 U	26 U	26 U	25 U	26 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-NITROANILINE	26 U	26 U	26 U	26 UJ	26 U	26 U	26 U	25 U	26 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	25 U	26 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	26 U	26 U	26 U	26 UJ	26 U	26 U	26 U	25 U	26 U	25 U	25 U	25 U
4-NITROPHENOL	26 U	26 U	26 U	26 U	26 U	26 U	26 U	25 UJ	26 UJ	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 UJ	4 U	4 UJ	4 U	29	4 U	4 UJ	4 U	4 U	16 U	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

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Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL006	OSLSL007	OSLSL008	OSLSL009	RADSW001	RADSW001	RADSW001
Sample ID	2170SLSW010	2170SLSW011	2170SLSW012	2170SLSW013	2170SLSW014	2170SLSW015	2170SLSW016	2170SLSW017	2170SLSW018	281RADSW001	281RADSW101	281RADSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998	07/11/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZ(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	26 U	26 U	26 U	26 U	26 U	26 U	26 U	25 U	26 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOTAL HIGH MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL LOW MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL PAHS	U	U	U	U	U	U	U	U	U	U	U	U
Low Level Pesticides (in µg/L)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	1 U	1 U	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA

Notes:

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Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL006	OSLSL007	OSLSL008	OSLSL009	RADSW001	RADSW001	RADSW001
Sample ID	217OSLSW010	217OSLSW011	217OSLSW012	217OSLSW013	217OSLSW014	217OSLSW015	217OSLSW016	217OSLSW017	217OSLSW018	281RADSW001	281RADSW101	281RADSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998	07/11/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Pesticides (in µg/L)												
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	0.01 U	0.01 U	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	0.01 U	0.01 U	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	3 U	3 U	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	U	U	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	U	U	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	U	U	NA	NA	NA
Pesticides (in µg/L)												
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U
ALDRIN	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U
ALPHA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U
ALPHA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U
AROCLOR-1016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U	0.5 U	0.5 U
AROCLOR-1221	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	0.5 U	0.5 U	0.5 U
AROCLOR-1232	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U	0.5 U	0.5 U
AROCLOR-1242	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U	0.5 U	0.5 U
AROCLOR-1248	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U	0.5 U	0.5 U
AROCLOR-1254	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U	0.5 U	0.5 U
AROCLOR-1260	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U	0.5 U	0.5 U
BETA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U
DELTA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U
DIELDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U
ENDOSULFAN I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U
ENDOSULFAN II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U
ENDOSULFAN SULFATE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U
ENDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL006	OSLSL007	OSLSL008	OSLSL009	RADSW001	RADSW001	RADSW001
Sample ID	217OSLSW010	217OSLSW011	217OSLSW012	217OSLSW013	217OSLSW014	217OSLSW015	217OSLSW016	217OSLSW017	217OSLSW018	281RADSW001	281RADSW101	281RADSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998	07/11/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/L)												
ENDRIN ALDEHYDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U
ENDRIN KETONE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U
GAMMA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U
HEPTACHLOR	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 UJ	NA	NA	0.05 U	0.05 U	0.05 U
HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U
METHOXYCHLOR	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	0.5 U	0.5 U	0.5 U
TOXAPHENE	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	3 U	3 U	3 U
TOTAL BHCS	U	U	U	U	U	U	U	NA	NA	U	U	U
TOTAL CHLORDANES	U	U	U	U	U	U	U	NA	NA	U	U	U
TOTAL DDTS	U	U	U	U	U	U	U	NA	NA	U	U	U
Explosives (in µg/L)												
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
1,3-DINITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
2,4,6-TRINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
2-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
3-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
4-NITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
HMX	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U	0.1 U
RDX	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 UJ	0.1 U
TETRYL	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 UJ	0.1 U
CLP Metals (in µg/L)												
ALUMINUM	623	776	1,020	853	543	563	772	785	1,140	348	771	619
ANTIMONY	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.7 U	3.7 U	2.1 U	3.0 U	1.6 U
ARSENIC	2.4	2.7	2.4	2.0 J	2.2	3.7	2.6	4.9 U	4.9 U	2.8 U	2.8 U	1.9
BARIUM	17.7 J	20.3 J	22.6 J	21.4 J	19.4 J	22.2 J	23.6 J	24.2 J	1,160	48.1	28.7	28.0
BERYLLIUM	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.40 U	0.40 U	0.10 U	0.10 U	0.10 U
CADMIUM	0.060 U	0.060 U	0.060 U	0.060 U	0.21 UJ	0.060 U	0.18 UJ	0.40 U	0.40 U	0.20 U	0.20 U	0.20 U
CALCIUM	11,200	12,800	13,200	12,500	12,500	14,300	11,400	15,100	17,000	38,400	43,000	18,700
CHROMIUM	1.7 UJ	2.1 UJ	2.7 UJ	2.1 UJ	1.6 UJ	1.7 UJ	2.4 UJ	2.8 J	3.4 J	1.8 U	2.0	2.4
COBALT	0.28 U	0.35 J	0.35 J	0.28 U	0.30 J	0.33 J	0.80 J	2.2 U	2.2 U	0.75	0.64	0.58 U
COPPER	3.0 J	3.2 J	3.5 J	3.1 J	2.9 J	2.9 J	3.6 J	3.7 U	5.6 J	9.4	8.6	6.5
IRON	973	1,360	1,570	1,140	1,110	1,320	1,630	1,510	2,120	735	1,070	1,030
LEAD	0.47 UJ	0.56 UJ	0.53 UJ	0.36 U	0.65 UJ	0.50 UJ	0.97 UJ	2.8 U	2.8 U	1.5 U	1.3 U	1.1 U
MAGNESIUM	8,940	12,200	11,800	9,650	11,900	14,200	9,470	16,300	18,900	93,500	111,000	26,100
MANGANESE	37.4	58.6	65.7	37.9	50.3	91.7	227	76.0	179	105	31.1	28.8

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	OSLSL001	OSLSL002	OSLSL003	OSLSL004	OSLSL005	OSLSL006	OSLSL007	OSLSL008	OSLSL009	RADSW001	RADSW001	RADSW001
Sample ID	217OSLSW010	217OSLSW011	217OSLSW012	217OSLSW013	217OSLSW014	217OSLSW015	217OSLSW016	217OSLSW017	217OSLSW018	281RADSW001	281RADSW101	281RADSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	06/15/1998	06/15/1998	06/17/1998	06/17/1998	06/17/1998	06/16/1998	06/16/1998	06/29/1998	06/29/1998	07/11/1995	10/17/1995	01/30/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
CLP Metals (in µg/L)												
MERCURY	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
MOLYBDENUM	0.45 J	0.47 J	0.47 J	0.30 U	0.44 J	0.69 J	0.42 J	2.1 U	2.1 U	0.90 U	1.2 U	1.2 U
NICKEL	2.6 J	2.9 J	3.6 J	3.0 J	2.7 J	2.5 J	4.4 J	4.4 J	5.2 J	3.3 U	6.9	3.9
POTASSIUM	3,150 J	4,900 J	4,470 J	3,260 J	4,660 J	5,620 J	3,350 J	5,330	6,100	27,300	32,900	7,890
SELENIUM	0.62 U	0.62 U	0.62 U	0.78 J	0.62 U	0.77 J	1.0	4.9 U	4.9 U	3.4 U	3.9 U	2.3 U
SILVER	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	1.5 U	1.5 U	0.60 U	0.70 U	0.50 U
SODIUM	44,000	78,800	72,700	47,600	74,800	92,800	48,200	105,000	123,000	732,000	818,000	172,000
THALLIUM	1.3 U	1.3 U	1.5 UJ	1.8 UJ	1.3 U	1.3 U	1.9 UJ	1.9 UJ	1.8 UJ	2.0 U	1.9 U	1.9 U
VANADIUM	4.7 J	5.0 J	6.1 J	5.4 J	4.4 J	4.5 J	6.1 J	5.6 J	5.4 J	3.3 U	5.2	4.7
ZINC	5.6 UJ	5.4 UJ	6.4 UJ	4.3 UJ	12.5 UJ	4.4 UJ	33.4 UJ	7.1 J	430	43.3 U	48.7 U	10.6 U
Anions, Solids, Sulfides, and TOC (in mg/L)												
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1	2.0	5.4
TOTAL SUSPENDED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.0 U	33.0	40.0

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	RADSW001	RADSW002	RADSW002	RADSW002	RADSW002	RADSW003	RADSW003	RADSW003	RADSW003	WHSSW001	WHSSW001	WHSSW001
Sample ID	281RADSW301	281RADSW002	281RADSW102	281RADSW202	281RADSW302	281RADSW003	281RADSW103	281RADSW203	281RADSW303	281WHSSW001	281WHSSW101	281WHSSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/29/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/L)												
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Semivolatiles (in µg/L)												
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	RADSW001	RADSW002	RADSW002	RADSW002	RADSW002	RADSW003	RADSW003	RADSW003	RADSW003	WHSSW001	WHSSW001	WHSSW001
Sample ID	281RADSW301	281RADSW002	281RADSW102	281RADSW202	281RADSW302	281RADSW003	281RADSW103	281RADSW203	281RADSW303	281WHSSW001	281WHSSW101	281WHSSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/29/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ
3-NITROANILINE	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-NITROPHENOL	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 UJ	4 U	4 U	4 U	23 U	4 U	4 U	4 U	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	RADSW001	RADSW002	RADSW002	RADSW002	RADSW002	RADSW003	RADSW003	RADSW003	RADSW003	WHSSW001	WHSSW001	WHSSW001
Sample ID	281RADSW301	281RADSW002	281RADSW102	281RADSW202	281RADSW302	281RADSW003	281RADSW103	281RADSW203	281RADSW303	281WHSSW001	281WHSSW101	281WHSSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/29/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)												
DI-N-OCTYLPHTHALATE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZ(A,H)ANTHRACENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZOFURAN	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FLUORENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOTAL HIGH MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL LOW MOLECULAR PAHS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL PAHS	U	U	U	U	U	U	U	U	U	U	U	U
Low level Pesticides (in µg/L)												
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	RADSW001	RADSW002	RADSW002	RADSW002	RADSW002	RADSW003	RADSW003	RADSW003	RADSW003	WHSSW001	WHSSW001	WHSSW001
Sample ID	281RADSW301	281RADSW002	281RADSW102	281RADSW202	281RADSW302	281RADSW003	281RADSW103	281RADSW203	281RADSW303	281WHSSW001	281WHSSW101	281WHSSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/29/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low Level Pesticides (in µg/L)												
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides (in µg/L)												
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ALDRIN	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ALPHA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ALPHA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.04 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
AROCLOR-1016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1221	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1232	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1242	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1248	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1254	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1260	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BETA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DELTA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DIELDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDOSULFAN I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ENDOSULFAN II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDOSULFAN SULFATE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	RADSW001	RADSW002	RADSW002	RADSW002	RADSW002	RADSW003	RADSW003	RADSW003	RADSW003	WHSSW001	WHSSW001	WHSSW001
Sample ID	281RADSW301	281RADSW002	281RADSW102	281RADSW202	281RADSW302	281RADSW003	281RADSW103	281RADSW203	281RADSW303	281WHSSW001	281WHSSW101	281WHSSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/29/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/L)												
ENDRIN ALDEHYDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN KETONE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
GAMMA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HEPTACHLOR	0.05 U	0.05 U	0.05 U	0.05 U	0.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
METHOXYCHLOR	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOXAPHENE	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
TOTAL BHCS	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL CHLORDANES	U	U	U	U	0.04	U	U	U	U	U	U	U
TOTAL DDTS	U	U	U	U	U	U	U	U	U	U	U	U
Explosives (in µg/L)												
1,3,5-TRINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,3-DINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,4,6-TRINITROTOLUENE	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,4-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
3-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
HMX	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
NITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDX	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
TETRYL	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ	0.1 U
CLP Metals (in µg/L)												
ALUMINUM	1,300 J	388	641	1,450	424 J	393	785	1,080	920 J	257	281	1,260
ANTIMONY	2.3 U	2.3 U	3.0 U	8.0 U	2.3 U	2.1 U	3.0 U	1.6 U	2.3 U	2.1 U	3.0 U	1.6 U
ARSENIC	5.0	2.8 U	2.8 U	7.0 U	4.0 U	2.8 U	2.8 U	2.5	4.0 U	2.8 U	2.8 U	2.5
BARIUM	38.5	49.1	31.6	29.4	52.7	48.8	38.8	27.6	55.8	52.3	33.0	25.5
BERYLLIUM	0.20 U	0.10 U	0.10 U	0.50 U	0.20 U	0.10 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	0.10 U
CADMIUM	0.47	0.20 U	0.20 U	1.0 U	0.40 U	0.20 U	0.20 U	0.20 U	0.40 U	0.20 U	0.20 U	0.20 U
CALCIUM	34,600	38,800	45,900	21,100	45,400	39,000	49,500	21,300	45,300	41,500	43,300	19,400
CHROMIUM	3.6	1.8 U	2.1	3.8	1.6	1.8 U	2.2	3.6	2.0	1.8 U	0.63	3.9
COBALT	1.1 U	0.58	0.84	2.0 U	1.1 U	0.51	0.91	0.61 U	1.1 U	0.50 U	0.74	0.87 U
COPPER	5.2	8.3	5.0	8.2	3.6 U	6.7 U	5.5	9.5	3.1 U	5.3 U	4.3	6.9
IRON	1,900 J	747	1,070	2,020	1,090 J	777	1,340	1,870	1,580 J	849	625	2,040
LEAD	1.9 U	1.5 U	1.2 U	4.0 U	1.9 U	1.5 U	1.2 U	2.1	1.9 U	1.5 U	1.9 U	1.3
MAGNESIUM	74,200	91,200	121,000	33,900	95,800	100,000	129,000	35,800	95,300	100,000	115,000	33,700
MANGANESE	64.1	103	39.5	66.4	105	105	87.5	68.9	125	224	47.8	64.3

Notes:

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Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	RADSW001	RADSW002	RADSW002	RADSW002	RADSW002	RADSW003	RADSW003	RADSW003	RADSW003	WHSSW001	WHSSW001	WHSSW001
Sample ID	281RADSW301	281RADSW002	281RADSW102	281RADSW202	281RADSW302	281RADSW003	281RADSW103	281RADSW203	281RADSW303	281WHSSW001	281WHSSW101	281WHSSW201
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	04/29/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/11/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
CLP Metals (in µg/L)												
MERCURY	0.20 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U
MOLYBDENUM	1.7	0.90 U	2.0	3.3 U	1.7	1.1 U	2.2	2.4 U	1.7 U	0.90 U	1.2 U	0.87 U
NICKEL	4.1 U	3.3 U	4.5	5.9	3.4 U	3.3 U	5.1	5.7	3.9 U	3.3 U	3.0	5.7
POTASSIUM	26,600	29,300	32,600	10,800	34,600	30,200	37,400	11,900	34,800	30,400	33,400	10,700
SELENIUM	3.5 U	3.4 U	3.9 U	11.5 U	3.5 U	3.4 U	3.9 U	2.3 U	3.5 U	3.4 U	3.9 U	2.3 U
SILVER	1.3 U	0.60 U	0.70 U	2.5 U	1.3 U	0.60 U	0.70 U	0.50 U	1.3 U	0.60 U	0.70 U	0.50 U
SODIUM	499,000	764,000	904,000	244,000	687,000	810,000	969,000	278,000	700,000	807,000	891,000	252,000
THALLIUM	4.7 U	2.0 U	2.4	9.5 U	4.7 U	2.0 U	1.9 U	1.9 U	4.7 U	2.0 U	1.9 U	1.9 U
VANADIUM	7.2	3.4 U	5.9	7.5	6.5	3.4 U	5.7	6.6	6.0	2.4 U	5.3	6.5
ZINC	11.1	52.0 U	65.4 U	19.8	5.6 U	24.5 U	25.8 U	19.6	8.0 U	53.9 J	26.3 U	15.1 U
Anions, Solids, Sulfides, and TOC (in mg/L)												
TOTAL ORGANIC CARBON	3.1	5.2	2.3	6.2	4.2	5.2	3.2	6.4	4.8	5.4	2.6	6.7
TOTAL SUSPENDED SOLIDS	124	10.0 U	21.0	21.0	21.8	10.0	22.0	29.0	14.4	13.0	37.0	24.0

Notes:

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Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	WHSSW001	WHSSW002	WHSSW002	WHSSW002	WHSSW002	WHSSW003	WHSSW003	WHSSW003	WHSSW003
Sample ID	281WHSSW301	281WHSSW002	281WHSSW102	281WHSSW202	281WHSSW302	281WHSSW003	281WHSSW103	281WHSSW203	281WHSSW303
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Volatiles (in µg/L)									
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Semivolatiles (in µg/L)									
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	WHSSW001	WHSSW002	WHSSW002	WHSSW002	WHSSW002	WHSSW003	WHSSW003	WHSSW003	WHSSW003
Sample ID	281WHSSW301	281WHSSW002	281WHSSW102	281WHSSW202	281WHSSW302	281WHSSW003	281WHSSW103	281WHSSW203	281WHSSW303
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)									
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 U	4 U	4 U	4 U	4 U	5 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	WHSSW001	WHSSW002	WHSSW002	WHSSW002	WHSSW002	WHSSW003	WHSSW003	WHSSW003	WHSSW003
Sample ID	281WHSSW301	281WHSSW002	281WHSSW102	281WHSSW202	281WHSSW302	281WHSSW003	281WHSSW103	281WHSSW203	281WHSSW303
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Semivolatiles (in µg/L)									
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZ(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 UJ	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOTAL HIGH MOLECULAR PAHS	U	U	U	U	U	U	U	U	U
TOTAL LOW MOLECULAR PAHS	U	U	U	U	U	U	U	U	U
TOTAL PAHS	U	U	U	U	U	U	U	U	U
Low Level Pesticides (in µg/L)									
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	WHSSW001	WHSSW002	WHSSW002	WHSSW002	WHSSW002	WHSSW003	WHSSW003	WHSSW003	WHSSW003
Sample ID	281WHSSW301	281WHSSW002	281WHSSW102	281WHSSW202	281WHSSW302	281WHSSW003	281WHSSW103	281WHSSW203	281WHSSW303
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Low level Pesticides (in µg/L)									
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL BHCS	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL CHLORDANES	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DDTS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides (in µg/L)									
4,4'-DDD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ALDRIN	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ALPHA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ALPHA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
AROCLOR-1016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1221	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1232	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1242	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1248	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1254	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
AROCLOR-1260	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BETA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DELTA-BHC	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
DIELDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDOSULFAN I	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ENDOSULFAN II	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDOSULFAN SULFATE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	WHSSW001	WHSSW002	WHSSW002	WHSSW002	WHSSW002	WHSSW003	WHSSW003	WHSSW003	WHSSW003
Sample ID	281WHSSW301	281WHSSW002	281WHSSW102	281WHSSW202	281WHSSW302	281WHSSW003	281WHSSW103	281WHSSW203	281WHSSW303
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Pesticides (in µg/L)									
ENDRIN ALDEHYDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ENDRIN KETONE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
GAMMA-CHLORDANE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HEPTACHLOR	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HEPTACHLOR EPOXIDE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
METHOXYCHLOR	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOXAPHENE	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
TOTAL BHCS	U	U	U	U	U	U	U	U	U
TOTAL CHLORDANES	U	U	U	U	U	U	U	U	U
TOTAL DDTS	U	U	U	U	U	U	U	U	U
Explosives (in µg/L)									
1,3,5-TRINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U
1,3-DINITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,4,6-TRINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ
2,4-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,6-DINITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
3-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-NITROTOLUENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
HMX	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ
NITROBENZENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
RDX	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ
TETRYL	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U
CLP Metals (in µg/L)									
ALUMINUM	876 J	294	733	1,430	1,260	167	677	818	886
ANTIMONY	2.3 U	2.4 U	3.0 U	1.6 U	2.3 U	2.1 U	3.0 U	1.6 U	2.3 U
ARSENIC	4.0 U	3.1 U	2.8 U	2.7	4.1	2.8 U	2.8 U	2.1	4.4
BARIUM	56.6	54.1	49.1	28.7	60.4	46.7	58.2	33.2	77.2
BERYLLIUM	0.20 U	0.10 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	0.11 U	0.20 U
CADMIUM	0.40 U	0.20 U	0.20 U	0.20 U	0.44	0.20 U	0.20 U	0.20 U	0.52
CALCIUM	43,900	42,300	55,300	23,900	41,900	40,000	58,200	30,400	40,700
CHROMIUM	2.4	1.8 U	2.1	4.1	4.5	1.8 U	1.6	2.4 U	3.4
COBALT	1.1 U	0.60	1.3	0.75 U	1.1 U	0.50 U	0.97	0.71 U	1.1 U
COPPER	3.5 U	6.2 U	4.6	6.2	6.0	5.8 U	5.3	5.3	4.2
IRON	1,660 J	838	1,580	2,230	2,560	396	1,620	1,470	2,000
LEAD	1.9 U	1.5 U	1.2 U	3.1	1.1 U	1.5 U	1.3 U	1.4	1.1 U
MAGNESIUM	89,200	102,000	149,000	45,900	75,100	96,500	150,000	61,600	70,900
MANGANESE	159	219	161	80.7	222 J	44.6	223	82.3	256 J

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/12/03

Table F-2
Otter Sluice
Surface Water Analytical Results

Point ID	WHSSW001	WHSSW002	WHSSW002	WHSSW002	WHSSW002	WHSSW003	WHSSW003	WHSSW003	WHSSW003
Sample ID	281WHSSW301	281WHSSW002	281WHSSW102	281WHSSW202	281WHSSW302	281WHSSW003	281WHSSW103	281WHSSW203	281WHSSW303
Matrix	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER	SWATER
Sample Date	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996	07/13/1995	10/17/1995	01/31/1996	05/01/1996
Sample Depth (in feet)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
CLP Metals (in µg/L)									
MERCURY	0.20 U	0.10 U	0.10 U	0.10 U	0.24	0.10 U	0.10 U	0.10 U	0.20 U
MOLYBDENUM	1.7 U	0.90 U	1.4	0.76 U	2.4 U	0.92 U	1.9	0.83 U	1.9 U
NICKEL	4.0 U	3.3 U	4.8	5.9	6.1	3.3 U	4.5	4.7	5.5
POTASSIUM	32,600	31,100	42,200	15,000	29,900	30,600	43,700	20,000	28,800
SELENIUM	3.5 U	3.4 U	3.9 U	2.3 U	3.5 U	3.4 U	3.9 U	2.3 U	3.5 U
SILVER	1.3 U	0.60 U	0.70 U	0.50 U	1.2 U	0.60 U	0.70 U	0.50 U	1.2 U
SODIUM	678,000	826,000	1,170,000	352,000	609,000	807,000	1,150,000	504,000	587,000
THALLIUM	4.7 U	2.0 U	1.9 U	1.9 U	3.6 U	2.0 U	2.4	1.9 U	3.6 U
VANADIUM	7.1	3.0 U	5.1	6.8	9.8	4.1 U	6.2	5.1	9.1
ZINC	8.7 U	49.3 U	29.2 U	31.5	14.5	40.4 U	38.1 U	14.9 U	12.7
Anions, Solids, Sulfides, and TOC (in mg/L)									
TOTAL ORGANIC CARBON	5.5	6.3	4.7	7.4	9.2	6.7	5.9	9.0	11.2
TOTAL SUSPENDED SOLIDS	21.2	10.0 U	39.0	17.0	28.3	20.0	30.0	19.0	36.8

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed µg/L = Micrograms per liter, mg/L = Milligrams per liter

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

TABLE F-3

ANALYTICAL RESULTS FOR TISSUE
OTTER SLUICE

OTTER SLUICE TISSUE DATASET FOR TABLE F-3
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

MATRIX	PT_ID	SMP_ID	SMP_DT
FHTISSUE	OSLSL002	217OSLTI019	24-Jun-98
CLTISSUE	OSLSL002	217OSLTI024	24-Jun-98
FHTISSUE	OSLSL004	217OSLTI020	24-Jun-98
CLTISSUE	OSLSL004	217OSLTI025	24-Jun-98
FHTISSUE	OSLSL005	217OSLTI021	22-Jun-98
CLTISSUE	OSLSL005	217OSLTI026	25-Jun-98
FHTISSUE	OSLSL006	217OSLTI022	22-Jun-98
CLTISSUE	OSLSL006	217OSLTI027	25-Jun-98
FHTISSUE	OSLSL007	217OSLTI023	22-Jun-98
CLTISSUE	OSLSL007	217OSLTI028	23-Jun-98

Notes:

MATRIX	Media Sampled
FHTISSUE	Fish Tissue
CLTISSUE	Clam Tissue
PT_ID	Point ID
SMP_ID	Sample ID
SMP_DT	Date that sample was collected

Table F-3
Otter Sluice
Tissue Analytical Results

Point ID	OSLSL002	OSLSL002	OSLSL004	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007
Sample ID	2170SLTI019	2170SLTI024	2170SLTI020	2170SLTI025	2170SLTI021	2170SLTI026	2170SLTI022	2170SLTI027	2170SLTI023	2170SLTI028
Matrix	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE
Sample Date	06/24/1998	06/24/1998	06/24/1998	06/24/1998	06/22/1998	06/25/1998	06/22/1998	06/25/1998	06/22/1998	06/23/1998
Low Level Pesticides (in µg/Kg)										
2,4'-DDD	2 UJ	0.7 J	1 U	0.7 J	1 UJ	1 UJ	1 U	1 U	1 UJ	0.6 J
2,4'-DDE	1 U	0.6 U	0.6 U	0.6 UJ	0.6 UJ	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 U
2,4'-DDT	0.8 U	0.4 U	0.4 U	0.4 UJ	0.4 UJ	0.4 U	0.6 J	0.4 UJ	0.4 U	0.4 U
4,4'-DDD	3	2	2 U	1 J	2 J	1 UJ	2	1 UJ	1 UJ	1 UJ
4,4'-DDE	13	5 J	8	5 J	7 J	3 J	6 J	5 UJ	6	5 UJ
4,4'-DDT	0.7 U	1 UJ	0.4 U	0.6 J	0.4 UJ	0.4 U	0.4 UJ	0.8 UJ	0.4 U	0.4 U
ALDRIN	0.5 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ALPHA-BHC	1 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
ALPHA-CHLORDANE	2 U	1	2 U	1	1 U	0.7	0.7 UJ	0.7 U	0.8 U	0.7 U
BETA-BHC	0.5 U	0.3 U	0.3 U	0.3 U	0.3 UJ	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
CIS-NONACHLOR	6 U	3 U	3 UJ	3 U	3 UJ	3 U	3 UJ	3 U	3 UJ	3 U
DELTA-BHC	0.6 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R	0.3 R
DIELDRIN	0.5 U	0.3 U	2	0.8	1 J	0.3 U	1	0.3 U	1 J	0.3 UJ
ENDOSULFAN I	0.4 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ENDOSULFAN II	3 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U
ENDOSULFAN SULFATE	0.5 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ
ENDRIN	0.4 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.2 U	0.2 U
ENDRIN ALDEHYDE	0.4 UJ	0.2 UJ	0.3 J	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.4 J	0.2 UJ
ENDRIN KETONE	0.7 U	0.3 U	0.3 U	0.3 U	0.3 UJ	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
GAMMA-BHC (LINDANE)	0.4 U	0.2 U	0.2 U	0.6 J	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
GAMMA-CHLORDANE	0.8 U	0.3 J	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
HEPTACHLOR	0.6 U	0.3 U	0.3 U	0.3 U	0.3 UJ	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
HEPTACHLOR EPOXIDE	0.4 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEXACHLOROBENZENE	0.7 U	0.4 U	0.4 U	1 UJ	2 UJ	0.4 U	0.4 UJ	0.4 U	0.7	0.4 U
METHOXYCHLOR	2 J	2 J	2	1 J	1 J	0.7 UJ	1 J	3 J	1 U	2
MIREX	0.7 U	0.4 U	0.4 U	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
OXYCHLORDANE	0.8 UJ	0.4 U	0.4 UJ	0.4 U	0.4 UJ	0.4 U	0.4 J	0.4 U	0.4 UJ	0.4 U
PCB-101 (2,2',3,5,5')	5 UJ	2 U	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	2 UJ	2 U
PCB-105 (2,3,3',4,4')	1 U	0.5 U	0.8	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-114 (2,3,4,4',5)	0.8 U	0.4 U	0.4 U	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
PCB-118 (2,3',4,4',5)	3 UJ	1 J	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 UJ
PCB-123 (2',3,4,4',5)	2 U	0.8 U	0.8 U	0.8 U	0.8 UJ	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
PCB-126 (3,3',4,4',5)	1 U	0.6 U	0.6 U	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
PCB-128 (2,2',3,3',4,4')	0.7 U	0.4 U	0.4 U	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
PCB-138 (2,2',3,4,4',5')	3 J	2 J	3 J	2 J	3 UJ	3 UJ	2 J	3 UJ	3 U	3 UJ
PCB-153 (2,2',4,4',5,5')	5 UJ	3	3	3	2 J	2 J	2 J	2 J	3 UJ	3 UJ
PCB-156 (2,3,3',4,4',5)	0.4 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PCB-157 (2,3,3',4,4',5')	0.8 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ
PCB-167 (2,3',4,4',5,5')	2 U	0.9 UJ	0.9 UJ	0.9 U	0.9 UJ	0.9 U	0.9 U	0.9 U	0.9 UJ	0.9 UJ
PCB-169 (3,3',4,4',5,5')	0.5 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

Table F-3
Otter Sluice
Tissue Analytical Results

Point ID	OSLSL002	OSLSL002	OSLSL004	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007
Sample ID	2170SLTI019	2170SLTI024	2170SLTI020	2170SLTI025	2170SLTI021	2170SLTI026	2170SLTI022	2170SLTI027	2170SLTI023	2170SLTI028
Matrix	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE
Sample Date	06/24/1998	06/24/1998	06/24/1998	06/24/1998	06/22/1998	06/25/1998	06/22/1998	06/25/1998	06/22/1998	06/23/1998
Low Level Pesticides (in µg/Kg)										
PCB-170 (2,2',3,3',4,4',5)	2 U	0.8 U	0.8 UJ	0.8 U	0.8 UJ	0.8 U	0.8 UJ	0.8 U	0.8 UJ	0.8 U
PCB-18 (2,2',5)	2 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
PCB-180 (2,2',3,4,4',5,5')	1	0.5 J	1	0.5 J	0.3 J	0.4 J	0.7	0.6 U	0.6	0.5 J
PCB-187 (2,2',3,4',5,5',6)	1 J	0.5 J	0.9 J	0.5 J	1 UJ	1 UJ	0.5 J	1 U	0.7 J	1 U
PCB-189 (2,3,3',4,4',5,5')	0.5 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PCB-195 (2,2',3,3',4,4',5,6)	0.5 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PCB-206 (2,2',3,3',4,4',5,5',6	0.6 U	0.3 U	0.3 U	0.3 U	0.3 UJ	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
PCB-209 (2,2',3,3',4,4',5,5',6	1 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-28 (2,4,4')	0.5 U	0.2 U	0.2 U	0.3	0.2 UJ	0.2 U	0.2 UJ	0.2 U	0.4 U	0.2 U
PCB-44 (2,2',3,5')	2 U	0.8 U	0.4 J	0.8 U	0.8 UJ	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
PCB-52 (2,2',5,5')	0.9 U	0.4 U	0.4 U	0.4 U	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
PCB-66 (2,3',4,4')	1 U	0.6 U	0.6 U	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 UJ	0.6 U
PCB-77 (3,3',4,4')	0.9 UJ	0.4 UJ	0.4 U	0.4 U	0.4 UJ	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U
PCB-8 (2,4')	1 U	0.7 U	0.7 U	0.7 UJ	0.7 UJ	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
TOXAPHENE	200 U	100 U	100 U	100 U	100 UJ	100 U	99 U	100 U	100 U	100 U
TRANS-NONACHLOR	4 J	0.8	3 J	0.7 UJ	2 J	0.6 J	2	0.7 U	2 J	0.7 UJ
TOTAL BHCS	U	U	U	0.6	U	U	U	U	U	U
TOTAL CHLORDANES	U	1	U	1	U	0.7	U	U	U	U
TOTAL DDTS	16	8	8	7	9	3	9	U	6	0.6
TOTAL PCBS	10	14	18	13	5	5	10	4	3	1
CLP Metals (in mg/Kg)										
ALUMINUM	20.3	138	20.8	147	14.2	43.4	53.8	109	26.6	73.4
ANTIMONY	0.18 U	0.17 U	0.17 U	0.17 U	0.25 J	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U
ARSENIC	0.24 U	0.61	0.22 U	0.62	0.24 U	0.45 J	0.24 U	0.52	0.25 U	0.32 J
BARIUM	2.0 J	2.1 J	2.3 J	2.2 J	2.3 J	1.6 J	4.0 J	1.8 J	3.4 J	2.0 J
BERYLLIUM	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
CADMIUM	0.020 U	0.10 J	0.020 U	0.11 J	0.020 U	0.090 J	0.020 U	0.080 J	0.020 U	0.090 J
CALCIUM	6,680	1,740	4,630	891	8,350	673	6,190	720	9,140	997
CHROMIUM	0.17 J	0.50	0.14 J	0.51	0.17 J	0.19 J	0.26 J	0.38 J	0.21 J	0.29 J
COBALT	0.11 U	0.16 J	0.10 U	0.18 J	0.11 U	0.14 J	0.11 U	0.15 J	0.11 U	0.13 J
COPPER	1.2 J	5.0	0.77 J	5.0	2.2	4.0	1.1 J	4.4	1.9	4.4
IRON	43.3	270	36.7	275	38.2	150	82.6	239	57.8	176
LEAD	0.14 U	0.66	0.13 U	0.20	0.14 U	0.14 U	0.14 U	0.21	0.14 U	0.23
MAGNESIUM	197 J	161 J	177 J	166 J	237 J	114 J	225 J	132 J	202 J	131 J
MANGANESE	3.5	5.1	1.7	4.3	5.9	2.5	7.1	4.3	14.2	5.6
MERCURY	0.070	0.040	0.040	0.030	0.10	0.030	0.040	0.030	0.030	0.040
MOLYBDENUM	0.10 U	0.12 J	0.10 U	0.17 J	0.10 U	0.15 J	0.10 U	0.10 U	0.10 U	0.14 J
NICKEL	0.15 U	0.48 J	0.14 U	0.55 J	0.15 U	0.36 J	0.15 U	0.42 J	0.15 U	0.33 J
POTASSIUM	648	368	748	353	872	311	987	309	522	317
SELENIUM	0.49	0.58	0.52	0.49	0.46	0.43	0.35	0.51	0.37	0.49
SILVER	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/16/03

Table F-3
Otter Sluice
Tissue Analytical Results

Point ID	OSLSL002	OSLSL002	OSLSL004	OSLSL004	OSLSL005	OSLSL005	OSLSL006	OSLSL006	OSLSL007	OSLSL007
Sample ID	2170SLTI019	2170SLTI024	2170SLTI020	2170SLTI025	2170SLTI021	2170SLTI026	2170SLTI022	2170SLTI027	2170SLTI023	2170SLTI028
Matrix	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE	FHTISSUE	CLTISSUE
Sample Date	06/24/1998	06/24/1998	06/24/1998	06/24/1998	06/22/1998	06/25/1998	06/22/1998	06/25/1998	06/22/1998	06/23/1998
CLP Metals (in mg/Kg)										
SODIUM	280 UJ	263 UJ	242 UJ	264 UJ	326 UJ	283 UJ	389	281 UJ	261 UJ	281 UJ
THALLIUM	0.31 U	0.29 U	0.29 U	0.29 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
VANADIUM	0.30 J	0.49 J	0.20 J	0.46 J	0.17 U	0.29 J	0.29 J	0.39 J	0.19 J	0.27 J
ZINC	20.4	16.4	12.1	15.8	25.6	17.7	24.6	14.3	26.4	15.9
Dioxin (in µg/Kg)										
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	0.003 J	0.02 J	0.006	0.01
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	0.0003 U	0.002 J	0.0005 J(EM)	0.001 J
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	0.0007 J	0.003 J(EM)	0.002 J	0.003
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	0.0001 U	0.001 J	0.0002 J	0.0006 J(EM)
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	0.0001 U	0.0004 U	0.0001 U	0.0002 U
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	0.0001 U	0.0004 U	0.00008 U	0.0002 U
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	0.00006 U	0.0002 U	0.0001 J(EM)	0.0001 U
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	0.0001 U	0.0003 U	0.0003 J	0.0002 U
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	0.00006 U	0.0002 U	0.00004 U	0.00009 U
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	0.0001 U	0.0003 U	0.00007 U	0.0002 U
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	0.00008 U	0.0002 U	0.00006 U	0.0001 U
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	0.00006 U	0.0002 U	0.0003 J	0.0001 U
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	0.00004 U	0.0002 U	0.0001 J	0.00007 U
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	0.00007 U	0.0002 U	0.00006 U	0.0001 U
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	0.00004 U	0.0002 U	0.0002 J	0.00008 U
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	0.0001 J	0.0002 U	0.0001 J	0.00007 U
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	0.0002 J	0.0001 U	0.0003 J(EM)	0.0003 J
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	0.001 EMPC	0.006 J(EM)	0.002	0.005
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	0.0001 U	0.004	0.0007	0.002 EMPC
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	0.0001 U	0.0003 U	0.0003	0.002 EMPC
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	0.00007 U	0.002	0.0005 EMPC	0.002
TOTAL PECDD	NA	NA	NA	NA	NA	NA	0.00006 U	0.0002 U	0.0003	0.0001 U
TOTAL PECDF	NA	NA	NA	NA	NA	NA	0.00004 U	0.0002 U	0.0005 EMPC	0.001 EMPC
TOTAL TCDD	NA	NA	NA	NA	NA	NA	0.0001	0.0002 U	0.0001	0.0001 EMPC
TOTAL TCDF	NA	NA	NA	NA	NA	NA	0.0002	0.0001 U	0.0003 EMPC	0.003 EMPC

Notes:

U = Not detected with detection limit indicated, J = Estimated value, NA = Not analyzed, µg/kg = Micrograms per kilogram, mg/kg = Milligrams per kilogram

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

Organic results less than 10 are reported to one significant figure and results greater than 10 are reported to two significant figures.

07/16/03

APPENDIX G

BORING LOGS

TIDAL AREA LANDFILL SITE

BORING LOGS

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: TLSSB001	Water Level				START	FINISH
Coordinates: Tidal Area Landfill	Time				TIME	TIME
	Date				DATE 7/31/95	DATE 7/31/95

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.4	ML		Clayey SILT, 10YR4/2, weak to moderate structure, medium stiff, poor gradation, moist, low plasticity, few pores and paths in between small roots, majority fines, wood pieces, metal	marsh sediment overlying landfill sediment
1		ML		SILT, 10YR2/1, weak structure, soft, poor gradation, wet, low plasticity, many pores and paths in between roots, majority fines	marsh/surface sediment
2					
3					
4					
5		CH		Fat Silty CLAY, 5Y4/1, 5Y3/1, strong structure, very stiff, poor gradation, moist, high plasticity, no pores and paths, majority fines, peat	marsh/surface sediment
6					
7				End of Boring at 7.0 ft	
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 7/31/95	DATE 7/31/95

LOG OF SOIL BORING: **TLSSB002**

Coordinates: **Tidal Area Landfill**

SURFACE CONDITIONS: **grasses**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.2	ML		SILT, 10YR2/1, weak structure, soft, poor gradation, moist to wet, low plasticity, few pores and paths in between small roots, majority fines, wood pieces, peat; organic odor	marsh sediment overlying landfill sediment
1					
2					
3					
4					
5				End of Boring at 5.0 ft	
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS: Hand Geoprobe		

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 7/31/95	DATE 7/31/95

LOG OF SOIL BORING: **TLSSB003**

Coordinates: **Tidal Area Landfill**

SURFACE CONDITIONS: **pickle weed**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.7	ML		SILT, 2.5Y3/2, weak structure, soft, poor gradation, damp, low plasticity, many pores and paths in between roots, peat, majority fines, wood pieces, peat; organic odor	marsh sediment overlying landfill sediment
1		ML		Clayey SILT, 10YR2/1, 10YR3/2, weak to moderate structure, medium stiff, poor gradation, moist, low plasticity, few pores and paths in between peat, majority fines, peat; organic odor	marsh/surface landfill sediment
2					
3					
4					
5					
6					
7				End of Boring at 7.0 ft	
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 7/31/95	DATE 7/31/95

LOG OF SOIL BORING: **TLSSB004**

Coordinates: **Tidal Area Landfill**

SURFACE CONDITIONS: **no vegetation**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.7	ML		SILT, 7.5YR3/1, weak structure, soft, poor gradation, moist, low plasticity, many pores and paths in between roots, majority fines, metal, evaporite deposits	marsh surface overlying landfill sediment
		ML		Clayey SILT, 10YR3/2, weak to moderate structure, medium stiff, poor gradation, moist, low to medium plasticity, few pores and paths in between peat, majority fines, peat material; organic odor	marsh surface overlying landfill sediment
1		ML		SILT, 10YR2/1, weak structure, soft, poor gradation, moist to wet, low plasticity, few pores and paths in between peat, roots, majority fines, peat material; organic odor	
2					
3					
4					
5					
6					
7				End of Boring at 7.0 ft	
8					
9					
10					

MONTGOMERY WATSON

365 Lennon Lane
Walnut Creek,
California 94598
(510) 975-3400

CLIENT	PROJECT NUMBER	LOCATION
CONCORD WPNSTA	CTO 281	TIDAL AREA

DRILLING AND SAMPLING METHODS: Hand Geoprobe

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 8/1/95	DATE 8/1/95

LOG OF SOIL BORING: **TLSSB005**

Coordinates: **Tidal Area Landfill**

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.5	ML		SILT, 10YR3/2, weak structure, soft, poor gradation, moist, low plasticity, many pores and paths in between roots, loose soil, majority fines, creosote soaked logs, metal scraps	marsh sediment overlying landfill sediment
		CL			marsh/surface landfill sediment
1		ML		Silty CLAY, 2.5Y4/2, moderate structure, medium stiff, poor gradation, moist, medium plasticity, few pores and pathes in between loose soil, rootlets, majority fines	marsh/surface landfill sediment
2				SILT, 7.5YR3/1, weak structure, soft, poor gradation, moist, low plasticity, few pores and pathes, in between loose soil, majority fines	
3					
4		CL		Silty CLAY, 10YR3/2, moderate structure, medium stiff, poor gradation, moist, medium plasticity, few pores and pathes in between peat, majority fines, peat material; strong sulfur odor	marsh/surface landfill sediment
5					
6					
7				End of Boring at 7.0 ft	
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

Water Level				START	FINISH
Time				TIME	TIME
Date				DATE 8/1/95	DATE 8/1/95

LOG OF SOIL BORING: **TLSSB006**

Coordinates: **Tidal Area Landfill**

SURFACE CONDITIONS: **sparse grasses**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	1.0	ML		SILT, jet black, weak structure, very soft, poor gradation, wet, low plasticity, few pores and paths in between roots, majority fines, jet black organic matter; organic odor	marsh sediment overlying landfill sediment
1		GC		Clayey Sandy GRAVELS, SANDSTONE, 10YR4/4, weak structure, loose, poor gradation, wet, low plasticity, many pores and paths in between gravels, loose, rocky soil, 40% fines, gravels, gravels up to 2" in diameter	landfill sediment/gravels from nearby road
2		CH		Fat Silty CLAY, 5Y3/1, moderate to strong structure, stiff, poor gradation, moist, high plasticity, few pores and paths in between peat, majority fines, peat material	emplaced soil
3					
4					
5					
6				End of Boring at 6.0 ft	
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

Water Level				START	FINISH
Time				TIME	TIME
Date				DATE 8/1/95	DATE 8/1/95

LOG OF SOIL BORING: **TLSSB007**

Coordinates: **Tidal Area Landfill**

SURFACE CONDITIONS: **pickle weed**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.0	ML		Clayey SILT, 2.5Y3/1, weak structure, soft, poor gradation, moist, medium plasticity, many pores and paths in between roots, branches, majority fines, wood, white natural deposits in the soil	marsh sediment overlying landfill sediment
		ML		SILT, 2.5Y2.5/1, 10YR2/1, weak structure, soft, poor gradation, damp, low plasticity, many pores and paths in between rootlets, roots, majority fines, peat material at 4' bgs; organic odor	marsh/surface landfill sediment
1					
2					
3					
4					
5				End of Boring at 5.0 ft	
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

Water Level				START	FINISH
Time				TIME	TIME
Date				DATE 8/1/95	DATE 8/1/95

LOG OF SOIL BORING: **TLSSB008**

Coordinates: **Tidal Area Landfill**

SURFACE CONDITIONS: **pickle weed**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.0	CL/CH		Fat Silty CLAY, 2.5Y2.5/1, moderate to strong structure, medium soft, poor gradation, wet to damp, medium to high plasticity, few pores and paths in between roots, peat, majority fines, logs, concrete, metal, wood, peat material; organic odor	marsh sediment overlying landfill sediment
1				End of Boring at 0.5 ft	
2					
3					
4					
5					
6					
7					
8					
9					
10					

R AREA DISPOSAL SITE

BORING LOGS

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 8/3/95	DATE 8/3/95

LOG OF SOIL BORING: **RADSBB04**

Coordinates: **R Area Disposal Site**

SURFACE CONDITIONS: **sluice**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	2.4	ML		Clayey SILT, 10YR3/1, weak structure, soft, poor gradation, wet, low plasticity, many pores and paths, saturated sediment, majority fines, metal ammunition casing	former wetlands/surface sediment
1					
2		ML		SILT, 2.5Y3/1, weak structure, very soft, poor gradation, moist, very low plasticity, many pores and paths in peat, roots, majority fines, decayed organic odor; peat material	former wetlands sediment
3					
4					
5					
6				End of Boring at 6.0 ft	
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 8/3/95	DATE 8/3/95

LOG OF SOIL BORING: **RADSBB06**

Coordinates: **R Area Disposal Site**

SURFACE CONDITIONS: **no vegetation**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	1.6	ML		Clayey SILT, 10YR3/2, moderate structure, medium stiff, poor gradation, moist, medium plasticity, many pores and paths in between roots, wood chips, majority fines, wood, sand, wood chips to 0.5'	surface sediment overlying former wetlands sediment
		SW		Fine Grained SAND, 2.5Y4/2, weak structure, medium dense, well gradation, moist, nonplastic, many pores and paths in between sand grains, 10% fines, sand	surface sediment overlying wetlands sediment
1		CH		Fat, Silty CLAY, 5Y3/1, strong structure, stiff, poor gradation, moist, medium plasticity, few pores and paths in between peat, majority fines, peat material	wetlands sediment
2				End of Boring at 2.0 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **RADSBB08**	Water Level				START	FINISH
Coordinates: R Area Disposal Site	Time				TIME	TIME
	Date				DATE 8/1/95	DATE 8/1/95

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		ML		Compacted SILT with Sand, 10YR4/4, moderate structure, hard, poor gradation, dry, nonplastic, few pores and paths, worm holes, loose sand, majority fines, metal ammunition casing, metal pallet, wood, soil extremely hard to geoprobe	surface sediment berm area
1					
2					
		SM		Silty SAND, 5Y4/2, weak structure, medium dense, poor gradation, moist, low plasticity, few pores and paths, loose sand, 25% fines	surface sediment berm area
3				End of Boring at 3.0 ft	
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

Water Level				START	FINISH
Time				TIME	TIME
Date				DATE 8/4/95	DATE 8/4/95

LOG OF SOIL BORING: **RADSBC05**

Coordinates: **R Area Disposal Site**

SURFACE CONDITIONS: **pickle weed**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	1.7	SP		Fine to Medium Grained SAND, 10YR 4/3, weak structure, loose, poor gradation, moist, nonplastic, many pores and paths in between sand grains, 10% fines, wood, metal ammunition casings	surface sediment overlying former wetlands sediment
		CL		Silty CLAY, 10YR3/2, moderate structure, medium stiff, poor gradation, moist, medium plasticity, few pores and paths in saturated sediment, majority fines	surface sediment overlying former wetlands sediment
1					
2		ML		SILT, 10YR3/3, weak structure, very soft, poor gradation, moist, low plasticity, many pores and paths in between peat, majority fines, peat material	former wetlands sediment
3				End of Boring at 2.3 ft	
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 8/4/95	DATE 8/4/95

LOG OF SOIL BORING: **RADSBD05**

Coordinates: **R Area Disposal Site**

SURFACE CONDITIONS: **pickle weed**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	2.7	ML		SILT, 2.5Y3/2, weak structure, very soft, poor gradation, damp, nonplastic, many pores and paths in between roots, branches, grass, majority fines, pickle weed	surface sediment overlying former wetlands sediment
1		CL		Silty CLAY, 2.5Y5/2, moderate structure, stiff, poor gradation, damp, medium plasticity, few pores and paths in between peat, roots, majority fines, peat material has iron staining/orange staining	former wetlands sediment
2				End of Boring at 2.0 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **RADSBD06**	Water Level				START	FINISH
Coordinates: **R Area Disposal Site**	Time				TIME	TIME
	Date				DATE 8/4/95	DATE 8/4/95

SURFACE CONDITIONS: **pickle weed**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	4.0	CL		Silty CLAY, 10YR4/3, moderate structure, stiff, poor gradation, damp, low plasticity, few pores and paths in between small roots, cracked sediment, majority fines, pickle weed	surface sediment overlying former wetlands sediment
1					
2					
3					
4		CH		Fat Silty CLAY, 5Y4/1, moderate structure, very stiff, poor gradation, damp, high plasticity, no pores and paths, majority fines, peat material	(emplaced soil)
5					
6					
7				End of Boring at 7.0 ft	
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **RADSBE03**	Water Level				START	FINISH
Coordinates: R Area Disposal Site	Time				TIME	TIME
	Date				DATE 8/23/95	DATE 8/23/95

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.0	CL		Silty CLAY, 10YR4/3, moderate structure, medium stiff, poor gradation, moist, medium plasticity, few pores and paths in between rootlets, majority fines	fill material deposits interbedded with former wetlands sediment
1		ML		SILT, 2.5Y3/1, weak structure, soft, poor gradation, moist, low plasticity, many pores and paths in between rootlets, majority fines, peat material	former wetlands sediment
2				End of Boring at 2.0 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: RADSBG04	Water Level				START	FINISH
Coordinates: R Area Disposal Site	Time				TIME	TIME
	Date				DATE 8/23/95	DATE 8/23/95

SURFACE CONDITIONS: dry grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.0	ML		Clayey SILT, 2.5Y5/3, weak structure, soft, poor gradation, damp, low plasticity, few pores and paths in between peat particles, majority fines, fill material in square patch along pipeline, peat material; decayed with iron/orange staining	fill material placed along a square patch
1		ML		SILT, 2.5Y2.5/1, weak structure, very soft, poor gradation, moist, low to non plastic, few pores and paths in between peat, majority fines, peat material; slight organic odor	former wetlands sediment
2					
		CL		Silty CLAY, 2.5Y4/1, moderate structure, medium stiff, poor gradation, moist, medium plasticity, few pores and paths in between peat, majority fines, peat material; organic odor	former wetlands sediment (emplaced)
3					
4					
5					
6					
7					
8		CH		Fat CLAY, moderate to strong structure, medium stiff, poor gradation, moist, high plasticity, few pores and paths in between peat, majority fines, peat material	emplaced soil (bay mud)
9				End of Boring at 8.1 ft	
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 8/21/95	DATE 8/21/95

LOG OF SOIL BORING: **RADSBG08**

Coordinates: **R Area Disposal Site**

SURFACE CONDITIONS: **berm area**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.8	CL		Silty Sandy CLAY with Gravel, 10YR3/1, weak structure, soft, poor gradation, dry/damp, low plasticity, many pores and paths in between gravels, majority fines, fill material; steel	fill material from berm area that separates sluice and former ephemeral pond
		CL		Silty CLAY, 2.5Y4/2, moderate structure, stiff, poor gradation, damp, medium plasticity, few pores and paths in between small roots, majority fines, fill material	fill material from berm area that separates sluice and former ephemeral pond
1					
2					
		ML		SILT, 10YR2/2, weak structure, soft, poor gradation, damp/moist, low plasticity, few pores and paths in between peat, roots, loose sediment, majority fines, possible reddish brick or clay material, strong sulfur smell	former wetlands sediment
3					
4	1.7				
5					
6					
7				End of Boring at 7.0 ft	
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **RADSBH06**	Water Level				START	FINISH
Coordinates: R Area Disposal Site	Time				TIME	TIME
	Date				DATE 7/27/95	DATE 7/27/95

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	3.0	CH		Fat Silty CLAY, 2.5Y4/2, moderate structure, stiff, poor gradation, moist, medium plasticity, many pores and paths in between peat, majority fines, pipeline 45' from location, peat, mild sulfur odor	former wetlands/surface sediment
1					
2				End of Boring at 2.0 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: RADSBI04	Water Level				START	FINISH
Coordinates: R Area Disposal Site	Time				TIME	TIME
	Date				DATE 7/27/95	DATE 7/27/95

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	2.2	ML		Clayey SILT, 10YR3/2, weak to moderate structure, medium stiff, poor gradation, moist, low plasticity, many pores and paths in between roots, majority fines, peat, mild sulfur odor	former wetlands/surface sediment
1		CL		Silty CLAY, 5Y2.5/1, weak to moderate structure, medium stiff, poor gradation, moist, low plasticity, many pores and paths in between roots, majority fines, peat, mild sulfur odor	former wetlands/surface sediment
2				End of Boring at 2.0 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 7/27/95	DATE 7/27/95

LOG OF SOIL BORING: **RADSBI08**

Coordinates: **R Area Disposal Site**

SURFACE CONDITIONS: **sparse grasses**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	2.0	ML		Clayey SILT, 10YR3/2, weak structure, very soft, poor gradation, wet, low plasticity, many pores and paths in between peat, majority fines, gravels, area may have been cut in half connecting the two ephermeral ponds	ephemeral pond sediment
1		CL		Silty CLAY, 5Y2.5/1, moderate structure, medium stiff, poor gradation, moist, low plasticity, many pores and paths in between peat, majority fines, some gravels	ephemeral pond sediment
2					
3					
4				End of Boring at 4.0 ft	
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: RADSBJ02	Water Level				START	FINISH
Coordinates: R Area Disposal Site	Time				TIME	TIME
	Date				DATE 8/23/95	DATE 8/23/95

SURFACE CONDITIONS: fill material from railroad

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.5	SM		Fine Silty SAND, 2.5Y4/4, weak structure, medium dense, poor gradation, damp, nonplastic, many pores and paths in between sand, 15% fines, sand fill material; wood	fill material from surrounding railroad berms
1					
		SW		Medium to Coarse SAND, Mica, 2.5Y4/4, weak structure, loose, well gradation, damp, nonplastic, many pores and paths in between sand, 10% fines, sand fill material	fill material from surrounding railroad berms
2					
		CL		Silty CLAY, 10YR5/3, strong structure, stiff, poor gradation, moist, medium to high plasticity, no pores and paths, majority fines	fill material from surrounding railroad berms
3		ML		SILT, 10YR2/1, weak structure, very soft, poor gradation, moist, low plasticity, many pores and paths in between rootlets, majority fines, peat material	former wetlands sediment
4					
		CH		Fat CLAY, GLEY4/5GY, GLEY4/10GY, strong structure, very stiff, poor gradation, moist, high plasticity, few pores and paths in between rootlets, majority fines, peat material	emplaced soil (bay mud)
5					
6					
7				End of Boring at 7.0 ft	
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **RADSBK08**	Water Level				START	FINISH
Coordinates: R Area Disposal Site	Time				TIME	TIME
	Date				DATE 7/27/95	DATE 7/27/95

SURFACE CONDITIONS: berm with dry grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		ML		Clayey SILT with Sand and Gravel, 10YR4/2, weak to moderate structure, hard, poor gradation, dry, nonplastic, many pores and paths in between gravels, sand, grass roots, majority fines, wood pieces, nails	fill material from berm area
		CL		Silty CLAY, 2.5Y5/3, weak structure, medium stiff, poor gradation, damp, low plasticity, few pores and paths in between gravels, majority fines, gravels	former wetlands
1					
2		CL		Silty CLAY, 2.5Y3/1, moderate structure, medium stiff, poor gradation, damp, medium plasticity, no pores and paths, majority fines, possible hydrocarbon odor	former wetlands
3				End of Boring at 2.5 ft	
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 7/27/95	DATE 7/27/95

LOG OF SOIL BORING: **RADSBM08**

Coordinates: **R Area Disposal Site**

SURFACE CONDITIONS: **grassy ridge**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.0	CH		Fat Silty CLAY, 2.5Y4/2, moderate structure, stiff, poor gradation, moist, medium to high plasticity, no pores and paths, majority fines, wood pieces	former wetlands/surface fill sediment
1					
	3.5				
2		CH		Fat Silty CLAY, 2.5Y3/1, moderate structure, stiff, poor gradation, moist, medium to high plasticity, no pores and paths, majority fines	former wetlands/surface sediment
3				End of Boring at 2.3 ft	
4					
5					
6					
7					
8					
9					
10					

FROID AND TAYLOR ROADS SITE

BORING LOGS

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

Water Level					START	FINISH
Time					TIME	TIME
Date					DATE 7/5/95	DATE 7/5/95

LOG OF SOIL BORING: **FTSSB001**

Coordinates: **Froid & Taylor Site**

SURFACE CONDITIONS: **dry grass/fill material**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		ML		SILT with Medium to Fine Sand & Humus, 10YR 5/2, mod. structure, very soft, poor gradation, dry, nonplastic, many pores in between worm holes, fox holes, crevesses in between concrete, majority fines, iron banding wire, asphalt, PVC pipe, vegetation change	surface sediment overlying emplaced soil
		CH		Fat CLAY with Sand, 10YR3/2, moderate structure, very soft, poor gradation, moist, high plasticity, few pores and paths, majority fines, concrete	emplaced soil (bay mud)
1					
2				End of Boring at 1.3 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **FTSSB002**	Water Level				START	FINISH
Coordinates: Froid & Taylor Site	Time				TIME	TIME
	Date				DATE 7/5/95	DATE 7/5/95

SURFACE CONDITIONS: tall grass/pickle weed

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		ML		SILT with Medium to Fine Sand and Humus, 10YR2/1, weak structure, very soft, poor gradation, moist, low plasticity, many pores between humus and between grains, majority fines, corroded 2x4" (9V) bolt batteries, white/black corrosion on surface	intertidal marsh/surface sediment
1		CH		Fat CLAY with Sand, 10YR3/2, moderate structure, very soft, poor gradation, moist, high plasticity, few pores and paths, majority fines	emplaced soil (bay mud)
2				End of Boring at 1.8 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **FTSSB003**

Coordinates: **Froid & Taylor Site**

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 7/5/95	DATE 7/5/95

SURFACE CONDITIONS: **tall grass/pickle weed**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		ML		SILT with Medium to Fine Sand and Humus, 5YR5/6-surface, 10YR2/1, weak structure, very soft, poor gradation, moist, low plasticity, many pores between humus and between grains, majority fines, rusty brown stain on grass/wood chips, depression - 3'x3' stain	intertidal marsh/surface sediment
		CH		Fat CLAY with Sand, 10YR 3/2, moderate structure, very soft, poor gradation, moist, high plasticity, few pores and paths, majority fines	emplaced soil (bay mud)
1					
2				End of Boring at 1.75 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **FTSSB004**

Coordinates: **Froid & Taylor Site**

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 7/6/95	DATE 7/6/95

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		CL		Lean CLAY with Sand, 7.5YR4/1, moderate structure, very soft, poor gradation, moist, high plasticity, few pores and paths, pore spaces between sediment, majority fines, clayey sediment in boring	intertidal marsh/surface sediment emplaced soil (bay mud)
		CH		Fat CLAY, 7.5YR4/1, moderate structure, soft, poor gradation, wet, high plasticity, few to no pores and paths, majority fines	
1					
2				End of Boring at 2.0 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: FTSSB005						
Coordinates: Froid & Taylor Site	Water Level				START	FINISH
	Time				TIME	TIME
	Date				DATE 7/6/95	DATE 7/6/95

SURFACE CONDITIONS: grasses/pickle weed

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		CL		Silty CLAY with Sand, 10YR2/1, moderate structure, very soft, poor gradation, moist to wet, high plasticity, few pores and paths in betw sediment, majority fines, jet black organic soil beneath surface w/decaying odor	intertidal marsh/surface sediment
1					
2					
3				End of Boring at 3.0 ft	
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **FTSSB006**

Coordinates: **Froid & Taylor Site**

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 7/6/95	DATE 7/6/95

SURFACE CONDITIONS: **grasses/pickle weed**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		CL		Silty CLAY with Sand, 10YR2/1, moderate structure, very soft to soft, poor gradation, moist to wet, high plasticity, few pores and paths, pores space betw sediment, majority fines, jet black organic soil beneath surface w/decaying odor	intertidal marsh/surface sediment
1					
2					
3				End of Boring at 3.0 ft	
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: FTSSB007	Water Level				START	FINISH
Coordinates: Froid & Taylor Site	Time				TIME	TIME
	Date				DATE 7/6/95	DATE 7/6/95

SURFACE CONDITIONS: no vegetation/evaporite deposits

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		SC CL		Clayey SAND, Evaporite Deposits, 10YR5/6, 10YR6/6, weak structure, stiff, poor gradation, moist, low plasticity, few pores and paths, pore spaces between sediment, 25% Fines, iron colored, black and olive banding concentric in deposition/evaporite deposits	intertidal marsh sediment with slightly higher energy of deposition
1				Sandy Lean CLAY, Pieces of Sandstone, 10YR5/6, 10YR6/6, strong structure, very hard, poor gradation, damp to dry, medium plasticity, few pores and paths, pore spaces between sediment, majority fines, compacted sand pieces up to 1 cm in diameter	intertidal marsh sediment with slightly higher energy of deposition
2					
3				End of Boring at 3.0 ft	
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: FTSSB008	Water Level				START	FINISH
Coordinates: Froid & Taylor Site	Time				TIME	TIME
	Date				DATE 7/6/95	DATE 7/6/95

SURFACE CONDITIONS: fill material nearby manma

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		CL		Silty CLAY with Sand, 10YR2/1, weak structure, very soft, poor gradation, moist to wet, low plasticity, many pore spaces betw sediment, majority fines, jet black organic soil beneath surface w/decaying odor	intertidal water depositing sediment into manmade gully during high waters
1					
2				End of Boring at 1.75 ft	
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON

365 Lennon Lane
Walnut Creek,
California 94598
(510) 975-3400

CLIENT	PROJECT NUMBER	LOCATION
CONCORD WPNSTA	CTO 281	TIDAL AREA

DRILLING AND SAMPLING METHODS: Hand Geoprobe

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 7/6/95	DATE 7/6/95

LOG OF SOIL BORING: **FTSSB009**

Coordinates: Froid & Taylor Site

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		CL		Silty CLAY with Sand and Gravel, 2.5Y6/4, weak structure, very soft, moderate gradation, wet, low plasticity, many pores and paths in worm holes, majority fines, nearby concrete and gravel, water at ~6" from ground surface, lots of worms	emplaced soil
1					
				End of Boring at 1.3 ft	
2					
3					
4					
5					
6					
7					
8					
9					
10					

WOOD HOGGER SITE

BORING LOGS

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS: Geoprobe		

LOG OF SOIL BORING: **WHSSB201**					START	FINISH
Coordinates: Wood Hogger Site	Water Level					
	Time				TIME	TIME
	Date				DATE 8/28/95	DATE 8/29/95

SURFACE CONDITIONS: road base

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		ASPHAL		ASPHALT, strong structure, dense, poor gradation, dry, nonplastic, few pores and paths in between small cracks	asphalt; manmade
		GW		GRAVELS up to 3/4", weak structure, loose, well gradation, wet, nonplastic, many pores and paths in between gravels, <10% fines, gravel road base	fill material from leveling and stabilizing area near Wood Hogger
1		CH		Fat CLAY with Sand and Gravel, 10YR6/6, moderate structure, stiff, poor gradation, moist, high plasticity, no pores and paths, majority fines, fill material	fill material; silty peat material probably excavated to add more stable fill material
2		GM/SM		GRAVELS and Coarse SAND, 5Y4/1, weak structure, loose, poor gradation, saturated, low plasticity, many pores and paths in between gravels, sand, 15% fines, floating product; motor oil ~1cm, strong hydrocarbon odor though HNU does not indicate	fill material; silty peat material probably excavated to add more stable fill material
3		CL		Sandy CLAY with Gravel, 5Y5/2, moderate structure, stiff, poor gradation, moist, medium plasticity, few pores and paths in between gravels, majority fines, fill material	fill material; silty peat material probably excavated to add more stable fill material
4					
5					
6					
7					
8		CL		Sandy CLAY, 2.5Y5/3, moderate structure, very stiff, poor gradation, damp, low plasticity, few pores and paths in between sand, majority fines, calcite nodules	emplaced soil
9				End of Boring at 8.0 ft	
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **WHSSB202**	Water Level				START	FINISH
Coordinates: Wood Hogger Site	Time				TIME	TIME
	Date				DATE 8/31/95	DATE 8/31/95

SURFACE CONDITIONS: road base

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		FILL/GM		ASPHALT and Silty GRAVELS, 5Y4/1, weak structure, loose, poor gradation, damp, nonplastic, many pores and paths in between gravels, 30% fines	fill material from leveling and stabilizing area near Wood Hogger
1		CL		Sandy CLAY with Gravels, 10YR5/4, moderate structure, medium stiff, poor gradation, damp, low to medium plasticity, few pores and paths in between sand, majority fines, fill material	fill material; silty peat material probably excavated to add more stable fill material
2					
3					
4		GM/SM		Silty Coarse SAND and GRAVELS, 5Y4/2, weak structure, loose, poor gradation, saturated, low plasticity, many pores and paths in between gravels and sand, 25% fines, fill material, strong hydrocarbon odor though HNU does not indicate	fill material; silty peat material probably excavated to add more stable fill material
5					
				End of Boring at 5.5 ft	
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **WHSSB203**	Water Level				START	FINISH
Coordinates: Wood Hogger Site	Time				TIME	TIME
	Date				DATE 8/31/95	DATE 8/31/95

SURFACE CONDITIONS: road base

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		FILL/GM		ASPHALT and Silty GRAVELS, 5Y4/1, weak structure, loose, poor gradation, damp, nonplastic, many pores and paths in between gravels, 30% fines	fill material from leveling and stabilizing area near Wood Hogger
1		CL		Sandy CLAY with Gravels, 10YR5/4, moderate structure, medium stiff, poor gradation, damp, low to medium plastic, few pores and paths in between sand, majority fines, fill material	fill material; silty peat material probably excavated to add more stable fill material
2					
3					
4		GM/SM		Silty Coarse SAND and GRAVELS, 5Y4/2, weak structure, loose, poor gradation, saturated, low plasticity, many pores and paths in between gravels and sand, 25% fines, black tar from former road construction, hydrocarbon odor	fill material; silty peat material probably excavated to add more stable fill material
5					
				End of Boring at 5.5 ft	
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

Water Level				START	FINISH
Time				TIME	TIME
Date				DATE 8/31/95	DATE 8/31/95

LOG OF SOIL BORING: **WHSSB204**

Coordinates: **Wood Hogger Site**

SURFACE CONDITIONS: **road base**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
		FILL/GM		ASPHALT and Silty GRAVELS, 5Y4/1, weak structure, loose, poor gradation, damp, nonplastic, many pores and paths in between gravels, 30% fines	fill material from leveling and stabilizing area near Wood Hogger
1		CL		Sandy CLAY with Gravels, 10YR5/4, moderate structure, medium stiff, poor gradation, damp, low to medium plasticity, few pores and paths in between sand, majority fines, fill material	fill material; silty peat material probably excavated to add more stable fill material
2					
3					
4		GM/SM		Silty Coarse SAND and GRAVELS, 5Y4/2, weak structure, loose, poor gradation, saturated, low plasticity, many pores and paths in between gravels and sand, 25% fines, fill material, slight hydrocarbon odor	fill material; silty peat material probably excavated to add more stable fill material
5					
				End of Boring at 5.5 ft	
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS: Geoprobe		

LOG OF SOIL BORING: **WHSSBA06**	Water Level				START	FINISH
Coordinates: Wood Hogger Site	Time				TIME	TIME
	Date				DATE 8/25/95	DATE 8/25/95

SURFACE CONDITIONS: berm/dry grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	1.1	SP		SAND and GRAVEL, 10YR3/2, weak structure, very loose, poor gradation, dry, nonplastic, many pores and paths in between sand, gravels, 10% fines, fill material from berm, sample collected after berm fill material	fill material from berm area
1		CL		Sandy CLAY, 10YR5/4, moderate structure, medium stiff, poor gradation, damp, low plasticity, few pores and paths in between sand, minerals, majority fines, calcite nodule, red rock with clear striated mineral	fill material; silty peat material probably excavated to add more stable fill material
2				No Recovery	
3					
4					
		SM		Silty SAND with 10% Small Gravels, 5Y5/2, weak to moderate structure, medium dense, well graded, wet, nonplastic, many pores and paths in between sand grains and gravels, 20% fines	fill material; silty peat material probably excavated to add more stable fill material
5		CL		Sandy CLAY with Gravel, 5Y5/3, moderate structure, stiff, poor gradation, moist, medium plasticity, majority fines	emplaced soil
6		CL		Sandy CLAY, 2.5Y5/3, weak to moderate structure, medium stiff, well gradation, moist, low plasticity, majority fines	emplaced soil
7		CL		Sandy CLAY, Chromium, Calcite Nodules, 5Y4/1, 10YR5/4, moderate structure, medium stiff, poor gradation, moist, low plasticity, no pores and paths, majority fines	emplaced soil
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		LOG OF SOIL BORING:	WHSSBA06	

Depth	Description
	Sandy CLAY continued
11	
12	
13	
14	End of Boring at 14.0 ft
15	
16	
17	
18	
19	
20	
21	

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS: Hand Geoprobe		

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 8/11/95	DATE 8/11/95

LOG OF SOIL BORING: **WHSSBC02**

Coordinates: **Wood Hogger Site**

SURFACE CONDITIONS: **pickle weed/grasses**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.0	ML		SILT, 10YR3/2, weak structure, very soft, poor gradation, wet, low plasticity, many pores and paths in between peat, majority fines, peat material; sample collected in 1' of water	intertidal marsh area sediment
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		LOG OF SOIL BORING:	WHSSBC02	

Depth	Description
	SILT continued
11	
12	End of Boring at 12.0 ft
13	
14	
15	
16	
17	
18	
19	
20	
21	

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **WHSSBD03**	Water Level				START	FINISH
Coordinates: **Wood Hogger Site**	Time				TIME	TIME
	Date				DATE 7/25/95	DATE 7/26/95

SURFACE CONDITIONS: **pickle weed/grasses**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	2.3	ML		Clayey SILT with Sand, 10YR2/1, weak structure, very soft, poor gradation, wet, low plasticity, few pores and paths in between peat, majority fines, large wood pieces at surface, mild to strong sulfur odor	intertidal marsh/surface sediment
1		ML		Clayey SILT, 10YR2/1, weak structure, very soft, poor gradation, wet, low plasticity, few pores and paths in between peat, majority fines, very strong sulfur odor from 4'-15', mild odor from 0'-4'	intertidal marsh/surface sediment
2					
3					
4					
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		LOG OF SOIL BORING:	WHSSBD03	

Clayey SILT continued

11

12

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14

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End of Boring at 20.0 ft

21

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

Water Level					START	FINISH
Time					TIME	TIME
Date					DATE 7/18/95	DATE 7/18/95

LOG OF SOIL BORING: **WHSSBD07**

Coordinates: **Wood Hogger Site**

SURFACE CONDITIONS: **grasses**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	167.0	SM		Silty SAND and GRAVEL, 10YR3/2, weak structure, very loose, poor gradation, dry, nonplastic, many pores and paths, pore spaces between sediment and grass, 20% fines, fine grained wood chips	wood chips and sediment from former wood hogger
1					
		FILL		Large Pieces of WOOD Chips, 10YR2.5/1, weak structure, very loose, poor gradation, damp, nonplastic, many pores and paths, pore spaces between wood chips and gravels, 10% fines, fine to pebble sized wood chips	wood chips and sediment from former former wood hogger
2					
		CL		Sandy CLAY with Gravel, Quartz, 5Y3/1, 7.5YR5/6, moderate structure, medium stiff, poor gradation, moist, medium plasticity, many pores and paths, pore spaces between gravels, majority fines, hydrocarbon odor	(road base) with underlying clay
3					
4		SW/SC		Well Graded SAND with Silt and Gravel, 5Y5/3, weak structure, very loose, moderate gradation, wet, low plasticity, many pores and paths between gravels and sand, 20% Fines	(road base) with underlying clay
		CL		Sandy CLAY with Gravel, 10YR5/4, 5Y4/1, moderate structure, stiff, poor gradation, moist, medium plasticity, few pores and paths in between large gravels, majority fines, hydrocarbon odor	(road base) with underlying clay
5					
6					
7		GW/GM		Well Graded GRAVEL with Silt and Sand, 10YR5/4, weak structure, very loose, moderate gradation, wet, nonplastic, many pores and paths in between gravels, 20% fines	(road base)
		CL		Sandy CLAY with Gravel, 10YR5/3, strong structure, stiff, poor gradation, moist to wet, medium to high plasticity, few pores and paths in between some gravels, majority fines, hydrocarbon odor	fill material to elevate area around Wood Hogger
8					
9					
				End of Boring at 10.0 ft	
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Geoprobe	

Water Level				START	FINISH
Time				TIME	TIME
Date				DATE 8/25/95	DATE 8/25/95

LOG OF SOIL BORING: **WHSSBE08**

Coordinates: **Wood Hogger Site**

SURFACE CONDITIONS: **grasses**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.4	ML		Clayey SILT, 10YR4/2, 10YR3/1, weak structure, soft, poor gradation, moist, low plasticity, many pores and paths in between loose sediment, wood, majority fines, fill material; wood chips, very soft sediment	fill material to build up foundation around old Wood Hogger
1					
2		FILL		WOOD/CONCRETE, 10YR3/1, strong structure, very dense, moist, nonplastic, many pores and paths, through wood, 0% fines, fill material; wood; concrete	fill material as boards used to lay and flatten area prior to placing fill material on top
3		SC/SM		Silty Clayey SAND, 5Y4/1, weak structure, loose, well gradation, wet, low plasticity, many pores and paths in between sand, 20% fines, fill material	fill material to build up foundation around old Wood Hogger
4					
5					
6					
7					
8					
9		ML		Clayey SILT, 10YR3/1, weak structure, medium stiff, poor gradation, wet, low to medium plasticity, few pores and paths in between peat, majority fines, peat material; H2S odor; becomes clayier with depth	former wetlands/intertidal sediment
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		LOG OF SOIL BORING:	WHSSBE08	

			Clayey SILT continued	
11			End of Boring at 11.0 ft	
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

						START	FINISH
Water Level							
Time						TIME	TIME
Date						DATE 7/25/95	DATE 7/25/95

LOG OF SOIL BORING: **WHSSBF03**

Coordinates: **Wood Hogger Site**

SURFACE CONDITIONS: **sand**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	1.5	CL		Sandy CLAY with Gravel, 2.5 Y4/3, weak structure, very soft, poor gradation, wet, medium plasticity, few pores/paths in between gravels and sand, majority fines, 20% coarse, wood & metals, sample located near rusting metal containers	intertidal marsh/surface sediment
		CL		Sandy CLAY, 10YR4/4, 5Y4/2, strong structure, very hard, poor gradation, damp, low plasticity, no pores/paths, majority fines, 35% coarse	compacted clay marsh sediment
1					
	2.0				
2				Not Recorded	
3					
4					
		CL/CH		Fat, Silty CLAY, 10YR3/1,5Y2.5/1, moderate structure, stiff, poor gradation, wet, high plasticity, few pores/paths in between peat, majority	intertidal marsh/ emplace
5					
6					
7					
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		LOG OF SOIL BORING:	WHSSBF03	

Depth	Description
	Fat, Silty CLAY continued
11	End of Boring at 11.0 ft
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Geoprobe	

					START	FINISH
Water Level						
Time					TIME	TIME
Date					DATE 8/25/95	DATE 8/25/95

LOG OF SOIL BORING: **WHSSBG06**

Coordinates: **Wood Hogger Site**

SURFACE CONDITIONS: **wood debris**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	1.0	ML		Compacted SILT with Gravel, 2.5Y4/3, weak structure, stiff, poor gradation, dry, low plasticity, many pores and paths in between loose sediment, majority fines, gravels, fill material, wood	fill material from former debris dumpage area
		CL			fill material from former debris dumpage area
1	9.3	GP/SP		Silty CLAY, 2.5Y4/2, moderate structure, stiff, poor gradation, damp, low plasticity, no pores and paths, majority fines, fill material; wood chips	fill material from former debris dumpage area
2		CL		GRAVELS and Coarse SAND, GLEY4/10Y weak structure, loose, poor gradation, wet, nonplastic, many pores and paths in between gravels, 15% Fines, fill material	fill material from former debris dumpage area
3				Sandy CLAY, 5Y4/1, 5Y3/1, moderate to strong structure, stiff, poor gradation, moist, medium plasticity few pores and paths in between sand, majority fines, fill material	
4					
5					
6					
7		ML		SILT, 10YR2/1, weak structure, soft, poor gradation, moist, low plasticity, many pores and paths in between peat, loose sediment, majority fines, peat material; strong H2S odor	former wetlands/intertidal sediment
8					
9					
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		LOG OF SOIL BORING:	WHSSBG06	

SILT continued

11

End of Boring at 11.0 ft

12

13

14

15

16

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21

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS: Geoprobe		

LOG OF SOIL BORING: **WHSSBH07**	Water Level				START	FINISH
Coordinates: Wood Hogger Site	Time				TIME	TIME
	Date				DATE 8/24/95	DATE 8/24/95

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.8	CL		Sandy CLAY with Gravel, 10YR4/2, 10YR5/4, moderate structure, medium stiff, poor gradation, moist, medium plasticity, many pores & paths in between sand, gravels, saturated sediment, majority fines, gravels, wood pieces, fill material, gw at 1' bgs; sweet odor	fill material overlying former wood dumpage
1		WOOD		WOOD, weak structure, loose, poor gradation, wet, nonplastic, many pores and paths in between wood, 0% fines, wood chunks, wood	wood and wood chips
2		FILL		DEBRIS; wood, concrete, 10YR4/6, weak structure, dense, damp to wet, nonplastic, many pores and paths in between wood, through soaked wood, 0% fines, wood pieces, concrete over 1' in thickness, refusal at 1' due to large wood pieces and concrete	wood dumpage and concrete material; fill material
3		ML		SILT, 2.5Y3/1, weak structure, very soft, poor gradation, moist, low plasticity, few pores and paths in between rootlets, loose sediment, saturated, majority fines, some peat; strong organic odor	former intertidal/wetlanc sediment
4	1.3				
5					
6					
7					
8					
9					
				End of Boring at 9.5 ft	
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: WHSSBK06	Water Level				START	FINISH
Coordinates: Wood Hogger Site	Time				TIME	TIME
	Date				DATE 7/20/95	DATE 7/20/95

SURFACE CONDITIONS: grasses

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.0	ML		Sandy SILT with Gravels, 10YR2/2, weak structure, very soft, poor gradation, damp, low plasticity, few pores and paths in and around large gravels, majority fines, wood chips/gravels	surface sediment with gravel base from FAA tower
1		CL		Sandy CLAY, 10YR4/2, moderate structure, soft, poor gradation, moist, medium plasticity, no pores and paths, majority fines	fill material to build up slightly higher elevation for tower
		CL			fine clays to build up slightly higher elvation for tower
2		FILL		Silty CLAY, 10YR3/2, strong structure, soft, poor gradation, moist, high plasticity, no pores and paths, majority fines	stacked wood that decayed; soil placed on top of wood
3				Decayed WOOD, 10YR3/1, weak structure, soft, wet, nonplastic, many pores and paths in between wood chunks, 10% Fines, Wood, Decayed Wood	
4		CL		Sandy CLAY, 10YR2/2, weak structure, very soft, poor gradation, wet, low plasticity, few pores and paths in between sand, majority fines, wood chips	fill material from FAA tower
5					
6		CL		Sandy CLAY, 5Y3/1, moderate structure, medium stiff, poor gradation, wet, medium plasticity, no pores and paths, majority fines, peat	surface sediment/marsh sediment
7					
8					
9					
10				End of Boring at 10.0 ft	

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

LOG OF SOIL BORING: **WHSSBL03**	Water Level				START	FINISH
Coordinates: Wood Hogger Site	Time				TIME	TIME
	Date				DATE 7/21/95	DATE 7/21/95

SURFACE CONDITIONS: road base

GEOLOGIST: Y.LEUNG

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	1.9	SC		Clayey SAND with Gravels, 10YR5/4, strong structure, hard, poor gradation, dry, low plasticity, many pores and paths in between sand and gravels, 30% fines, gravel base to rail road tracks, wood, hillside leading to rail road tracks	road base fill material
1					
2		CL		Sandy CLAY, 10YR5/6, moderate structure, stiff, poor gradation, moist to very moist, low plasticity, no pores and paths, majority fines	road base fill material
3					
4		GW		Well Graded GRAVELS with Clayey Sand, Quartz, 10YR5/6, weak structure, dense, well gradation, wet, low plasticity, many pores and paths in between gravels, 15% fines	road base fill material
5					
6		CL		Silty CLAY, 10YR3/1, moderate structure, stiff, poor gradation, moist, medium plasticity, few pores and paths in between peat roots, majority fines, methane odor; clay becomes stiffer with depth	intertidal marsh
7					
8					
9				End of Boring at 10.0 ft	
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		DRILLING AND SAMPLING METHODS	Hand Geoprobe	

Water Level				START	FINISH
Time				TIME	TIME
Date				DATE 7/28/95	DATE 7/28/95

LOG OF SOIL BORING: **WHSSBM08**

Coordinates: **Wood Hogger Site**

SURFACE CONDITIONS: **sparse grasses**

GEOLOGIST: **Y.LEUNG**

DEPTH (ft)	PID (ppm)	USCS	GRAPHIC LOG		FEATURES/REMARKS
	0.4	CL		Sandy CLAY with Gravel, 5Y3/2, weak to moderate structure, medium stiff, poor gradation, wet, low plasticity, many pores and paths in between sand, gravels, majority fines, expended bullet casings, gravel road base, oil & reosote from overlying RR structure	intertidal marsh overlying former road base/layered fill w/intertidal surface sediment
1					
2		GC		GRAVEL with Sandy Clay, 5Y5/3, weak structure, medium stiff, poor gradation, wet, low plasticity, many pores and paths in between gravels, 30% fines, gravel road base	road base fillmaterial underlying former road structure
3		CH		Fat Silty CLAY, 10YR4/2, GLEY3/10Y, strong structure, hard, poor gradation, damp, high plasticity, no pores and paths, majority fines, very compacted clays	possible compacted fill material underlying the road base gravels
4		CL		Silty CLAY with Sand, 5Y4/2, moderate structure, stiff, poor gradation, damp, medium plasticity, no pores and paths, majority fines	possible fill from former road/intertidal marsh sediment
5					
6					
7				Contact unknown sample unattainable	
8					
9	2.3	ML		SILT, 10YR2/1, weak structure, soft, poor gradation, moist, low plasticity, many pores and paths in between peat and roots, majority fines, very strong sulfur odor	intertidal marsh sediment
10					

MONTGOMERY WATSON	365 Lennon Lane Walnut Creek, California 94598 (510) 975-3400	CLIENT CONCORD WPNSTA	PROJECT NUMBER CTO 281	LOCATION TIDAL AREA
		LOG OF SOIL BORING:	WHSSBM08	

					SILT continued
11					End of Boring at 11.0 ft
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					

SWMU 37

BORING LOGS

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-01

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 1.51 ft. MSL
DATE DRILLED: 11-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
		SS005	0.0	PUSH		ML	FILL (af) SANDY SILT (ML), yellowish brown (10YR 5/6), low plasticity, very fine-grained sand, poorly graded, damp to moist, with trace angular to subrounded gravel Concrete fragments in shoe Refusal @ 3 ft. T.D. of boring @ 3.0 feet	
10								
20								
30								

* Field screening Analytical Results

SHEET: 1 of 1

???(??)(???-????) ???????.DWG 11/??/?? PLOT 1=1 ROD1

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-02

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044--0283	SURFACE ELEVATION: 3.16 ft. MSL
DATE DRILLED: 13-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
		SS007	0.0	PUSH		GW	FILL (af)	
						SM	SILTY GRAVEL (GW), gray (2.5Y 5/1), subangular to subrounded, well graded, damp, loose	
							COLLUVIUM (Qco)	
		SS008	0.0	PUSH			SILTY SAND (SM), yellowish brown (10YR 5/6), very fine-grained, poorly graded, dense, damp	
							Water level @ 1.0 ft. bgs	
							Saturated @ 4.5 ft.	
							Refusal @ 5 ft.	
							T.D. of boring @ 5.0 feet	
10								
20								
30								

* Field screening Analytical Results

SHEET: 1 of 1

???(??)(???-????)????????.DWG ??/??/?? PLOT 1=1 R001

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-03

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 2.44 ft. MSL
DATE DRILLED: 13-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
		SS009	0.0	PUSH		GW	FILL (af) SILTY GRAVEL (GW), gray (5Y 5/1), subangular to subrounded, well graded, damp, loose to medium dense, with trace fine-grained sand Moist @ 2.5 ft. Water level @ 3.3 ft. bgs	
		SS010	0.0	PUSH		SM	COLLUVIUM (Qco) SILTY SAND (SM), yellowish brown (10YR 5/8) and dark grayish brown (2.5Y 4/2), mottled, very fine-grained, poorly graded, damp, medium dense	
							T.D. of boring @ 7.0 feet	
10								
20								
30								

* Field screening Analytical Results

???(??)(???-????) ????????.DWG ??/??/?? PLOT 1=1 R001

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-04

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 2.46 ft. MSL
DATE DRILLED: 13-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
		SS011	0.0	PUSH		GW	FILL (af)	
						ML	SILTY GRAVEL (GW), gray (5Y 5/1), angular to subrounded, well graded, damp, medium dense, with little fine-grained sand	
							FILL (af)	
						GW	SANDY SILT (ML), light olive brown (2.5Y 5/4) and yellowish brown (10YR 5/6), mottled, low plasticity, very fine-grained sand, poorly graded, damp, medium stiff	
		SS012	0.0	PUSH		ML	FILL (af)	
							SILTY GRAVEL (GW), very dark gray (2.5Y 3/1), angular to subrounded, well graded, moist, dense, with little fine-grained sand	
10							FILL (af)	
							GRAVELLY SILT (GW), yellowish brown (10YR 5/6), with dark gray (10YR 4/1) gravel, low plasticity, damp, stiff, with little sand	
							Refusal @ 6 ft.	
							T.D. of boring @ 6.0 feet	
20								
30								

* Field screening Analytical Results

SHEET: 1 of 1

???(??)(???-???) ????????.DWG ??/??/?? PLOT 1=1 R001

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-05

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 4.5 ft. MSL
DATE DRILLED: 17-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
	■	SS021	0.0	PUSH		GW	ASPHALT (~1 in.) FILL (af) SANDY GRAVEL (GW), gray (2.5Y 5/1) gravels with yellowish brown (10YR 5/6) fine-grained sand, well graded, angular to subangular, damp, loose	
	■	SS022	0.0	PUSH		ML	COLLUVIUM (Qco) SANDY SILT (ML), dark grayish brown (2.5Y 4/2) and olive gray (5Y 4/2), mottled, low plasticity, very fine-grained sand, poorly graded, damp, medium stiff	
							T.D. of boring @ 7.0 feet	
10								
20								
30								

* Field screening Analytical Results

???(??)(???-???) ??????.DWG ??/??/?? PLOT 1=1 R001

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-06

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 5.92 ft. MSL
DATE DRILLED: 17-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
	■	SS023	0.0	PUSH		SM	ASPHALT (~1 in.) over BASEROCK (~4 in.) COLLUVIUM (Qco) SILTY SAND (SM), yellowish brown (10YR 5/6), very fine-grained, poorly graded, damp, medium dense Color changes to olive brown (2.5Y 4/4)	
	■	SS024	0.0	PUSH		SP	COLLUVIUM (Qco) SAND (SP), olive brown (2.5Y 4/4), fine-grained, poorly graded, wet, medium dense, with trace silt	
10							T.D. of boring @ 7.0 feet	
20								
30								

* Field screening Analytical Results

SHEET: 1 of 1

mm(rr)(mm-mm)mmmm.DWG rr/rr/rr PLOT 1=1 R001

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-07

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 2.2 ft. MSL
DATE DRILLED: 13-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
		SS013	0.0	PUSH		GW	FILL (af) SILTY GRAVEL (GW), gray (5Y 5/1), angular to subrounded, well graded, damp, medium dense	
						ML	FILL (af) SANDY SILT (ML), yellowish brown (10YR 5/6), low plasticity, very fine-grained sand, poorly graded, moist, medium stiff, with trace gravel	
		SS014	0.0	PUSH		SM	COLLUVIUM (Qco) SILTY SAND (SM), light brown (2.5Y 5/4) and olive brown (2.5Y 4/3), mottled, very fine-grained, poorly graded, wet, medium dense, with trace clay	
10							T.D. of boring @ 7.0 feet	
20								
30								

* Field screening Analytical Results

SHEET: 1 of 1

mm(rr)(mm-rrrr) rrrrrrrr.DWG tt/rr/rr PLOT 1=1 R001

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-08

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 1.44 ft. MSL
DATE DRILLED: 11-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
		SS001	0.0	PUSH		ML	FILL (af) SANDY SILT (ML), yellowish brown (10YR 5/8), low plasticity, fine-grained sand, poorly graded, damp, medium dense with trace gravel Change to moist	
		SS002	0.0	PUSH			FILL (af) CLAYEY SILT (ML), yellow brown (10YR 5/8) with dark gray (N4) mottling, medium plasticity, moist, medium soft ASPHALT Refusal @ 6 ft.	
10							T.D. of boring @ 6.0 feet	
20								
30								

* Field screening Analytical Results

SHEET: 1 of 1

???(??)(???-???)???????.DWG ??/??/?? PLOT 1=1 ROOT

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-09

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 1.37 ft. MSL
DATE DRILLED: 11-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. VERNIMEN	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
		SS003	0.0	PUSH		ML	FILL (af) SANDY SILT (ML), yellowish brown (10YR 5/6), low plasticity, very fine-grained sand, poorly graded, damp, stiff with trace angular gravel	
		SS004	0.0	PUSH		GW	FILL (af) SILTY GRAVEL (GW), gray (7.5YR 5/1), angular to subangular, well graded, damp, dense Asphalt @ 5.4 ft., refusal @ 5.5 ft.	
10							T.D. of boring @ 5.5 feet	
20								
30								

* Field screening Analytical Results

SHEET: 1 of 1

???(??)(???-????)???????.DWG ??/??/?? PLOT 1=1 R001

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-10

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 0.77 ft. MSL
DATE DRILLED: 17-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
		SS025	0.0	PUSH		ML	ASPHALT (~3 in.) over BASEROCK (~2 in.) FILL (af) SANDY SILT (ML), olive brown (2.5Y 4/3) and dark yellowish brown (10YR 4/4), mottled, low plasticity, very fine-grained sand, poorly graded, moist, medium stiff, with little subrounded gravel	
		SS026	0.0				Color change to very dark gray (5Y 3/1) @ 3.5 ft. Refusal @ 4 ft.	
							T.D. of boring @ 4.0 feet	
10								
20								
30								

* Field screening Analytical Results

???(??)(???-???) ???????.DWG ??/??/?? PLOT 1=1 R001

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-11

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 3.93 ft. MSL
DATE DRILLED: 18-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
	■	SS028	0.0	PUSH		GW	ASPHALT (~1 in.)	
						SP	FILL (af)	
						SM	SILTY GRAVEL (GW), very dark gray (5Y 3/1), subangular to subrounded, well graded, damp, loose	
							FILL (af)	
							SAND (SP), yellowish brown (10YR 5/6), very fine-grained, poorly graded, damp, medium dense	
	■	SS029	0.0	PUSH		SP	COLLUVIUM (Qco)	
							SILTY SAND (SM), very dark grayish brown (2.5Y 3/2), very fine-grained, poorly graded, moist, dense	
						ML	Trace asphaltic gravel @ 2 ft.	
							COLLUVIUM (Qco)	
							SAND (SP), very dark grayish brown (2.5Y 3/2), medium-grained, poorly graded, saturated, medium dense	
10						CL	COLLUVIUM (Qco)	
							SANDY SILT (ML), yellowish brown (10YR 5/6) and dark gray (10YR 4/1), mottled, low plasticity, very fine-grained sand, poorly graded, moist, stiff, with trace siltstone fragments	
							YOUNGER BAY MUD (Qyb)	
							SILTY CLAY (CL), very dark gray (5Y 3/1), medium plasticity, wet, soft, with little decayed organic material	
							T.D. of boring @ 11.0 feet	
20								
30								

* Field screening Analytical Results

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-12

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 1.88 ft. MSL
DATE DRILLED: 14-APR-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. VERNIMEN	DRILLING COMPANY: PRC EMI

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
		SS016	0.0	PUSH		ML	FILL (af) SANDY SILT (ML), yellowish brown (10YR 5/8) and olive brown (2.5Y 4/3), mottled, low plasticity, very fine-grained sand, poorly graded, damp, medium stiff, with trace gravel and wood pieces Color change to yellowish brown (10YR 5/8) @ 4 ft., moist, minus wood pieces	
		SS017	0.0	PUSH			COLLUVIUM (Qco) SANDY SILT (ML), yellowish brown (10YR 5/8), medium plasticity, very fine-grained sand, poorly graded, moist, medium stiff, with trace clay Color grading to olive gray (5Y 4/2) and dark yellowish brown (10YR 4/4) @ 7.5 ft., mottled Wet @ 10 ft. Saturated @ 10.5 ft.	
10							COLLUVIUM (Qco) CLAYEY SILT (ML), olive gray (5Y 4/2) and yellowish brown (10YR 5/6), mottled, medium plasticity, moist, medium stiff, with trace fine-grained sand	
							T.D. of boring @ 13.0 feet	
20								
30								

(**)(-****)*******.DWG **/**/** PLOT 1=1 R001

* Field screening Analytical Results

SHEET: 1 of 1

PRC ENVIRONMENTAL MANAGEMENT, INC.

LOG OF GEOPROBE BORING
37-13

PROJECT: INLAND/TIDAL AREA SI	LOCATION: SWMU 37
PROJECT NO.: 044-0283	SURFACE ELEVATION: 3.93 ft. MSL
DATE DRILLED: 13-OCT-95	DRILLING METHOD: GEOPROBE
LOGGED BY: R. Vernimen	DRILLING COMPANY: VIRONEX

ELEVATION (FEET) DEPTH	SAMPLE	SAMPLE NO.	PID (ppm)	BLOWS/FT.	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	CHEMICAL CONCENTRATIONS * (mg/kg) ▲ Diesel ■ Gasoline
						GW	ASPHALT (~1 in.)	
						SP	FILL (af)	
						SM	SILTY GRAVEL (GW), very dark gray (5Y 3/1), subangular to subrounded, well graded, damp, loose	
							FILL (af)	
							SAND (SP), yellowish brown (10YR 5/6), very fine-grained, poorly graded, damp, medium dense	
							COLLUVIUM (Qco)	
						SP	SILTY SAND (SM), very dark grayish brown (2.5Y 3/2), very fine-grained, poorly graded, moist, dense	
						ML	COLLUVIUM (Qco)	
							SAND (SP), very dark grayish brown (2.5Y 3/2), medium-grained, poorly graded, moist, medium dense	
10							COLLUVIUM (Qco)	
						CL	SANDY SILT (ML), yellowish brown (10YR 5/6) and dark gray (10YR 4/1), mottled, low plasticity, very fine-grained sand, poorly graded, moist, stiff, with trace siltstone fragments	
							YOUNGER BAY MUD (Qyb)	
							SILTY CLAY (CL), very dark gray (5Y 3/1), medium plasticity, wet, soft, with little decayed organic material	
							T.D. of boring @ 12.0 feet	
20								
30								

* Field screening Analytical Results

SHEET: 1 of 1

SOIL BORING AND PIEZOMETER LITHOLOGIC LOGS FROM

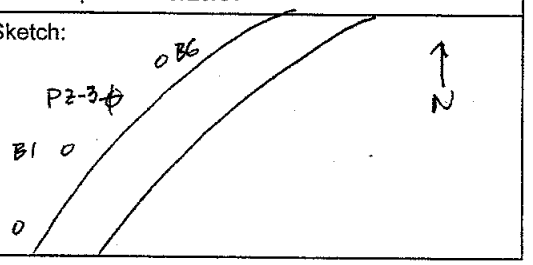
1998 GROUNDWATER CONFIRMATION STUDY TECHNICAL MEMORANDUM

TETRA TECH EM INC.

SOIL BORING AND WELL INSTALLATION LOG

CTO:
Bldg./Site:
Project:

Boring Number: B1	Date Started/Completed: 9/29/97
Drilling Method: Hollow stem auger, continuous sampling	Location Sketch:
Outer Diameter of Boring: 8"	
Inner Diameter of Well Casing: N/A	
Depth to Water (ft. bgs., date): N/A	
Driller: Woodward Drilling, Rio Vista, CA	
Logged By: Rik Lantz, R.G.	



Soil Boring B1

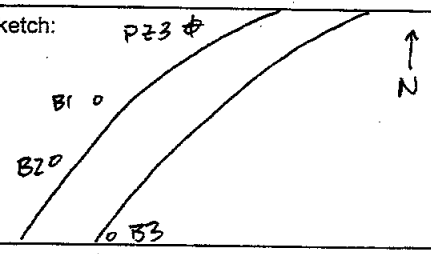
Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Lithologic Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1				GRAVEL, coarse, angular, sandy	GP		
2		24/4	10/13/18/18	SILT, dark brown to black, stiff, laminated, with some fine sand and mica flakes	ML		
4		24/2	4/3/3/4	SILTY SAND, medium, brown, moist	SP		
6		24/24	1/1/2/3	SILTY CLAY, dark gray	C		
				PEAT, black, loose, wet	PT		
7				SILTY CLAY, black, organic-rich 7.25 - 8.0 is about 50% peat, slight septic odor	C		
8				Total Depth = 8'			
9							
10							

TETRA TECH EM INC.

SOIL BORING AND WELL INSTALLATION LOG

CTO:
Bldg./Site:
Project:

Boring Number: B3	Date Started/Completed: 9/29/97
Drilling Method: Hollow stem auger, continuous sampling	Location Sketch:
Outer Diameter of Boring: 8"	
Inner Diameter of Well Casing: N/A	
Depth to Water (ft. bgs., date):	
Driller: Woodward Drilling, Rio Vista, CA	
Logged By: Rik Lantz, R.G.	



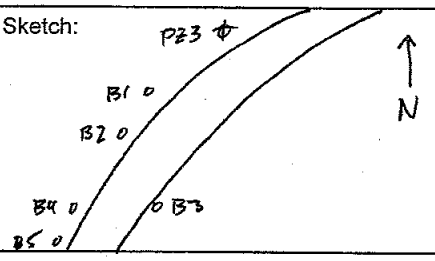
Soil Boring B3

Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Lithologic Description	USCS Soil Symbol	Well Construction	OVM (ppm)
				GRAVEL, sandy			
1							
2		24/18	11/16/11/12				
				SILT, tightly packed			
3				SAND, brown, medium grained, loose, dry			
4		24/24					
5				becomes wet at 5'			
				SILTY CLAY, light gray, very plastic, moist			
6				SILTY CLAY, black, stiff (peat layer 5.5 - 5.6)			
		24/24		SILTY CLAY, light gray, wet			
7				SILTY CLAY, light gray, very plastic, moist			
				SILTY CLAY, black, organic rich			
8				Total Depth = 8'			
9							
10							

TETRA TECH EM INC.

SOIL BORING AND WELL INSTALLATION LOG

CTO:
Bldg./Site:
Project:

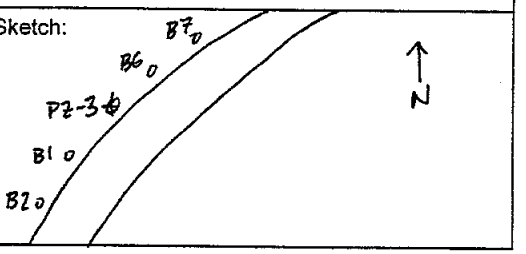
Boring Number: B5	Date Started/Completed: 9/29/97
Drilling Method: Hollow stem auger, continuous sampling	Location Sketch: 
Outer Diameter of Boring: 8"	
Inner Diameter of Well Casing: N/A	
Depth to Water (ft. bgs., date):	
Driller: Woodward Drilling, Rio Vista, CA	
Logged By: Rik Lantz, R.G.	

Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Soil Boring B5 Lithologic Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1				GRAVEL, coarse, angular, with sand and silt matrix	GP		
2		24/12	7/10/19/19	SILTY CLAY, laminated, mottled, Fe-stained, very stiff	C		
3				SAND, brown, medium grained, loose, moist			
4		24/18	5/5/7/8		SP		
5				silty intervals at 4 - 6'			
6		24/24	1/2/3/4	SILTY CLAY, dark gray, stiff	C		
7				SILTY CLAY, black, organic rich with peat intervals	C		
8				Total Depth = 8'			
9							
10							

TETRA TECH EM INC.

SOIL BORING AND WELL INSTALLATION LOG

CTO:
Bldg./Site:
Project:

Boring Number: B7	Date Started/Completed: 9/29/97
Drilling Method: Hollow stem auger, continuous sampling	Location Sketch: 
Outer Diameter of Boring: 8"	
Inner Diameter of Well Casing: N/A	
Depth to Water (ft. bgs., date):	
Driller: Woodward Drilling, Rio Vista, CA	
Logged By: Rik Lantz, R.G.	

Soil Boring B7

Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Lithologic Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1				GRAVEL, coarse, silty and sandy	GP		
2		24/12	8/20/14/18	SILTY CLAY, mottled, stiff, with abundant sand and fine gravel	C		
3							
4		24/16	2/4/4/3	SAND, brown, fine to medium grained, loose, micaceous	SP		
5							
6		24/24	1/1/2/2	SILTY CLAY, dark gray, moist, very soft	C		
				PEAT, black, wet	PT		
7				SILTY CLAY, black, organic rich, soft, moist	C		
8				Total Depth = 8'			
9							
10							

Soil Boring B9

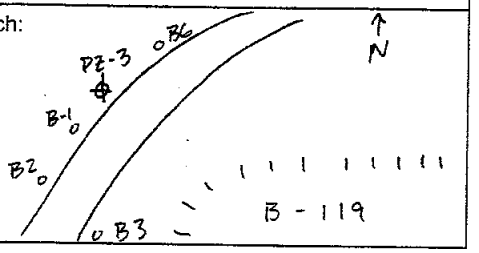
Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Lithologic Description	USCS Soil Symbol	Well Construction	OVM (ppm)
		24/18	4/5/7/8	SAND, tan, soft, wet, loose	SP		0
11				SILTY CLAY, tan, very stiff	C		
12		24/24	3/6/10/10	SAND, tan, soft, wet, loose	SP		0
13				SILTY CLAY, tan, very stiff, dry, uniform			
14		24/24	3/5/7/9				0
15							
16		24/20	3/4/6/10	becomes moist and less stiff			0
17					C		
18		24/20	3/7/8/10	same, medium stiff, moist			0
19							
20		24/20	4/6/9/13	same, medium stiff, moist			0
21							
22		24/22	4/5/8/11	same, medium stiff, moist			0
23				Angular 1-inch limestone pebble, @ 23'			
24							

TETRA TECH EM INC.

SOIL BORING AND WELL INSTALLATION LOG

CTO: 044-0281
Bldg./Site:
Project: Concord Tidal Area

Boring Number: PZ3	Date Started/Completed: 9/29/97
Drilling Method: Hollow stem auger, continuous sampling	Location Sketch:
Outer Diameter of Boring: 10"	
Inner Diameter of Well Casing 4"	
Depth to Water (ft. bgs., date) 6.6, 10/3/97	
Driller: Woodward Drilling, Rio Vista, CA	
Logged By: Rik Lantz, R.G.	



Piezometer PZ3

Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Lithologic Description	USCS Soil Symbol	OVM (ppm)
1				GRAVEL, Coarse, with sand and silt	GM	
2		24/0	11/17/20/19	No sample recovery, 2-6'		0
3						
4		24/0	4/6/5/3			0
5						
6		24/20	2/1/1/2	SILTY SAND, loose brown, fine to medium, micaceous	SM	0
7				SILTY CLAY, soft, black, with abundant organics and peat lenses	C	
8		24/22	1/2/2/5	SILTY SAND, Loose, brown, fine to medium	SM	0
9				SILTY CLAY, stiff, gray, with rare organic material	C	
10						

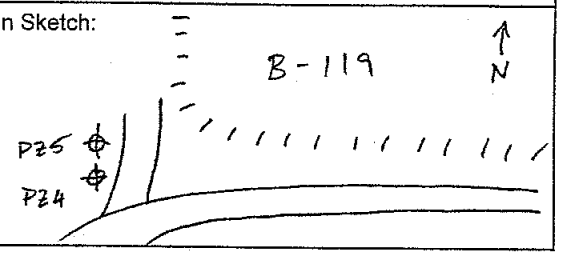
Well Construction

TETRA TECH EM INC.

SOIL BORING AND WELL INSTALLATION LOG

CTO:
Bldg./Site:
Project:

Boring Number: PZ4	Date Started/Completed: 9/29/97
Drilling Method: Hollow stem auger, continuous sampling	Location Sketch:
Outer Diameter of Boring: 10"	
Inner Diameter of Well Casing: 4"	
Depth to Water (ft. bgs., date) 6.4, 10/3/97	
Driller: Woodward Drilling, Rio Vista, CA	
Logged By: Rik Lantz, R.G.	



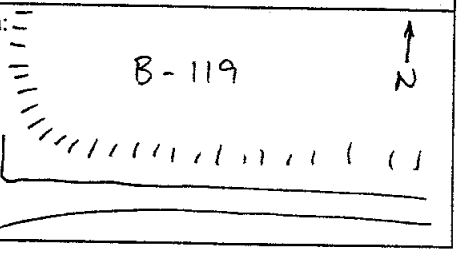
Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Piezometer PZ4 Lithologic Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1				GRAVEL, coarse, with fine sand and silt matrix	GM		
2				SILTY SAND, light tan, fine	SM		
3				SILTY CLAY, brown, mottled, fine	C		
4				SAND, brown, moist, medium	SP		
		24/12	2/3/2/3				
5				GRAVEL, gray, fine, rounded	GP		0
6				SILTY CLAY, dark gray, plastic, moist			
		24/18	3/3/4/5	becomes mottled with root holes	C	▼	0
7							
8				Greenish hue on separation surfaces			
		24/20	3/4/5/7				
9				SILTY CLAY, greenish gray, mottled, stiff with light tan irregular dry silty zones	C		0
10							

TETRA TECH EM INC.

SOIL BORING AND WELL INSTALLATION LOG

CTO:
Bldg./Site:
Project:

Boring Number: PZ5	Date Started/Completed: 9/29/97
Drilling Method: Hollow stem auger, continuous sampling	Location Sketch:
Outer Diameter of Boring: 10"	
Inner Diameter of Well Casing: 4"	
Depth to Water (ft. bgs., date) 8.5 (rising), 10/15/97	
Driller: Woodward Drilling, Rio Vista, CA	
Logged By: Rik Lantz, R.G.	

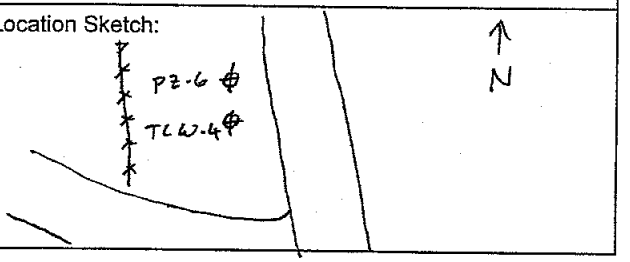


Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Piezometer PZ5 Lithologic Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1				GRAVEL, coarse, with fine sand and silt matrix	GM		
2				SILTY SAND, light tan, fine	SM		
3				SILTY CLAY, brown, mottled, fine	C		
4				SAND, brown, moist, medium	SP		
		24/12	2/3/2/3				
5				GRAVEL, gray, fine, rounded	GP		0
6				SILTY CLAY, dark gray, plastic, moist			
		24/18	3/3/4/5	becomes mottled with root holes	C		
7							0
8							
		24/20	3/4/5/7	Greenish hue on separation surfaces			
9				SILTY CLAY, greenish gray, mottled, stiff with light tan irregular dry silty zones	C		0
10							

TETRA TECH EM INC.

SOIL BORING AND WELL INSTALLATION LOG

CTO:
Bldg./Site:
Project:

Boring Number: B8 (PZ-6)	Date Started/Completed: 10/2/97
Drilling Method: Hollow stem auger, continuous sampling	Location Sketch: 
Outer Diameter of Boring: 10"	
Inner Diameter of Well Casing 4":	
Depth to Water (ft. bgs., date) 7.0, 10/3/97	
Driller: Woodward Drilling, Rio Vista, CA	
Logged By: Rik Lantz, R.G.	

Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Piezometer PZ-6 Lithologic Description	USCS Soil Symbol	Well Construction	OVM (ppm)
				SILTY CLAY, brown, dry	C		
1							
2		24/10	7/10/15/14	SILTY CLAY, dark gray, very stiff, with irregular sand bodies	C		0
3							
				SILTY SAND, tan fine	SW		
4		24/6	4/5/7/6	SILTY CLAY, dark gray, moist	C		0
5							
6		24/24	3/4/6/8	SILTY CLAY, medium brown, stiff, moist, uniform	C	▼	0
7							
8		24/24	3/5/7/13	Same, with fine sandy zones			0
9							
10				Becomes soft			

Piezometer PZ-6

Depth (ft) bgs	Sample Number	Drive Interval/ Recovered Interval	Blow Count (per 6 inches)	Lithologic Description	USCS Soil Symbol	Well Construction	OVM (ppm)
		24/20	4/5/6/7	CLAYEY SILT, tan, very stiff, wet	ML		0
25							
26				Total Depth = 26′			

APPENDIX H

QUALITY CONTROL SUMMARY REPORT

APPENDIX H

QUALITY CONTROL SUMMARY REPORT

CONTENTS

Section **Page**

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APPENDIX H

QUALITY CONTROL SUMMARY REPORT

ABBREVIATIONS AND ACRONYMS

APHA	American Public Health Association
ASTM	American Society of Testing and Materials
BFB	Bromofluorobenzene
CCV	Continuing calibration verification
CLP	Contract Laboratory Program
CFR	Code of Federal Regulations
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
%D	Percent difference
DFTPP	Decafluorotriphenylphosphine
ECD	Electron capture detector
EPA	U.S. Environmental Protection Agency
FSAP	Field sampling and analysis plan
GC/MS	Gas chromatography/mass spectrometry
GFAA	Graphite furnace atomic absorption
GPC	Gel-permeation chromatography
ICPES	Inductively coupled plasma emission spectrophotometer
ICV	Initial calibration verification
IDL	Instrument detection limit
LCS	Laboratory control sample
LUFT	Leaking Underground Fuel Tank
MCAWW	Methods for Chemical Analysis of Water and Wastes
MS/MSD	Matrix spike/matrix spike duplicate
MSA	Method of standard addition
NIST	National Institute of Standards and Technology
NWS	Weapons Station
PARCC	Precision, accuracy, representativeness, completeness, and comparability

ABBREVIATIONS AND ACRONYMS (Continued)

PCB	Polychlorinated biphenyl
PRC	PRC Environmental Management, Inc.
QA/QC	Quality assurance and quality control
QAPjP	Quality assurance project plan
QCSR	Quality control summary report
%R	Percent recovery
RAGS	Risk Assessment Guidance for Superfund
RI	Remedial investigation
RPD	Relative percent difference
RRF	Relative response factor
RRT	Relative retention time
%RSD	Percent relative standard deviation
SDG	Sample delivery group
SMEWW	Standard Methods for the Evaluation of Water and Wastewater
TIC	Tentatively identified compound
TOC	Total organic carbon
TPH	Total petroleum hydrocarbons
WET	Waste extraction test
±	Plus or minus

1.0 INTRODUCTION

This data quality control summary report (QCSR) presents results of the chemical and quality control data gathered during the remedial investigation (RI) field effort for the tidal area sites at Naval Weapons Station (NWS) Concord. Field activities were conducted from January 18, 1993 through October 26, 1995. Sites in the Tidal Area include Site 1: Tidal Area Landfill, Site 2: R Area Disposal Site, Site 9: Froid and Taylor Roads, and Site 11: Wood Hogger Site. This report consists of five sections. Section 2.0 provides an overview of the data validation process. Sections 3.0 and 4.0 present the data validation methodology and the validated results for cursory and full review, respectively. Section 5.0 summarizes the precision, accuracy, representativeness, completeness, and comparability (PARCC) evaluation, and Section 6.0 presents conclusions regarding the overall evaluation of the chemical data.

2.0 VALIDATION METHODOLOGY

Data validation is a systematic process for reviewing and qualifying data against a set of criteria to ensure that the chemical data are adequate for their intended use. Validation is accomplished by reviewing and evaluating all analytical data for precision, accuracy, representativeness, completeness, and comparability (PARCC). The laboratory analytical data generated during the NWS Concord RI were validated according to procedures outlined in the Contract Laboratory Program (CLP), "National Functional Guidelines for Organic Data Review" (EPA 1990a); CLP "National Functional Guidelines for Inorganic Data Review" (EPA 1994); the NWS Concord RI quality assurance project plan (QAPjP) draft final (PRC Environmental Management, Inc. [PRC] October 1994); and the associated analytical methods.

Data validation occurred in two stages: (1) a cursory review of the analytical reports and the quality assurance and quality control (QA/QC) information for 100 percent of the chemical data and (2) a full review of the analytical reports, the QA/QC information, and the associated raw data for 10 percent of the chemical data. The cursory review evaluated the effect the most critical QA/QC information had on the data, such as holding times, calibration requirements, and spiking accuracy. The full review evaluated additional QA/QC criteria and used the raw data to check calculations and analyte

identifications. At each stage of validation, qualifiers were assigned to the results according to U.S. Environmental Protection Agency (EPA) guidelines, procedures outlined in the QAPjP, and associated analytical methods.

The overall objective of data validation was to ensure that the quality of the chemical data set was adequate for its intended purpose, as defined by the PARCC parameters. The PARCC parameters are defined in the EPA document "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, Draft Supplement" (EPA 1986). PARCC parameters were assessed by completing the following tasks:

- Reviewing precision and accuracy of laboratory QC data
- Reviewing precision and accuracy of field QC data
- Reviewing overall analytical process; including holding times, calibrations, analytical
- or matrix performance, and analyte identification and quantitation
- Assigning qualifiers to data affected by QA/QC exceedances
- Reviewing and summarizing implications of the frequency and severity of qualifiers in the validated data

Between January 18, 1993 and October 26, 1995, a total of 503 samples were collected and analyzed as part of the off-site analytical program. The 503 samples included of the following matrices: soil (351 original soil samples and 1 duplicate soil sample), sediment (8), and water (143). Of the 143 water samples, 75 were collected from surface water (67 original samples and 8 duplicate samples); 12 were from wells (11 original samples and 1 duplicate sample); and 56 were field QA/QC samples (28 trip blanks, 27 equipment blanks, and 1 field blank). The tables which follow the text summarize data for 475 samples which were qualified with numerical comment codes. Analyses were conducted in accordance with the EPA CLP (1990a, 1994) and SW-846 (EPA 1992) methods, unless otherwise noted.

- CLP volatiles (VOA)
- CLP semivolatiles (SVOA)
- Low-level CLP semivolatiles (SVOA)

- CLP pesticides/polychlorinated biphenyls (PCB)
- Low-level CLP pesticides/polychlorinated biphenyls (PCB)
- CLP metals
- Total petroleum hydrocarbons (TPH)-purgeables (Appendix D of the State of California Leaking Underground Fuel Tank [LUFT] Field Manual [LUFT Task Force 1989] and EPA Method 5030/8015)
- TPH-extractables (LUFT Field Manual and EPA Method 8015)
- Aromatic volatiles (EPA Method 5030/8020)
- Dioxins (EPA Method 8280)
- Explosives (EPA Method 8330)
- Hexavalent chromium (EPA Method 7196)
- Total organic carbon (TOC) (Standard Methods for the Evaluation of Water and Wastewater [SMEWW] Method 5310B) (American Public Health Association [APHA] 1992)
- pH (EPA Method 9040/9045)
- Sulfides (MCAWW Method 376.1)
- Total suspended solids (MCAWW Method 160.1)
- Modified waste extraction test (WET) for CLP metals (State of California 1990)

The analytical methods and references, as well as sample holding times, containers, and preservation, are listed in Table K-1, which follows Section 6.0 of this QCSR.

3.0 CURSORY REVIEW

Cursory review of the analytical reports for CLP organic, CLP inorganic, and non-CLP methods included the evaluation of the following parameters, as applicable: holding times, initial and continuing calibrations, field and laboratory blank results, laboratory control sample (LCS) or blank spike results, matrix spike/matrix spike duplicate (MS/MSD) results, field and laboratory matrix duplicate results, surrogate recoveries, internal standard performance, inductively coupled plasma emission spectrophotometer (ICPES) serial dilutions, and overall assessment of the data. Cursory review

components and the results of each specific review are detailed below in Sections 3.1 through 3.6. Section 3.7 discusses results that were reported below the contract required quantitation limit (CRQL). Tables K-1 through K-13 summarize the data validation findings and are included following Section 6.0 of this QCSR. Only analytes with qualified data are included in the tables.

3.1 HOLDING TIMES

One objective of data validation was to assess the validity of the chemical data set based on compliance with technical holding times. Technical holding times were defined as the maximum time allowable between sample collection and, as applicable, sample extraction, preparation, and analysis. The Clean Water Act of 1984 (40 Code of Federal Regulations [CFR] 136) established technical requirements for water holding times and preservation (Federal Register 1984). EPA has not yet established technical holding times for soils (and other nonaqueous matrices) (EPA 1990a). For methods not covered by 40 CFR 136, the holding times used for validation purposes were either recommended in the specific analytical methods, such as those for the CLP, or were criteria specified in the QAPjP. Table K-2 summarizes all applicable technical holding time requirements by analysis and matrix, and it includes criteria for estimating and rejecting analytical results when holding times are exceeded.

For analytical methods with required holding times greater than 1 week, samples extracted, prepared, or analyzed outside of specified holding times were qualified as "J3," indicating that the results were estimated values (EPA 1990a, 1994). In cases where these holding times were grossly exceeded (more than two times the specified holding time), nondetected results were qualified as "R3," indicating that the results were rejected, while detected results were qualified as estimated (J3). For analytical methods with required holding times less than 1 week, samples extracted, prepared, or analyzed outside of specified holding times were again qualified as estimated (J3). In cases where these holding times were exceeded by more than 1 week (usually more than two times the specified holding time), nondetected results were rejected (R3), and detected results were estimated (J3). Table K-3 summarizes the Tida Area Sites analytical data that were qualified due to holding time exceedances (J3 and R3). The table shows that most samples were analyzed within holding times. About 0.87 percent of all tidal area sites analytical data was qualified as estimated due to holding time exceedances, while no samples were qualified as rejected due to holding time exceedances. This low frequency of holding time violations contributes to the high technical quality of the tidal area sites data.

3.2 CALIBRATION

Laboratory instrument calibration requirements were established to ensure that the analytical instruments could produce acceptable qualitative and quantitative data for target compounds. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an analytical run. Continuing calibration demonstrates that the instrument is capable of repeating the performance established in the initial calibration (EPA 1990a). Table K-4 summarizes all applicable calibration requirements by analysis and includes criteria for estimating and rejecting analytical results when calibration requirements are violated.

3.2.1 Organic Analyses

The initial calibration review for organic analyses included evaluating criteria for percent relative standard deviation (%RSD), relative response factors (RRF), and retention times. The %RSD indicates the analytical system's linearity over an established concentration range. RRF identifies the sensitivity of the analytical system to a particular target analyte. Retention time reflects the analytical system's stability. Retention time stability is particularly important in analyses for CLP pesticides/PCBs, low-level CLP pesticides/PCBs, aromatic volatiles, and explosives. For these analyses, a compound is positively identified when a peak falls within the specified retention time "windows" on two dissimilar columns. Continuing calibration review included evaluating percent difference (%D), RRFs, and retention times. The %D measures the analytical system's precision and was calculated by comparing the daily RRF to the RRF established in the initial calibration.

Samples analyzed when calibration requirements were not met were qualified as "J6," indicating that the results were estimated (EPA 1990a). For samples analyzed when RRF requirements were not met, nondetected results were qualified as "R6," indicating that the results were rejected; detected results were estimated (J6) (EPA 1990a). Table K-5 summarizes tidal area sites organic analytical data that were qualified due to calibration violations (J6 and R6). Of all tidal area sites organic analytical data, only 0.71 percent of the data was qualified as estimated due to calibration violations, and only 0.1 percent was qualified as rejected due to calibration violations. This low frequency of organic calibration violations contributes to the high technical quality of the tidal area sites data.

3.2.2 Inorganic Analyses

The initial calibration review for inorganic analyses included evaluating criteria for the curve's correlation coefficient (r) and initial calibration verification (ICV) percent recoveries (%R). The calibration correlation coefficient indicates the analytical system's linearity over an established range. ICV %R verifies that the analytical system is within established calibration criteria at the beginning of an analytical run. Most metal analytes are analyzed using an ICPES, which is inherently linear over a wide concentration range; as a result, it does not require multiple initial calibration standards, which are mandatory for most other methods. The continuing calibration review included evaluating the criteria for continuing calibration verification (CCV) %R. The CCV %R verifies that the analytical system is within the established calibration throughout the analytical run.

Samples analyzed when the calibration requirements were not met were qualified as "J6," indicating that the results were estimated (EPA 1994). Of all tidal area sites inorganic analytical data, none of the data was qualified as estimated due to calibration violations. The absence of inorganic calibration violations contributes to the high technical quality of the tidal area sites data.

3.3 LABORATORY AND FIELD BLANKS

Laboratory and field blank samples were analyzed to determine the existence and magnitude of contamination resulting from sample collection or laboratory activities (EPA 1990a, 1994). Blanks prepared and analyzed in the laboratory included calibration blanks and method/preparation blanks. Blanks collected in the field included source blanks, equipment rinsate blanks, and trip blanks. If a problem was identified with any blank, all associated data were carefully evaluated to determine whether the sample data were affected. The following table summarizes the purpose of each laboratory and field blank.

Blank Type	Purpose of Blank
Calibration blank	Evaluate analytical instruments for possible laboratory contamination
Method/preparation blank	Evaluate extraction or preparation procedures for possible laboratory contamination
Source blank	Evaluate source water (used for decontamination) as a possible source of field contamination
Equipment blank	Evaluate decontamination procedures as a possible route for field contamination
Trip blank	Evaluate shipment and storage procedures as a possible route for field contamination by volatile compounds

At a minimum, a calibration or a method/preparation blank was analyzed once every analytical period for each instrument. Method or preparation blanks were extracted (or prepared) at a frequency of one per extraction or preparation batch per matrix, or per 20 samples, whichever was greater (EPA 1990b, 1990c). One source or field blank was collected during the tidal area sites sampling period. No detected analytes were found in the field blank.

For each sampling task, equipment rinsate blanks were collected daily for a specified set of sample analyses. Because each sampling task used different sample collection devices, equipment rinsate blanks were analyzed for the same analytes of concern as the samples collected with the equipment. Table K-8 summarizes analytes detected in the equipment rinsate blanks.

One trip blank accompanied each cooler containing water samples for volatiles analyses. Trip blanks were analyzed for volatile compounds only, because these compounds have the greatest potential for cross contamination during sample transport. No analytes were detected in the trip blanks.

Where laboratory blank contamination was identified, sample results were compared to an action level of five times the highest level found in the associated laboratory blank, except for the followinmg compounds that EPA (1990a) has identified as common laboratory contaminants: acetone, methylene

chloride, phthalate compounds, 2-butanone, and toluene. Toluene is included only when other substituted benzene compounds do not appear in the environmental sample. These compounds were assessed in all samples (including field blanks) at an action level of 10 times the highest level found in the associated laboratory blanks (EPA 1990a). Only detected results less than the action level for the laboratory blank contaminant were considered nondetected, either at the level of the original result or at the CRQL (for organic samples only), whichever was greater (EPA 1990a, 1994). The data were qualified as "U1," indicating the results were nondetected and reflecting a detection or quantitation limit that may have been raised due to low-level laboratory blank contamination. As shown in Table K-10, most organic contamination in laboratory blanks consisted of the following compounds: acetone, methylene chloride, bis(2-ethylhexyl)phthalate, di-n-butylphthalate, and heptachlor. The majority of metals contamination consisted of antimony, beryllium, chromium, mercury, molybdenum, vanadium, and zinc.

After laboratory blank contamination was assessed, field blanks were evaluated. Where field blank contamination was identified, sample results were compared to an action level of five times the highest level found in the associated field blank. Only detected results less than the action level for the field blank contaminant were considered nondetected, either at the level of the original result or at the CRQL (for organic samples only), whichever was greater (EPA 1990a, 1994). The data were qualified as "U8," indicating the results were considered nondetected and reflecting a detection or quantitation limit that may have been raised due to low-level field blank contamination. Field blanks were not used to qualify other blank samples for blank contamination, but were used to evaluate analytical samples. For tidal area sites, contamination of the organic field blanks primarily resulted from using less than ideal source water in the decontamination process. Organic contaminants including acetone and bis(2-ethylhexyl)phthalate, were detected in field and equipment blanks. The majority of metals detected consisted of antimony, arsenic, mercury, molybdenum, and zinc. These contaminants had minimal impact on tidal area sites data.

After laboratory and field blank contamination were evaluated, common laboratory contaminants were assessed. EPA (1990a) has identified the following compounds as common laboratory contaminants: acetone, methylene chloride, phthalate compounds, 2-butanone, and toluene. Toluene is included only when other substituted benzene compounds do not appear in the environmental sample. In some cases,

although the common laboratory contaminant was not found in any of the associated blanks, all sample results less than five times the CRQL were qualified nondetected (U1). The qualification was the result of professional judgment based on whether a common laboratory contaminant was present in other blanks associated with the project and the laboratory (EPA 1990a). As shown in Table K-10, the following common laboratory contaminants were detected: acetone, methylene chloride, 2-butanone, and phthalate compounds.

Table K-10 also summarizes tidal area sites analytical data qualified due to blank contamination (U1 and U8). Of all tidal area sites analytical data, only 2.3 percent of the data was qualified as nondetected due to laboratory contamination, while only 0.11 percent was qualified as nondetected due to field contamination. These percentages indicate that most blank contamination originated in the laboratory. The small percentage of samples affected by field contamination indicates that the field equipment decontamination procedures were effective. Except for the qualified items mentioned above, the general quality of the analytical data was not significantly compromised by laboratory or field contamination.

3.4 ACCURACY

One objective of data validation was to assess the accuracy of the chemical data set. Laboratory accuracy was evaluated based on recoveries of surrogate spikes, MSs, and LCS spikes. Table K-11 summarizes all applicable accuracy requirements by analysis and includes the criteria for estimating and rejecting analytical results when accuracy requirements are not met. For organic analyses using surrogate spikes, laboratory accuracy could be evaluated for individual samples. However, for organic analyses, matrix effects frequently present unique problems in evaluating laboratory accuracy (EPA 1990a). In some cases, professional judgment was used to qualify the data. Any such decisions were clearly identified and documented in the data validation reports. Data affected by surrogate recoveries outside QC limits were qualified as "J4," indicating the results were estimated, or in severe cases "R4," indicating the results were rejected (EPA 1990a). For the inorganic analyses, laboratory accuracy was evaluated using LCS spike and MS recoveries. In general, data affected by LCS or MS recoveries outside QC limits were qualified as "J4," indicating the results were estimated. In a few isolated cases where LCS or MS recoveries were very low (less than 50 percent and 30 percent, respectively), the affected nondetected data were qualified as "R4," indicating the results were rejected (EPA 1994).

Table K-12 summarizes tidal area sites analytical data qualified due to accuracy criteria violations (J4 and R4). Of all tidal area sites analytical data, about 3.3 percent was qualified as estimated due to accuracy criteria violations, while only 0.34 percent was qualified as rejected. Most of the estimated (J4) organic data were due to CLP pesticide/PCB surrogate recoveries that were outside the advisory QC limits. In the most recent version of CLP pesticide/PCBs analysis, EPA significantly widened the advisory limits from the original requirements of between 60 and 150 percent. If the new widened criteria were applied to these data, very little of the CLP pesticides/PCB data would have been qualified for surrogate recoveries. For the inorganic analyses, most of the estimated (J4) inorganic data were due to hexavalent chromium, sulfides, CLP, and WET CLP metal MS recoveries that were outside the QC limits; this type of accuracy problem reflects matrix interference, not analytical performance issues. Rejected data were limited to one CLP semivolatile soil sample, 14 soil and 2 surface water samples for the explosive compound tetryl, one water sample for all explosive compounds, 34 hexavalent chromium soil samples, and 23 sulfide soil samples; along with some inorganic analyte recoveries that were particularly problematic. Sulfide and hexavalent chromium analyses are particualrly subject to matrix interference in the type of matrix found in the tidal areas. Most metal accuracy problems were due to poor spike recoveries for antimony, chromium, and lead. In general, the low frequency of accuracy criteria violations indicates that the tidal area sites data are of acceptable quality, yet are somewhat affected by matrix interferences. This very low frequency of accuracy violations contributes to the high technical quality of the tidal area sites data.

3.5 PRECISION: FIELD AND LABORATORY

Another objective of data validation was to assess the precision of the chemical data set. Laboratory precision was evaluated by the relative percent differences (RPD) of the MS/MSDs for organic analyses and by the RPDs of the sample/sample duplicates for inorganic analyses. For organic analyses, RPDs were used to evaluate overall precision and were not used specifically to qualify data. Precision goals for organic analyses can be found in the QAPjP (PRC 1994). For inorganic analyses, sample/sample duplicate RPDs were used to indicate the laboratory's analytical precision within a sample delivery group (SDG) for that matrix. Inorganic sample/sample duplicates were reviewed according to the following criteria (EPA 1994):

- An RPD criterion of ± 20 percent was used for water sample values greater than five times the contract-required detection limit (CRDL).
- An RPD criterion of ± 35 percent was used for soil sample values greater than five times the CRDL.
- An absolute difference of ± the CRDL was used for water sample results less than five times the CRDL.
- An absolute difference of ± two times the CRDL was used for soil sample results less than five times the CRDL.
- An RPD criterion of ± 10 percent was used for the pH analysis.

Inorganic data affected by sample/sample duplicate RPDs outside QC limits were qualified as "J5," indicating the results were estimated (EPA 1994). Data were not rejected based on precision criteria violations. Table K-13 summarizes tidal area sites analytical data qualified due to precision criteria violations (J5). Of all tidal area sites analytical data, 0.66 percent of the data was qualified as estimated due to precision criteria violations. This low frequency of precision criteria violations contributes to the high technical quality of the tidal area sites data.

One field duplicate soil sample and nine field duplicate water samples were collected during tidal area sites field activities. Table K-14 presents these duplicate results for detected analytes only. The chemical data were not qualified based on field duplicate precision exceedances (EPA 1990a, 1994). Generally, RPDs calculated for field duplicate sample precision were less than ± 25 percent for analytes detected above the CRQL. Due to the variability of instrument detection at low concentrations, higher RPDs were calculated for analytes with detected results at or below the CRQL. Overall precision for field duplicate water samples (±25% RPD) were acceptable. These results indicate the consistency of the tidal area sites sampling methodology, which contributes to the high technical quality of the data.

3.6 ANALYTICAL/MATRIX PERFORMANCE

In addition to data quality requirements discussed above, additional laboratory QA/QC criteria were evaluated in the cursory review. These additional criteria were primarily concerned with analytical and matrix performance; they are summarized in Table K-15 for organic analyses and Table K-16 for inorganic analyses. For organic analyses, where applicable, internal standard performance was

evaluated. Internal standard performance criteria ensures that gas chromatography/mass spectrometry (GC/MS) sensitivity and response are stable during every analytical run. However, matrix effects frequently present unique problems in evaluating analytical performance, and internal standard performance may be affected by such matrix effects. Internal standard requirements are based on the comparison of the sample's internal standard area with the same internal standard's area found in the daily calibration standard. The internal standard area of the sample must be within 50 to 150 percent, and internal standard retention times must not vary by more than ± 30 seconds from the internal standard in the associated daily calibration standard (EPA 1990a).

ICPES serial dilutions were evaluated for inorganic analyses where applicable. ICPES serial dilution analysis determined whether matrix interferences existed and if the accuracy of the analytical data was affected. The criterion for acceptability is a %D of less than 10 percent when the results of a five-fold dilution are compared to the results from the undiluted sample. This criterion applies only when the concentration of the element in the undiluted sample is at least 50 times the instrument detection limit (IDL).

In addition, for some organic analyses such as pesticides and PCBs, the analysis is performed on two columns. Single peak results were checked for quantitative agreement between the two columns by generating an RPD value. Detected results with RPDs greater than 50 percent and less than 100 percent were qualified as "J7," indicating the results were estimated. Because matrix effects frequently present unique problems in analyte identification, results with RPDs greater than 100 percent were technically determined to be misidentified and qualified as "U7," indicating the results were nondetected (EPA 1990a). Misidentified results below the CRQL were raised to the quantitation limit and considered nondetected. In some cases professional judgment was used in qualifying the result as estimated (J7) or nondetected (U7). Any such decisions were clearly identified and documented in the data validation reports.

In general, organic or inorganic data affected by any of the above-mentioned criteria violations were qualified as "J7," indicating the results were estimated. Organic data with internal standard areas less than 10 percent of the internal standard's area in the associated daily standard were qualified as "R7," indicating that the results were rejected for nondetected results, or "J7," indicating the results were estimated for detected results. Table K-17 summarizes tidal area sites analytical data qualified due to

analytical/matrix performance criteria violations (J7 and R7). Of all tidal area sites analytical data, 2.8 percent was qualified as estimated, and only 0.12 percent of the data was qualified as rejected due to analytical/matrix performance violations. Of all tidal area sites CLP pesticide/PCB, low level CLP pesticide/PCB, and explosives data, 3.9 percent was qualified as estimated (J7), and only two PCB compounds were qualified as nondetected (U7) due to identification violations. Most estimated data (J7) for metals were due to CLP and WET CLP metals ICPES serial dilutions that exceeded QC limits. The serial dilution problems are attributed to matrix interferences, rather than analytical performance issues. Only one water and one soil sample for CLP semivolatile compounds were rejected, each due to internal standard problems. This low frequency of analytical and matrix criteria violations contributes to the high technical quality of the tidal area sites data.

3.7 RESULTS BELOW THE CRQL

Analytical instruments can make reliable *qualitative* identification of compounds at concentrations below the CRQL for CLP volatiles, CLP semivolatiles, low-level CLP semivolatiles, CLP pesticides/PCBs, low-level CLP pesticides/PCBs, TPH-purgeables, TPH-extractables, explosives, and dioxins. Results below the CRQL, and therefore outside the calibration range, are considered *quantitatively* uncertain. Sample results below the CRQL were reported by the laboratory with a "J" qualifier and were subsequently qualified in data validation as "J2," indicating the results were estimated. Table K-18 summarizes tidal area sites data qualified as estimated due to results reported below the CRQL. Of all tidal area sites analytical data, only 1.3 percent was qualified as estimated due to results reported below the CRQL.

4.0 FULL REVIEW

A full review was conducted at random on 10 percent of the tidal area sites chemical data. In addition to the cursory review discussed above, full review for CLP organic, CLP inorganic, and non-CLP methods included evaluating the following requirements, as applicable: method compliance, instrument performance check samples, cleanup performance check samples, system performance, ICPES interference check samples, graphite furnace atomic absorption (GFAA) duplicate injections, GFAA analytical or post digestion spikes, GFAA method of standard additions (MSA), hexavalent chromium

qualitative interference check samples, target analyte identification, tentatively identified compound (TIC) identification, analyte quantitation, detection/quantitation limit verification, and overall assessment of the data. Data qualification during the full review was conducted in accordance with criteria specified

in EPA guidelines, the QAPjP, and associated analytical methods. Sections 4.1 through 4.4 discuss the components of the full review and the results of each specific assessment.

4.1 ADDITIONAL ANALYTICAL AND MATRIX PERFORMANCE

In addition to the cursory review discussed in Section 3.0, the laboratory must met additional QA/QC criteria. These additional requirements are primarily concerned with analytical and matrix performance. For organic analyses, the following requirements were evaluated, as applicable: instrument performance check samples (CLP volatiles, CLP semivolatiles, and CLP pesticides/PCBs) and cleanup performance check samples for florisil cartridges and gel-permeation chromatography (GPC) (CLP semivolatiles, and CLP pesticides/PCBs). Organic performance criteria are listed in Table K-15.

GC/MS instrument performance check samples (CLP volatiles and CLP semivolatiles) were analyzed to ensure mass resolution, identification, and to some degree, sensitivity. Specifically, minimum and maximum ion abundance requirements must be met for bromofluorobenzene (BFB) in volatile analysis and decafluorotriphenylphosphine (DFTPP) in semivolatile analysis. GC/electron capture detector (ECD) instrument performance check samples (CLP pesticides/PCBs) were analyzed to ensure adequate resolution and instrument sensitivity. Analytical requirements for nine target analytes and surrogates include the following criteria: RPD between the true and actual values, chromatographic resolution, and percent breakdown for 4,4'-DDT and endrin (EPA 1990b).

CLP semivolatiles and CLP pesticides/PCBs cleanup check samples were analyzed to verify the recovery of the target analytes through the cleanup processes. Florisil and GPC cleanup processes remove matrix interferences from sample extracts prior to analysis. The cleanup processes are checked by running a blank spike through the florisil cartridge or GPC column and calculating the %R. GPC is checked weekly, and florisil cartridges are evaluated once for each manufacturer's lot (EPA 1990b).

For inorganic analyses, the following requirements were evaluated, as applicable: ICPES interference check samples, GFAA duplicate injections, GFAA analytical spikes, GFAA MSAs, and hexavalent chromium qualitative interference check samples. The ICPES interference check sample verifies the validity of the laboratory's interelement and background correction factors. High levels of aluminum, iron, calcium, and magnesium can affect sample results if the interelement and background correction factors have not been optimized. Inaccurate correction factors may result in false positives, false negatives, or biased results. GFAA duplicate injections and furnace analytical spikes establish the precision and accuracy of each analyte. MSAs were performed on samples when the GFAA analytical spike did not meet required QC criteria and the initial sample concentration (of the target analyte) was equal to or greater than 50 percent of the spike concentration. MSAs were prepared using one analysis of the sample and three analyses of the sample plus spikes; the spikes contained analyte concentrations at 50 percent, 100 percent, and 150 percent of the sample's suspected concentration. The absolute value of the x-intercept of the curve where x equals the sample plus no spike, multiplied by any dilution performed is reported as the actual sample concentration (EPA 1990c). Hexavalent chromium interference check samples were performed to ensure the qualitative response of the methodology.

In general, data affected by any of the above mentioned criteria violations were qualified as "J7," indicating the results were estimated. In particular, when GFAA analytical spike requirements were not met, the affected data were qualified either as "J4," indicating the results were estimated, or in severe cases "R4," indicating the results were rejected. When GFAA duplicate requirements were not met, the affected data were qualified as "J5," indicating the results were estimated. For tidal area sites, the additional analytical and matrix performance requirements resulted in only a small amount of estimated data. Sections 3.4 through 3.6 discusses the total percent of data qualified "J4" or "R4," "J5," "J7," or "R7" respectively. The low frequency of additional analytical or matrix performance violations contributes to the high technical quality of the tidal area sites data.

4.2 ANALYTE IDENTIFICATION

To minimize erroneous identification of compounds, qualitative criteria for compound identification have been established. An erroneous identification can either be a false positive (reporting a compound present when it is not) or a false negative (not reporting a compound that is present). For CLP volatiles and CLP semivolatiles, identifications were made by comparing a sample's mass spectra and retention

time to the standard's mass spectra and retention time. For positive identification, the compound's mass spectra must meet the following criteria: (1) it must contain all the standard's ions with relative intensities greater than 10 percent, (2) it must agree within ± 20 percent of the standard ion's relative intensities, and (3) it must not contain any unaccounted ions with relative intensities greater than 10 percent. In addition, the retention time must be within ± 0.06 relative retention time (RRT) units of the standard component's retention time (EPA 1990b).

Chromatographic peaks in CLP volatiles and CLP semivolatiles analyses that are not target analytes, surrogates, or internal standards may be reported as TICs. TICs were qualitatively identified using the National Institute of Standards and Technology (NIST) mass spectral library search. All TIC library identifications were assessed by an experienced professional using the same guidelines for identifying target analytes to positively identify TICs (EPA 1990b). Frequently a general classification, such as substituted benzene or chlorinated hydrocarbon, was used when the identification requirements were not completely met. Some TICs cannot be identified by comparison with the NIST library and were reported as unknowns. Some CLP volatile and CLP semivolatile TICs were identified as laboratory contaminants. These TIC results were qualified as "R," indicating the results were rejected (EPA 1990a). Rejected TICs were not maintained in the database of RI analytical results.

CLP pesticides/PCBs, low level CLP pesticides/PCBs, and explosives were positively identified when a peak fell within the specified retention time "windows" on two dissimilar columns. Surrogates and MSs were also strictly evaluated to determine any shifts in retention time. In some cases professional judgment was used to qualify a result as estimated (J7) or nondetected (U7). Any such evaluations were clearly identified and documented in the data validation reports.

TPH-purgeables and TPH-extractables were positively identified when a response was recorded in the appropriate retention time windows for the particular analysis. For TPH-purgeables and TPH-extractables, fuels were identified using a more definitive fingerprinting of the chromatographic peaks for the type of petroleum product. When the chromatographic peaks fell outside the standard ranges or displayed a petroleum fuel product other than gasoline, diesel, or motor oil, the data were qualified as "Y," indicating that the compound was a petroleum fuel. When a single peak or patterns were detected that did not resemble typical fuel patterns, the data were qualified as "Z," indicating that the results did not represent a typical fuel.

CLP metals, CLP cyanide, hexavalent chromium, TOC, pH, and sulfides were positively identified when the instrument registered a measurable response while operating under the method-specified analytical parameters. In these cases, the instrument's accuracy in analyte identification is indirectly verified by assessing the instrument's performance. Instrument performance criteria for CLP metals, hexavalent chromium, TOC, pH, and sulfides were discussed above in Sections 3.6 and 4.1.

4.3 ANALYTE QUANTITATION

All applicable raw data were reviewed to verify positive results and the reported detection or quantitation limits. About 10 percent of the calculations were evaluated for reproducibility. Raw data reviewed included the following as applicable; extraction and preparation logbooks, cleanup logbooks, spike and standard preparation logbooks, instrument printouts, strip chart recordings, chromatograms, and quantitation reports. The following were also evaluated, as applicable: sample dilutions, concentrations, analytical splits, cleanup activities, and percent moisture. Review of the raw data showed that the tidal area sites chemical data were properly quantitated.

4.4 ANALYTE REPORTING LIMITS

Analyte reporting limits for soil samples are directly affected by dilutions and percent moisture. All soil sample results were corrected for percent moisture. For tidal area sites data, corrected results were reported with detection or quantitation limits raised by an average of 2.5 percent. In addition, detection or quantitation limits for both soil and water samples were raised by the dilution factor when samples required dilution for analysis. Sample dilution was necessary when high levels of an analyte were present or when matrix problems occurred during sample extraction or analysis. Review of the tidal area sites chemical data set indicated that 14.9 percent of the data required dilution and, as a result, very few reporting detection or quantitation limits were raised. Table K-19 summarizes the average reporting limits for tidal area sites and lists the reporting limit goals established in the QAPjP (PRC 1994).

5.0 PARCC EVALUATION SUMMARY

The following sections briefly summarize the overall tidal area sites data quality, including the accuracy, precision, completeness, comparability, and representativeness.

5.1 ACCURACY

Accuracy assesses how close an experimental value is to the true or reference value. The primary indicators of accuracy include the recoveries of surrogate spikes, MSs, and LCS spikes. The accuracy of the tidal area sites data can be summarized as follows:

- For CLP volatiles, CLP semivolatiles, low-level CLP semivolatiles, CLP pesticides/PCBs, low-level CLP pesticides/PCBs, TPH-purgeables, TPH-extractables, aromatic volatiles, dioxins, and explosives, the surrogate spike, MS, and LCS spike recoveries were generally good, indicating that the methods were consistently accurate. A small amount of CLP semivolatiles and explosives data was rejected due to poor surrogate spike recoveries.

- For CLP metals, the LCS spike and MS recoveries were generally good, indicating that this method was accurate at levels above the CRDL. A small amount of CLP metals data, particularly results for antimony and selenium, was rejected due to poor MS or LCS recoveries, which can be attributed to matrix interference problems.

- For TOC and sulfides, the LCS and MS recoveries were excellent, indicating that the methods were consistently accurate.

- For hexavalent chromium, the LCS spike recoveries were excellent, indicating that the method was consistently accurate. However, the MS recoveries were problematic, reflecting a matrix interference that can be expected in the tidal area site matrix. Problematic MS recoveries do not represent analytical problems.

5.2 PRECISION

Precision is a measure of the reproducibility of an experimental value without regard to the true or reference value. The primary indicators of precision of the tidal area sites data were the RPD of the MS/MSD in organic analyses and the RPD of the sample/sample duplicate in inorganic analyses. The precision of the tidal area sites data can be summarized as follows:

- Sample/sample duplicate RPDs for CLP and WET metals were generally within the QA/QC criteria, indicating that the precision of this method was good at levels above the CRDL. Poor duplicate results were generally obtained for analytes detected below the CRDL, suggesting that the precision of this method became approximate at levels between the CRDL and IDL.

- Organic MS/MSD RPDs were generally good, indicating that the methods were consistently precise.

- For hexavalent chromium, pH, and sulfides, all sample duplicate analyses were excellent, indicating that the methods were consistently accurate.
- For TOC, all sample duplicate analyses were generally within the QA/QC criteria, indicating that the precision of this method was good at levels above the CRDL. Relatively few TOC results were affected by imprecision.

5.3 COMPLETENESS

Completeness is defined as the percentage of analytical results considered to be valid. Valid data are those identified as acceptable or qualified as estimated (J) during the data validation process. Data qualified as rejected (R) are not valid and are considered unusable.

For the tidal area sites data, rejected and unusable data were qualified during the cursory review due to the following: calibration problems, low surrogate spike recovery, low LCS or MS recovery, or low internal standard areas. The full review of 10 percent of the tidal area sites data did not yield any additional rejected data.

The assessment of completeness consisted of comparing the amount of acceptable and usable results to the total number of results. The tidal area sites data evaluated in this QCSR displayed an estimated completeness of greater than 99 percent, which is considered very high and indicates high quality data. In fact, the completeness goal of 90 percent established in the QAPjP (PRC 1994) was greatly exceeded. In addition, EPA has indicated that Level IV data sets achieve an average completeness of only 80 percent nationwide (EPA 1987).

5.4 COMPARABILITY

Comparability is a qualitative assessment of how well one data set compares to another. The important determinants of comparability include the uniformity of sampling activities, analytical procedures, data reporting, and data validation. The use of CLP protocol, specific EPA analyses, approved laboratories, and the standardized process of data review and validation give the tidal area sites data a high degree of comparability.

5.5 REPRESENTATIVENESS

Representativeness refers to how well sample data accurately reflect true environmental conditions. Determinants of representativeness include sampling locations, frequency, collection procedures, and possible compromises to sample integrity (for example, cross-contamination) that can occur during collection, transport, and analysis. Selection of representative sampling sites is important to ensure that the medium sampled is typical of the site. Correct sample collection, transport, and analytical procedures are also important to ensure that samples closely resemble the medium sampled with a minimum of cross-contamination.

For tidal area sites, the sampling locations, frequency, and collection protocols were described in the field sampling and analysis plan (FSAP) (PRC 1995). These protocols followed standard accepted methods of site characterization and were approved by the regulatory agencies. As a result, with respect to accepted site characterization approaches, existing guidance, and regulatory compliance, the sampling program for tidal area sites met all relevant requirements for data representativeness.

6.0 CONCLUSIONS FOR DATA QUALITY AND DATA USABILITY

Although some qualifiers were added to the data, a final review of the data set with respect to the EPA data quality parameters discussed in Section 5.0 indicates that the data are of high overall quality. The data meet all of the requirements of Level IV data as described in "Data Quality Objectives for Remedial Response Activities" (EPA 1987) and all the requirements of "definitive data" as described in the "Data Quality Objectives Process for Superfund" (EPA 1993). Because the data meet all applicable requirements, they can be used for site characterization, risk assessment, and feasibility studies. The overall assessment of the sampling program, QA/QC data, data review, and data validation results presented in Sections 3.0 and 4.0 is that the tidal area sites data are generally of acceptable accuracy, precision, completeness, comparability, and representativeness. All supporting documentation and data are available upon request, including cursory and full validation reports and the database that contains the sample results and summaries of qualified data.

EPA guidance was used to determine the usability of the validated data. This guidance is provided in the document "Risk Assessment Guidance for Superfund" (RAGS), Volume I (EPA 1989). Exhibit 5-5 in

RAGS states that data qualified as estimated (J) based on data validation reports may be used in quantitative risk assessments. Only data qualified as rejected (R) are considered unusable for risk assessment purposes. If data are of acceptable quality for use in quantitative risk assessments, they should also be appropriate for determining the extent of contamination. For consistency, a single data set was used for determining potential human health risk and the extent of contamination at tidal area sites. Accordingly, all J-qualified data and no R-qualified data were used for the tidal area sites RI.

TABLE H-1

ANALYTICAL METHODS, SAMPLE HOLDING TIMES, CONTAINERS, AND PRESERVATION

NAVAL WEAPONS STATION CONCORD

Parameter	Method (Reference)/ Technique	Matrix	Holding Time	Container	Preservation
CLP volatiles	CLP SOW (EPA 1990b)/ GC/MS	Water	14 days for preserved 7 days for unpreserved	3 x 40-mL vial with Teflon-lined septa caps	Cool to 4 °C, add HCl to pH<2
		Soil	14 days	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
CLP semivolatiles	CLP SOW (EPA 1990b)/ GC/MS	Water	7 days to extraction 40 days to analysis	2 x 1-L amber glass with Teflon-lined lid	Cool to 4 °C
		Soil	14 days to extraction 40 days to analysis	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
Low-level CLP semivolatiles	CLP SOW (EPA 1990b)/ GC/MS	Water	7 days to extraction 40 days to analysis	2 x 1-L amber glass with Teflon-lined lid	Cool to 4 °C
		Soil	14 days to extraction 40 days to analysis	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C

TABLE H-1

ANALYTICAL METHODS, SAMPLE HOLDING TIMES, CONTAINERS, AND PRESERVATION

NAVAL WEAPONS STATION CONCORD (Continued)

Parameter	Method (Reference)/ Technique	Matrix	Holding Time	Container	Preservation
CLP pesticides/ polychlorinated biphenyls (PCB)	CLP SOW (EPA 1990b)/ GC/ECD	Water	7 days to extraction 40 days to analysis	2 x 1-L amber glass with Teflon-lined lid	Cool to 4 °C
		Soil or sediment	14 days to extraction 40 days to analysis	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
Low-level CLP pesticides/ polychlorinated biphenyls	CLP SOW (EPA 1990b)/ GC/ECD	Water	7 days to extraction 40 days to analysis	2 x 1-L amber glass with Teflon-lined lid	Cool to 4 °C
		Soil or sediment	14 days to extraction 40 days to analysis	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
CLP metals	CLP SOW (EPA 1990c)/ ICPES; GFAA; and CVAA	Water	28 days for mercury 6 months for others	1-L polyethylene bottle	Cool to 4 °C, HNO_3 to pH<2
		Soil or sediment	28 days for mercury 6 months for others	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C

TABLE H-1

ANALYTICAL METHODS, SAMPLE HOLDING TIMES, CONTAINERS, AND PRESERVATION

NAVAL WEAPONS STATION CONCORD (Continued)

Parameter	Method (Reference)/ Technique	Matrix	Holding Time	Container	Preservation
Dioxins	EPA 8280 (EPA 1992)/ GC/MS	Water	14 days to extraction 14 days to analysis	2 x 1-L amber glass with Teflon-lined lid	Cool to 4 °C
		Soil	28 days to extraction 14 days to analysis	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
Total petroleum hydrocarbons-purgeables	EPA 5030/8015 (EPA 1992)/ LUFT Field Manual (LUFT Task Force 1989)/GC/FID	Water	14 days	3 x 40-mL vial with Teflon-lined septa caps	Cool to 4 °C, HCl to pH<2
		Soil	14 days	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
Total Suspended Solids	EPA 160.1 (MCAWW 1992)/gravimetric	Water	7 days	1-L polyethylene bottle	Cool to 4 °C

TABLE H-1

ANALYTICAL METHODS, SAMPLE HOLDING TIMES, CONTAINERS, AND PRESERVATION

NAVAL WEAPONS STATION CONCORD (Continued)

Parameter	Method/ Technique	Matrix	Holding Time	Container	Preservation
Total petroleum hydrocarbons-extractables	EPA 8015 (EPA 1992)/ LUFT Field Manual (LUFT Task Force 1989)/GC/FID	Water	7 days to extraction 40 days to analysis	2 x 1-L amber glass with Teflon-lined lid	Cool to 4 °C
		Soil	14 days to extraction 40 days to analysis	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
Aromatic volatiles	EPA 5030/8020 (EPA 1992)/ GC/PID	Water	14 days for preserved 7 days for unpreserved	3 x 40-mL vial with Teflon-lined septa caps	Cool to 4 °C, add HCl to pH<2
		Soil	14 days	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C

TABLE H-1

ANALYTICAL METHODS, SAMPLE HOLDING TIMES, CONTAINERS, AND PRESERVATION

NAVAL WEAPONS STATION CONCORD (Continued)

Parameter	Method/ Technique	Matrix	Holding Time	Container	Preservation
Hexavalent chromium	EPA 7196 (EPA 1992)/ colorimetric	Water	1 day	1 x 500-mL polyethylene	Cool to 4 °C
		Soil	3 days to extraction 1 day to analysis	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
Total organic carbon	SMEWW 5310B (APHA 1992)/ ultraviolet spectroscopy	Water	28 days	2 x 250-mL amber with Teflon-lined lids	Cool to 4 °C
		Soil	28 days	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
pH	EPA 9040/9045 (EPA 1992)/ electrometric	Water	24 hours	1 x 1-L polyethylene	Cool to 4 °C
		Soil	2 days	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C

TABLE H-1

ANALYTICAL METHODS, SAMPLE HOLDING TIMES, CONTAINERS, AND PRESERVATION

NAVAL WEAPONS STATION CONCORD (Continued)

Parameter	Method/ Technique	Matrix	Holding Time	Container	Preservation
Sulfides	EPA 376.2 (MCAWW 1992)/ colorimetric	Water	28 days	1 x 500-mL polyethylene	Cool to 4 °C
		Soil	28 days	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
Modified waste extraction test for CLP metals	Waste extraction test (State of California 1990)/ ICPES; GFAA; and CVAA	Soil	28 days to extraction or analysis for mercury 6 months to extraction or analysis for all other CLP metals	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C
Explosives	EPA 8330(1992/ HPLC	Water	7 days to extraction 40 days to analysis[b]	2 x 1-L amber glass with Teflon-lined lids	Cool to 4 °C
		Soil	14 days to extraction 40 days to analysis[b]	Glass jars with Teflon-lined lids or brass/acetate sleeves[a]	Cool to 4 °C

TABLE H-1

ANALYTICAL METHODS, SAMPLE HOLDING TIMES, CONTAINERS, AND PRESERVATION

NAVAL WEAPONS STATION CONCORD (Continued)

Notes:

[a]	When soil samples were collected in sleeves, the ends were covered with Teflon liners and a hard plastic caps
CLP	Contract Laboratory Program
SOW	Statement of Work
GC	Gas chromatography with the following detectors: mass spectrometry (MS); electron capture detector (ECD); photoionization detector (PID); flame ionization detector (FID); and flame photometric detector (FPD)
mL	Milliliter
HCl	Hydrochloric acid
L	Liter
ICPES	Inductively coupled plasma emission spectroscopy
GFAA	Graphite furnace atomic absorption
CVAA	Cold vapor atomic absorption
HNO_3	Nitric acid
HPLC	High performance liquid chromatography
NaOH	Sodium hydroxide
EPA	U.S. Environmental Protection Agency
LUFT	Leaking Underground Field Tank Field Manual
H_2SO_4	Sulfuric Acid
MCAWW	Methods for the Chemical Analysis of Water and Wastes
SMEWW	Standard Methods for the Evaluation of Water and Wastewater
NOAA	National Oceanic and Atmospheric Administration
ASTM	American Society of Testing and Materials

TABLE H-2

HOLDING TIME REQUIREMENTS

NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Holding Time[a] Requirement	All Estimated Data (J3)	Data Qualified as "J3" (Estimated) and Nondetected Data Qualified as "R3" (Rejected)
CLP volatiles, total petroleum hydrocarbons-purgeables, and aromatic volatiles	Water or soil	Analysis in 14 days	Exceeded by ≤ 28 days	Exceeded by > 28 days
CLP volatiles and aromatic volatiles	Unpreserved water	Analysis in 7 days	Exceeded by ≤ 14 days	Exceeded by > 14 days
CLP semivolatiles, low-level CLP semivolatiles, CLP pesticides/ polychlorinated biphenyls (PCB), low-level CLP pesticides/PCBs, total petroleum hydrocarbons-extractables, and explosives	Water	Extraction in 7 days Analysis in 40 days[d]	Exceeded by ≤ 14 days (E)[b] Exceeded by ≤ 80 days (A)[c]	Exceeded by > 14 days (E) Exceeded by > 80 days (A)
	Soil or sediment	Extraction in 14 days Analysis in 40 days[d]	Exceeded by ≤ 28 days (E) Exceeded by ≤ 80 days (A)	Exceeded by > 28 days (E) Exceeded by > 80 days (A)

TABLE H-2

HOLDING TIME REQUIREMENTS

NAVAL WEAPONS STATION CONCORD (Continued)

Analysis	Matrix	Holding Time[a] Requirement	All Estimated Data (J3)	Data Qualified as "J3" (Estimated) and Nondetected Data Qualified as "R3" (Rejected)
Dioxins	Water	Extraction in 14 days Analysis in 14 days	Exceeded by ≤ 28 days Exceeded by ≤ 28 days	Exceeded by > 28 days Exceeded by > 28 days
	Soil	Extraction in 28 days Analysis in 14 days	Exceeded by ≤ 56 days Exceeded by ≤ 28 days	Exceeded by > 56 days Exceeded by > 56 days
CLP mercury and total organic carbon	Water, soil, or sediment	Analysis in 28 days	Exceeded by ≤ 56 days	Exceeded by > 56 days
CLP metals	Water, soil, or sediment	Analysis in 180 days	Exceeded by ≤ 360 days	Exceeded by > 360 days
Hexavalent chromium	Water	1 day	Exceeded by ≤ 6 days	Exceeded by > 6 days
	Soil	Extraction in 3 days Analysis in 1 day	Exceeded by ≤ 6 days (E) Exceeded by ≤ 6 days (A)	Exceeded by > 6 days (E) Exceeded by > 6 days (A)
pH	Water	24 hours	Exceeded by ≤ 6 days	Exceeded by > 6 days
	Soil	2 days	Exceeded by ≤ 6 days	Exceeded by > 6 days

TABLE H-2

HOLDING TIME REQUIREMENTS

NAVAL WEAPONS STATION CONCORD (Continued)

Analysis	Matrix	Holding Time[a] Requirement	All Estimated Data (J3)	Data Qualified as "J3" (Estimated) and Nondetected Data Qualified as "R3" (Rejected)
Sulfides	Water	28 days	Exceeded by ≤ 56 days	Exceeded by > 56 days
Total Suspended Solids	Water	7 days	Exceeded by ≤ 14 days	Exceeded by > 28 days
Modified waste extraction test for CLP metals	Soil	Extraction in 28 days for mercury Analysis in 28 days after extraction for mercury Extraction in 180 days for other metals Analysis in 180 days after extraction for other metals	Exceeded by ≤ 56 days for mercury (E) Exceeded by ≤ 56 days for mercury (A) Exceeded by ≤ 360 days for other metals (A) Exceeded by ≤ 360 days for other metals (E)	Exceeded by > 56 days for mercury (E) Exceeded by > 56 days for mercury (A) Exceeded by > 360 days for other metals (A) Exceeded by > 360 days for other metals (E)

Notes:
[a] Holding times are specified from the date of sample collection.
[b] Extraction
[c] Analysis

CLP Contract Laboratory Program

Source: Federal Register 1984; PRC 1994; and the specified analytical methods

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J3"	Number (Percent) of Analytes Rejected as "R3"
CLP Volatiles:				
1,1,1-TRICHLOROETHANE	WATER	2	1	0
1,1,2,2-TETRACHLOROETHANE	WATER	2	1	0
1,1,2-TRICHLOROETHANE	WATER	2	1	0
1,1-DICHLOROETHANE	WATER	2	1	0
1,1-DICHLOROETHENE	WATER	2	1	0
1,2-DICHLOROETHANE	WATER	2	1	0
1,2-DICHLOROETHENE (TOTAL)	WATER	2	1	0
1,2-DICHLOROPROPANE	WATER	2	1	0
2-BUTANONE	WATER	2	1	0
2-HEXANONE	WATER	2	1	0
4-METHYL-2-PENTANONE	WATER	2	1	0
BENZENE	WATER	2	1	0
BROMODICHLOROMETHANE	WATER	2	1	0
BROMOFORM	WATER	2	1	0
BROMOMETHANE	WATER	2	1	0
CARBON DISULFIDE	WATER	2	1	0
CARBON TETRACHLORIDE	WATER	2	1	0
CHLOROBENZENE	WATER	2	1	0
CHLOROETHANE	WATER	2	1	0
CHLOROFORM	WATER	2	1	0
CHLOROMETHANE	WATER	2	1	0
CIS-1,3-DICHLOROPROPENE	WATER	2	1	0
DIBROMOCHLOROMETHANE	WATER	2	1	0
ETHYLBENZENE	WATER	2	1	0
METHYLENE CHLORIDE	WATER	2	1	0
STYRENE	WATER	2	1	0
TETRACHLOROETHENE	WATER	2	1	0
TOLUENE	WATER	2	1	0

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J3"	Number (Percent) of Analytes Rejected as "R3"
TRANS-1,3-DICHLOROPROPENE	WATER	2	1	0
TRICHLOROETHENE	WATER	2	1	0
VINYL CHLORIDE	WATER	2	1	0
XYLENE (TOTAL)	WATER	2	1	0
Total	WATER	66	32 (48.48%)	0 (0.00%)
CLP Semivolatiles:				
1,2,4-TRICHLOROBENZENE	SOIL	101	2	0
1,2-DICHLOROBENZENE	SOIL	101	2	0
1,3-DICHLOROBENZENE	SOIL	101	2	0
1,4-DICHLOROBENZENE	SOIL	101	2	0
2,2'-OXYBIS(1-CHLOROPROPANE)	SOIL	101	2	0
2,4,5-TRICHLOROPHENOL	SOIL	101	2	0
2,4,6-TRICHLOROPHENOL	SOIL	101	2	0
2,4-DICHLOROPHENOL	SOIL	101	2	0
2,4-DIMETHYLPHENOL	SOIL	101	2	0
2,4-DINITROPHENOL	SOIL	101	2	0
2,4-DINITROTOLUENE	SOIL	101	2	0
2,6-DINITROTOLUENE	SOIL	101	2	0
2-CHLORONAPHTHALENE	SOIL	101	2	0
2-CHLOROPHENOL	SOIL	101	2	0
2-METHYLNAPHTHALENE	SOIL	101	2	0
2-METHYLPHENOL	SOIL	101	2	0
2-NITROANILINE	SOIL	101	2	0
2-NITROPHENOL	SOIL	101	2	0
3,3'-DICHLOROBENZIDINE	SOIL	101	2	0
3-NITROANILINE	SOIL	101	2	0
4,6-DINITRO-2-METHYLPHENOL	SOIL	101	2	0
4-BROMOPHENYL-PHENYLETHER	SOIL	101	2	0
4-CHLORO-3-METHYLPHENOL	SOIL	101	2	0

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J3"	Number (Percent) of Analytes Rejected as "R3"
4-CHLOROANILINE	SOIL	101	2	0
4-CHLOROPHENYL-PHENYLETHER	SOIL	101	2	0
4-METHYLPHENOL	SOIL	101	2	0
4-NITROANILINE	SOIL	101	2	0
4-NITROPHENOL	SOIL	101	2	0
ACENAPHTHENE	SOIL	101	2	0
ACENAPHTHYLENE	SOIL	101	2	0
ANTHRACENE	SOIL	101	2	0
BENZO(A)ANTHRACENE	SOIL	101	2	0
BENZO(A)PYRENE	SOIL	101	2	0
BENZO(B)FLUORANTHENE	SOIL	101	2	0
BENZO(G,H,I)PERYLENE	SOIL	101	2	0
BENZO(K)FLUORANTHENE	SOIL	101	2	0
BIS(2-CHLOROETHOXY)METHANE	SOIL	101	2	0
BIS(2-CHLOROETHYL)ETHER	SOIL	101	2	0
BIS(2-ETHYLHEXYL)PHTHALATE	SOIL	101	2	0
BUTYLBENZYLPHTHALATE	SOIL	101	2	0
CARBAZOLE	SOIL	101	2	0
CHRYSENE	SOIL	101	2	0
DI-N-BUTYLPHTHALATE	SOIL	101	2	0
DI-N-OCTYLPHTHALATE	SOIL	101	2	0
DIBENZ(A,H)ANTHRACENE	SOIL	101	2	0
DIBENZOFURAN	SOIL	101	2	0
DIETHYLPHTHALATE	SOIL	101	2	0
DIMETHYLPHTHALATE	SOIL	101	2	0
FLUORANTHENE	SOIL	101	2	0
FLUORENE	SOIL	101	2	0
HEXACHLOROBENZENE	SOIL	101	2	0
HEXACHLOROBUTADIENE	SOIL	101	2	0

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J3"	Number (Percent) of Analytes Rejected as "R3"
HEXACHLOROCYCLOPENTADIENE	SOIL	101	2	0
HEXACHLOROETHANE	SOIL	101	2	0
INDENO(1,2,3-CD)PYRENE	SOIL	101	2	0
ISOPHORONE	SOIL	101	2	0
N-NITROSO-DI-N-PROPYLAMINE	SOIL	101	2	0
N-NITROSODIPHENYLAMINE (1)	SOIL	101	2	0
NAPHTHALENE	SOIL	101	2	0
NITROBENZENE	SOIL	101	2	0
PENTACHLOROPHENOL	SOIL	101	2	0
PHENANTHRENE	SOIL	101	2	0
PHENOL	SOIL	101	2	0
PYRENE	SOIL	101	2	0
Total	SOIL	6464	128 (1.98%)	0 (0.00%)
1,2,4-TRICHLOROBENZENE	SWATER	60	1	0
1,2-DICHLOROBENZENE	SWATER	60	1	0
1,3-DICHLOROBENZENE	SWATER	60	1	0
1,4-DICHLOROBENZENE	SWATER	60	1	0
2,2'-OXYBIS(1-CHLOROPROPANE)	SWATER	60	1	0
2,4,5-TRICHLOROPHENOL	SWATER	60	1	0
2,4,6-TRICHLOROPHENOL	SWATER	60	1	0
2,4-DICHLOROPHENOL	SWATER	60	1	0
2,4-DIMETHYLPHENOL	SWATER	60	1	0
2,4-DINITROPHENOL	SWATER	60	1	0
2,4-DINITROTOLUENE	SWATER	60	1	0
2,6-DINITROTOLUENE	SWATER	60	1	0
2-CHLORONAPHTHALENE	SWATER	60	1	0
2-CHLOROPHENOL	SWATER	60	1	0
2-METHYLNAPHTHALENE	SWATER	60	1	0
2-METHYLPHENOL	SWATER	60	1	0

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J"	Number (Percent) of Analytes Rejected as "R"
2-NITROANILINE	SWATER	60	1	0
2-NITROPHENOL	SWATER	60	1	0
3,3'-DICHLOROBENZIDINE	SWATER	60	1	0
3-NITROANILINE	SWATER	60	1	0
4,6-DINITRO-2-METHYLPHENOL	SWATER	60	1	0
4-BROMOPHENYL-PHENYLETHER	SWATER	60	1	0
4-CHLORO-3-METHYLPHENOL	SWATER	60	1	0
4-CHLOROANILINE	SWATER	60	1	0
4-CHLOROPHENYL-PHENYLETHER	SWATER	60	1	0
4-METHYLPHENOL	SWATER	60	1	0
4-NITROANILINE	SWATER	60	1	0
4-NITROPHENOL	SWATER	60	1	0
ACENAPHTHENE	SWATER	60	1	0
ACENAPHTHYLENE	SWATER	60	1	0
ANTHRACENE	SWATER	60	1	0
BENZO(A)ANTHRACENE	SWATER	60	1	0
BENZO(A)PYRENE	SWATER	60	1	0
BENZO(B)FLUORANTHENE	SWATER	60	1	0
BENZO(G,H,I)PERYLENE	SWATER	60	1	0
BENZO(K)FLUORANTHENE	SWATER	60	1	0
BIS(2-CHLOROETHOXY)METHANE	SWATER	60	1	0
BIS(2-CHLOROETHYL)ETHER	SWATER	60	1	0
BIS(2-ETHYLHEXYL)PHTHALATE	SWATER	60	1	0
BUTYLBENZYLPHTHALATE	SWATER	60	1	0
CARBAZOLE	SWATER	60	1	0
CHRYSENE	SWATER	60	1	0
DI-N-BUTYLPHTHALATE	SWATER	60	1	0
DI-N-OCTYLPHTHALATE	SWATER	60	1	0
DIBENZ(A,H)ANTHRACENE	SWATER	60	1	0

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J3"	Number (Percent) of Analytes Rejected as "R3"
DIBENZOFURAN	SWATER	60	1	0
DIETHYLPHTHALATE	SWATER	60	1	0
DIMETHYLPHTHALATE	SWATER	60	1	0
FLUORANTHENE	SWATER	60	1	0
FLUORENE	SWATER	60	1	0
HEXACHLOROBENZENE	SWATER	60	1	0
HEXACHLOROBUTADIENE	SWATER	60	1	0
HEXACHLOROCYCLOPENTADIENE	SWATER	60	1	0
HEXACHLOROETHANE	SWATER	60	1	0
INDENO(1,2,3-CD)PYRENE	SWATER	60	1	0
ISOPHORONE	SWATER	60	1	0
N-NITROSO-DI-N-PROPYLAMINE	SWATER	60	1	0
N-NITROSODIPHENYLAMINE (1)	SWATER	60	1	0
NAPHTHALENE	SWATER	60	1	0
NITROBENZENE	SWATER	60	1	0
PENTACHLOROPHENOL	SWATER	60	1	0
PHENANTHRENE	SWATER	60	1	0
PHENOL	SWATER	60	1	0
PYRENE	SWATER	60	1	0
Total	SWATER	3840	64 (1.67%)	0 (0.00%)
Low Level CLP Semivolatiles:				
3,3'-DICHLOROBENZIDINE	SOIL	129	1	0
BENZYL ALCOHOL	SOIL	129	1	0
Total	SOIL	9546	2 (0.02%)	0 (0.00%)
CLP Pesticides/PCBs:				
4,4'-DDD	SWATER	60	5	0
4,4'-DDE	SWATER	60	5	0
4,4'-DDT	SWATER	60	5	0
ALDRIN	SWATER	60	5	0
ALPHA-BHC	SWATER	60	5	0

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J3"	Number (Percent) of Analytes Rejected as "R3"
ALPHA-CHLORDANE	SWATER	60	5	0
AROCLOR-1016	SWATER	60	5	0
AROCLOR-1221	SWATER	60	5	0
AROCLOR-1232	SWATER	60	5	0
AROCLOR-1242	SWATER	60	5	0
AROCLOR-1248	SWATER	60	5	0
AROCLOR-1254	SWATER	60	5	0
AROCLOR-1260	SWATER	60	5	0
BETA-BHC	SWATER	60	5	0
DELTA-BHC	SWATER	60	5	0
DIELDRIN	SWATER	60	5	0
ENDOSULFAN I	SWATER	60	5	0
ENDOSULFAN II	SWATER	60	5	0
ENDOSULFAN SULFATE	SWATER	60	5	0
ENDRIN	SWATER	60	5	0
ENDRIN ALDEHYDE	SWATER	60	5	0
ENDRIN KETONE	SWATER	60	5	0
GAMMA-BHC (LINDANE)	SWATER	60	5	0
GAMMA-CHLORDANE	SWATER	60	5	0
HEPTACHLOR	SWATER	60	5	0
HEPTACHLOR EPOXIDE	SWATER	60	5	0
METHOXYCHLOR	SWATER	60	5	0
TOXAPHENE	SWATER	60	5	0
Total	SWATER	1680	140 (8.33%)	0 (0.00%)
Low Level CLP Pesticides/PCBs:				
2,4'-DDD	SOIL	129	1	0
2,4'-DDE	SOIL	129	1	0
2,4'-DDT	SOIL	129	1	0
4,4'-DDD	SOIL	129	1	0

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J3"	Number (Percent) of Analytes Rejected as "R3"
4,4'-DDE	SOIL	129	1	0
4,4'-DDT	SOIL	129	1	0
ALDRIN	SOIL	129	1	0
ALPHA-CHLORDANE	SOIL	129	1	0
DIELDRIN	SOIL	129	1	0
GAMMA-BHC (LINDANE)	SOIL	129	1	0
HEPTACHLOR	SOIL	129	1	0
HEPTACHLOR EPOXIDE	SOIL	129	1	0
HEXACHLOROBENZENE	SOIL	129	1	0
MIREX	SOIL	129	1	0
PCB-101 (2,2',3,5,5')	SOIL	129	1	0
PCB-105 (2,3,3',4,4')	SOIL	129	1	0
PCB-118 (2,3',4,4',5)	SOIL	129	1	0
PCB-126 (3,3',4,4',5)	SOIL	129	1	0
PCB-128 (2,2',3,3',4,4')	SOIL	129	1	0
PCB-138 (2,2',3,4,4',5')	SOIL	129	1	0
PCB-153 (2,2',4,4',5,5')	SOIL	129	1	0
PCB-170 (2,2',3,3',4,4',5)	SOIL	129	1	0
PCB-18 (2,2',5)	SOIL	129	1	0
PCB-180 (2,2',3,4,4',5,5')	SOIL	129	1	0
PCB-187 (2,2',3,4',5,5',6)	SOIL	129	1	0
PCB-195 (2,2',3,3',4,4',5,6)	SOIL	129	1	0
PCB-206 (2,2,',3,3',4,4',5,5',	SOIL	129	1	0
PCB-209 (2,2',3,3',4,4',5,5',6	SOIL	129	1	0
PCB-28 (2,4,4')	SOIL	129	1	0
PCB-44 (2,2',3,5')	SOIL	129	1	0
PCB-52 (2,2',5,5')	SOIL	129	1	0
PCB-66 (2,3',4,4')	SOIL	129	1	0
PCB-77 (3,3',4,4')	SOIL	129	1	0

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J"	Number (Percent) of Analytes Rejected as "R"
PCB-8 (2,4')	SOIL	129	1	0
TRANS-NONACHLOR	SOIL	129	1	0
Total	SOIL	4515	35 (0.78%)	0 (0.00%)
Explosives:				
1,3,5-TRINITROBENZENE	SWATER	60	1	0
1,3-DINITROBENZENE	SWATER	60	1	0
2,4,6-TRINITROTOLUENE	SWATER	60	1	0
2,4-DINITROTOLUENE	SWATER	60	1	0
2,6-DINITROTOLUENE	SWATER	60	1	0
2-NITROTOLUENE	SWATER	60	1	0
3-NITROTOLUENE	SWATER	60	1	0
4-NITROTOLUENE	SWATER	60	1	0
HMX	SWATER	60	1	0
NITROBENZENE	SWATER	60	1	0
RDX	SWATER	60	1	0
TETRYL	SWATER	60	1	0
Total	SWATER	720	12 (1.67%)	0 (0.00%)
CLP Metals:				
MERCURY	SEDIMENT	5	3	0
Total	SEDIMENT	120	3 (2.50%)	0 (0.00%)
MERCURY	SOIL	294	2	0
Total	SOIL	7056	2 (0.03%)	0 (0.00%)
Total Organic Carbon:				
TOTAL ORGANIC CARBON	SOIL	228	4	0
Total	SOIL	228	4 (1.75%)	0 (0.00%)
pH:				
PH	SOIL	294	1	0
Total	SOIL	294	1 (0.34%)	0 (0.00%)
PH	WATER	3	2	0
Total	WATER	3	2 (66.67%)	0 (0.00%)

TABLE H-3

DATA QUALIFICATION: HOLDING TIME EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J3"	Number (Percent) of Analytes Rejected as "R3"
Sulfides:				
SULFIDE	SOIL	201	1	0
Total	SOIL	375	1 (0.27%)	0 (0.00%)
Tidal Areas	All	49155	426 (0.87%)	0 (0.00%)

Note: The following analyses had no holding time exceedances: dioxins, CLP metals (except for mercury), TPH-purgeables, TPH-extractables, aromatic volatiles, hexavalent chromium, and sulfides.

TABLE H-4

CALIBRATION REQUIREMENTS

NAVAL WEAPONS STATION CONCORD

Analysis	Calibration Requirements	Detected Data Qualified as "J6" (Estimated)	Nondetected Data Qualified as "J6" (Estimated)	Detected Data Qualified as "J6" (Estimated) and Nondetected Data Qualified as "R6" (Rejected)
CLP volatiles, CLP semivolatiles, low-level CLP semivolatiles, and dioxins	IC: %RSD $\leq$ 30.0% CC: %D $\leq \pm$ 25.0%	IC: %RSD > 30.0% CC: %D > $\pm$ 25.0%	IC: %RSD > 60.0 % CC: %D > 50.0%	RRF < 0.05
CLP pesticides/ polychlorinated biphenyls (PCB) and low-level CLP pesticides/ PCBs	IC: %RSD $\leq$ 20.0%[a] PEM/CC: %D $\leq \pm$ 25.0%	IC: %RSD > 20.0%[a] PEM/CC: %D > $\pm$ 25.0%	IC: %RSD > 40%[a] PEM/CC: %D > 50.0%	N/A
CLP metals, modified WET CLP metals, and hexavalent chromium	IC: r $\geq$ 0.995 ICV/CCV: 90-110%	IC: r < 0.995 ICV/CCV: > 110% ICV/CCV: < 90%	IC: r < 0.995 ICV/CCV: < 90%	N/A
CLP mercury	IC: r $\geq$ 0.995 ICV/CCV: 80-120%	IC: r < 0.995 ICV/CCV: > 120% ICV/CCV: < 80%	IC: r < 0.995 ICV/CCV: < 80%	N/A

TABLE H-4

CALIBRATION REQUIREMENTS

NAVAL WEAPONS STATION CONCORD (Continued)

Analysis	Calibration Requirements	Detected Data Qualified as "J6" (Estimated)	Nondetected Data Qualified as "J6" (Estimated)	Detected Data Qualified as "J6" (Estimated) and Nondetected Data Qualified as "R6" (Rejected)
Total petroleum hydrocarbons (TPH)-purgeables, TPH-extractables, aromatic volatiles, and explosives	IC: %RSD ≤ 20.0% CC: %D ≤ ± 15.0%	IC: %RSD > 20.0% CC: %D > ± 15.0%	IC: %RSD > 40.0% CC: %D > ± 30.0%	N/A
Total organic carbon and sulfides	IC: r ≥ 0.995 ICV/CCV: 90-110%	IC: r < 0.995 ICV/CCV: > 110% ICV/CCV: < 90%	IC: r < 0.995 ICV/CCV: < 90%	N/A
pH and total suspended solids	CC: %D ≤ 10.0%	CC: %D > 10.0%	CC: %D > 10.0%	N/A

Notes: [a] IC criteria applies to single peak pesticides only.

Legend:
CLP: Contract Laboratory Program
IC: Initial calibration
%RSD: Percent relative standard deviation
CC: Continuing calibration

TABLE H-4

CALIBRATION REQUIREMENTS

NAVAL WEAPONS STATION CONCORD (Continued)

Notes (Continued):

%D:	Percent difference
RRF:	Relative response factor
PEM:	Performance evaluation mixture
N/A:	No calibration criteria were used for the rejection of data
WET:	Waste Extraction Test
r:	Correlation coefficient
ICV:	Initial calibration verification
CCV:	Continuing calibration verification

Source: EPA 1990a and EPA 1994; PRC 1994; and the specified analytical methods

TABLE H-5

DATA QUALIFICATION: ORGANIC CALIBRATION EXCEEDANCES
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J6"	Number (Percent) of Analytes Rejected as "R6"
CLP Volatiles:				
2-BUTANONE	SOIL	100	9	0
ACETONE	SOIL	100	2	0
Total	SOIL	3300	11 (0.33%)	0 (0.00%)
ACETONE	SWATER	60	11	0
BROMOMETHANE	SWATER	60	10	0
Total	SWATER	1980	21 (1.06%)	0 (0.00%)
CLP Semivolatiles:				
2,2'-OXYBIS(1-CHLOROPROPANE)	SOIL	101	2	0
2,4-DINITROPHENOL	SOIL	101	2	0
3,3'-DICHLOROBENZIDINE	SOIL	101	5	0
3-NITROANILINE	SOIL	101	3	0
CARBAZOLE	SOIL	101	17	0
HEXACHLOROCYCLOPENTADIENE	SOIL	101	16	0
Total	SOIL	6464	45 (0.70%)	0 (0.00%)
2,4-DINITROPHENOL	SWATER	60	3	0
3,3'-DICHLOROBENZIDINE	SWATER	60	13	0
4-CHLOROANILINE	SWATER	60	4	0
HEXACHLOROCYCLOPENTADIENE	SWATER	60	7	0
Total	SWATER	3840	27 (0.70%)	0 (0.00%)
Low Level CLP Semivolatiles:				
HEXACHLOROCYCLOPENTADIENE	SEDIMENT	5	3	0
Total	SEDIMENT	370	3 (0.81%)	0 (0.00%)
2,4-DINITROPHENOL	SOIL	129	0	3
3,3'-DICHLOROBENZIDINE	SOIL	129	5	0
3-NITROANILINE	SOIL	129	6	0
4,6-DINITRO-2-METHYLPHENOL	SOIL	129	0	1
4-NITROANILINE	SOIL	129	6	0
4-NITROPHENOL	SOIL	129	7	0
BENZO(K)FLUORANTHENE	SOIL	129	1	0
BENZOIC ACID	SOIL	129	28	0
BENZYL ALCOHOL	SOIL	129	5	0

TABLE H-5

DATA QUALIFICATION: ORGANIC CALIBRATION EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J6"	Number (Percent) of Analytes Rejected as "R6"
FLUORANTHENE	SOIL	129	5	0
HEXACHLOROCYCLOPENTADIENE	SOIL	129	35	15
NITROBENZENE	SOIL	129	1	0
PENTACHLOROPHENOL	SOIL	129	1	17
Total	SOIL	9546	100 (1.05%)	36 (0.38%)
Low Level CLP Pesticides/PCBs:				
HEPTACHLOR EPOXIDE	SEDIMENT	5	3	0
PCB-44 (2,2',3,5')	SEDIMENT	5	3	0
PCB-8 (2,4')	SEDIMENT	5	2	0
Total	SEDIMENT	175	8 (4.57%)	0 (0.00%)
HEPTACHLOR EPOXIDE	SOIL	129	12	0
MIREX	SOIL	129	3	0
PCB-126 (3,3',4,4',5)	SOIL	129	4	0
PCB-195 (2,2',3,3',4,4',5,6)	SOIL	129	3	0
PCB-209 (2,2',3,3',4,4',5,5',6	SOIL	129	3	0
PCB-44 (2,2',3,5')	SOIL	129	18	0
PCB-8 (2,4')	SOIL	129	2	0
Total	SOIL	4515	45 (1.00%)	0 (0.00%)
Tidal Areas	All	36659	260 (0.71%)	36 (0.10%)

Note: The following analyses had no calibration exceedances: CLP pesticides/PCBs, aromatic volatiles, TPH-purgeables, TPH-extractables, dioxins, and explosives.

TABLE H-6

EQUIPMENT BLANK SUMMARY TABLE
NAVAL WEAPONS STATION CONCORD

Analysis	Analyte	Minimum Value	Maximum Value	Median Value	Unit	Frequency of Detection
TMETAL	ALUMINUM	18.9	42.2	35.4	UG/L	5/22
TMETAL	ARSENIC	1.5	2.4	1.95	UG/L	2/22
TMETAL	BARIUM	0.89	0.89	0.89	UG/L	1/22
TMETAL	CALCIUM	65.3	107	94	UG/L	5/22
TMETAL	COPPER	0.65	1.2	1	UG/L	3/22
TMETAL	IRON	18.5	149	53.9	UG/L	5/22
TMETAL	LEAD	1.3	1.3	1.3	UG/L	1/22
TMETAL	MAGNESIUM	19.9	56.5	38.4	UG/L	5/22
TMETAL	MANGANESE	0.38	2.4	1.2	UG/L	3/22
TMETAL	MOLYBDENUM	0.86	1.4	1.13	UG/L	2/22
TMETAL	NICKEL	2.9	3.4	3.15	UG/L	2/22
TMETAL	SODIUM	161	199	180	UG/L	2/22
TMETAL	ZINC	18.5	47.3	33.9	UG/L	5/22
TOC	TOTAL ORGANIC CARBON	0.5	0.7	0.6	MG/L	3/22

Notes: An equipment rinsate blank is collected after a sample collection device is subject to decontamination procedures. Analyte-free water is poured over or through the sampling device, collected in the appropriate sample containers and analyzed for the same parameters as the samples collected during the sampling event. Equipment rinsate blanks are used to verify the effectiveness of sampling equipment decontamination procedures.

Only analyses that were detected appear in the table.

TABLE H-7

DATA QUALIFICATION: BLANK CONTAMINATION
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Reported as "U1"	Number (Percent) of Analytes Reported as "U2"
CLP Volatiles:				
2-BUTANONE	SOIL	100	18	0
ACETONE	SOIL	100	85	8
CARBON DISULFIDE	SOIL	100	7	0
METHYLENE CHLORIDE	SOIL	100	54	0
Total	SOIL	3300	164 (4.97%)	8 (0.24%)
ACETONE	SWATER	60	11	0
Total	SWATER	1980	11 (0.56%)	0 (0.00%)
ACETONE	WATER	2	2	0
Total	WATER	66	2 (3.03%)	0 (0.00%)
CLP Semivolatiles:				
BIS(2-ETHYLHEXYL)PHTHALATE	SOIL	101	4	0
Total	SOIL	6464	4 (0.06%)	0 (0.00%)
BIS(2-ETHYLHEXYL)PHTHALATE	SWATER	60	8	0
Total	SWATER	3840	8 (0.21%)	0 (0.00%)
DIETHYLPHTHALATE	WATER	2	1	0
Total	WATER	128	1 (0.78%)	0 (0.00%)
Low Level CLP Semivolatiles:				
BIS(2-ETHYLHEXYL)PHTHALATE	SEDIMENT	5	2	0
DI-N-BUTYLPHTHALATE	SEDIMENT	5	2	0
Total	SEDIMENT	370	4 (1.08%)	0 (0.00%)
BENZO(A)ANTHRACENE	SOIL	129	9	0
BENZO(A)PYRENE	SOIL	129	10	0
BENZO(B)FLUORANTHENE	SOIL	129	11	0
BENZO(G,H,I)PERYLENE	SOIL	129	9	0
BENZO(K)FLUORANTHENE	SOIL	129	9	0
BENZOIC ACID	SOIL	129	2	0
BIS(2-ETHYLHEXYL)PHTHALATE	SOIL	129	56	1
BUTYLBENZYLPHTHALATE	SOIL	129	5	0
CHRYSENE	SOIL	129	10	0
DI-N-BUTYLPHTHALATE	SOIL	129	86	0
DIBENZ(A,H)ANTHRACENE	SOIL	129	6	0
DIETHYLPHTHALATE	SOIL	129	12	0

TABLE H-7

DATA QUALIFICATION: BLANK CONTAMINATION (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Reported as "u1"	Number (Percent) of Analytes Reported as "u2"
INDENO(1,2,3-CD)PYRENE	SOIL	129	8	0
PERYLENE	SOIL	129	6	0
PHENOL	SOIL	129	2	0
Total	SOIL	9546	241 (2.52%)	1 (0.01%)
Low Level CLP Pesticides/PCBs:				
PCB-138 (2,2',3,4,4',5')	SEDIMENT	5	3	0
Total	SEDIMENT	175	3 (1.71%)	0 (0.00%)
2,4'-DDD	SOIL	129	1	0
4,4'-DDD	SOIL	129	6	0
4,4'-DDT	SOIL	129	5	0
HEPTACHLOR	SOIL	129	10	0
PCB-138 (2,2',3,4,4',5')	SOIL	129	1	0
PCB-18 (2,2',5)	SOIL	129	7	0
PCB-187 (2,2',3,4',5,5',6)	SOIL	129	4	0
PCB-209 (2,2',3,3',4,4',5,5',6	SOIL	129	2	0
PCB-44 (2,2',3,5')	SOIL	129	1	0
PCB-8 (2,4')	SOIL	129	5	0
Total	SOIL	4515	42 (0.93%)	0 (0.00%)
CLP Metals:				
ANTIMONY	SEDIMENT	5	2	0
SILVER	SEDIMENT	5	1	0
Total	SEDIMENT	120	3 (2.50%)	0 (0.00%)
ANTIMONY	SOIL	294	38	9
ARSENIC	SOIL	294	7	6
BERYLLIUM	SOIL	294	71	2
CADMIUM	SOIL	294	13	1
CHROMIUM	SOIL	294	10	0
COBALT	SOIL	294	2	0
COPPER	SOIL	294	2	2
LEAD	SOIL	294	5	0
MERCURY	SOIL	294	27	5

TABLE H-7

DATA QUALIFICATION: BLANK CONTAMINATION (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Reported as "U1"	Number (Percent) of Analytes Reported as "U2"
MOLYBDENUM	SOIL	294	55	12
NICKEL	SOIL	294	2	0
SELENIUM	SOIL	294	13	0
SILVER	SOIL	294	11	0
SODIUM	SOIL	294	11	2
THALLIUM	SOIL	294	10	0
ZINC	SOIL	294	5	8
Total	SOIL	7056	282 (4.00%)	47 (0.67%)
ALUMINUM	SWATER	60	14	0
ANTIMONY	SWATER	60	14	0
ARSENIC	SWATER	60	12	0
BERYLLIUM	SWATER	60	10	0
CADMIUM	SWATER	60	11	0
CHROMIUM	SWATER	60	11	0
COBALT	SWATER	60	14	0
COPPER	SWATER	60	16	0
LEAD	SWATER	60	16	0
MERCURY	SWATER	60	2	0
MOLYBDENUM	SWATER	60	29	0
NICKEL	SWATER	60	8	0
SELENIUM	SWATER	60	4	0
SILVER	SWATER	60	2	0
THALLIUM	SWATER	60	3	0
VANADIUM	SWATER	60	32	0
ZINC	SWATER	60	35	0
Total	SWATER	1440	233 (16.18%)	0 (0.00%)
BERYLLIUM	WATER	2	1	0
Total	WATER	49	1 (2.04%)	0 (0.00%)

TABLE H-7

DATA QUALIFICATION: BLANK CONTAMINATION (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Reported as "UJ"	Number (Percent) of Analytes Reported as "UR"
WET Acid CLP Metals:				
ANTIMONY	SEDIMENT	5	2	0
ARSENIC	SEDIMENT	5	2	0
MERCURY	SEDIMENT	5	1	0
SELENIUM	SEDIMENT	5	1	0
Total	SEDIMENT	120	6 (5.00%)	0 (0.00%)
ANTIMONY	SOIL	15	6	0
BERYLLIUM	SOIL	15	1	0
Total	SOIL	360	7 (1.94%)	0 (0.00%)
WET CLP Metals:				
ANTIMONY	SEDIMENT	5	2	0
ARSENIC	SEDIMENT	5	2	0
BERYLLIUM	SEDIMENT	5	2	0
CADMIUM	SEDIMENT	5	2	0
CHROMIUM	SEDIMENT	5	2	0
MERCURY	SEDIMENT	5	1	0
SELENIUM	SEDIMENT	5	1	0
ZINC	SEDIMENT	5	2	0
Total	SEDIMENT	120	14 (11.67%)	0 (0.00%)
ALUMINUM	SOIL	47	4	0
ANTIMONY	SOIL	47	9	0
BERYLLIUM	SOIL	47	3	0
CADMIUM	SOIL	47	12	0
CHROMIUM	SOIL	47	18	0
COBALT	SOIL	47	2	0
COPPER	SOIL	47	4	0
IRON	SOIL	47	3	0
LEAD	SOIL	47	6	0
MANGANESE	SOIL	47	2	0
MERCURY	SOIL	47	2	0

TABLE H-7

DATA QUALIFICATION: BLANK CONTAMINATION (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Reported as "U"	Number (Percent) of Analytes Reported as "UJ"
MOLYBDENUM	SOIL	47	20	0
NICKEL	SOIL	47	8	0
SELENIUM	SOIL	47	1	0
SILVER	SOIL	47	8	0
ZINC	SOIL	47	9	0
Total	SOIL	1128	111 (9.84%)	0 (0.00%)
Tidal Areas	All	49155	1137 (2.31%)	56 (0.11%)

Note: The following analyses had no detection or quantitation limits affected by blank contamination: CLP pesticides/PCBs, TPH-purgeables, TPH-extractables, dioxins, aromatic volatiles, hexavalent chromium, TOC, pH, sulfides, and explosives.

TABLE H-8

ACCURACY REQUIREMENTS

NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Accuracy Requirements	Detected Data Qualified as "J4" (Estimated)	Detected and Nondetected Data Qualified as "J4" (Estimated)	Detected Data Qualified as "J4" (Estimated) and Nondetected Data Qualified as "R4" (Rejected)
CLP volatiles	Water	SMC1: 88-110% SMC2: 86-115% SMC3: 76-114%	SMC1: > 110% SMC2: > 115% SMC3: > 114%	SMC1: < 88% SMC2: < 86% SMC3: < 76%	Any SMC: < 10%
	Soil	SMC1: 84-138% SMC2: 59-113% SMC3: 70-121%	SMC1: > 138% SMC2: > 113% SMC3: > 121%	SMC1: < 84% SMC2: < 59% SMC3: < 70%	
CLP semivolatiles and low-level CLP semivolatiles	Water	SMC1: 35-114% SMC2: 43-116% SMC3: 33-141% SMC4: 10-110% SMC5: 21-110% SMC6: 10-123% SMC7: 33-110% SMC8: 16-110%	SMC1: > 114% SMC2: > 116% SMC3: > 141% SMC4: > 110% SMC5: > 110% SMC6: > 123% SMC7: > 110% SMC8: > 110%	SMC1: < 35% SMC2: < 43% SMC3: < 33% SMC4: < 10% SMC5: < 21% SMC6: < 10% SMC7: < 33% SMC8: < 16%	Any SMC: < 10%

TABLE H-8

ACCURACY REQUIREMENTS

NAVAL WEAPONS STATION CONCORD (Continued)

Analysis	Matrix	Accuracy Requirements	Detected Data Qualified as "J4" (Estimated)	Detected and Nondetected Data Qualified as "J4" (Estimated)	Detected Data Qualified as "J4" (Estimated) and Nondetected Data Qualified as "R4" (Rejected)
CLP semivolatiles and low-level CLP semivolatiles	Soil	SMC1: 23-120% SMC2: 30-115% SMC3: 18-137% SMC4: 24-113% SMC5: 25-121% SMC6: 19-122% SMC7: 20-130% SMC8: 20-130%	SMC1: > 120% SMC2: > 115% SMC3: > 137% SMC4: > 113% SMC5: > 121% SMC6: > 122% SMC7: > 130% SMC8: > 130%	SMC1: < 23% SMC2: < 30% SMC3: < 18% SMC4: < 24% SMC5: < 25% SMC6: < 19% SMC7: < 20% SMC8: < 20%	Any SMC: < 10%
CLP pesticides/ polychlorinated biphenyls (PCB), and low-level CLP pesticides/PCBs	Water, soil, or sediment	TCX: 60-150% DCB: 60-150%	TCX or DCB: > 150% (two or more surrogates)	TCX or DCB: < 60% (two or more surrogates)	TCX or DCB: < 10% (one or more surrogates)
Total petroleum hydrocarbons-extractables and explosives	Soil or water	SMC: 60-140%	SMC: > 140%	SMC: < 60%	SMC: < 10%

TABLE H-8

ACCURACY REQUIREMENTS

NAVAL WEAPONS STATION CONCORD (Continued)

Analysis	Matrix	Accuracy Requirements	Detected Data Qualified as "J4" (Estimated)	Detected and Nondetected Data Qualified as "J4" (Estimated)	Detected Data Qualified as "J4" (Estimated) and Nondetected Data Qualified as "R4" (Rejected)
Total petroleum hydrocarbons-purgeables and aromatic volatiles	Soil or water	SMC: 75-125%	SMC: > 125%	SMC: < 75%	SMC: < 10%
CLP metals, hexavalent chromium, total organic carbon, pH, total suspended solids, and sulfides	Water, soil, or sediment	LCS: 80-120%[a] MS: 75-125%[a]	LCS: > 120% MS: > 125%	LCS: < 80% MS: < 75%	LCS: < 50% MS: < 30%

Notes:

[a] LCS and MS recoveries outside accuracy requirements apply to all samples in the sample delivery group.

CLP: Contract Laboratory Program
SMC: System monitoring compound
TCX: Tetrachloro-m-xylene
DCB: Decachlorobiphenyl
LCS: Laboratory control sample
MS: Matrix spike

Source: EPA 1990a; EPA 1994; PRC 1994; and the specified analytical methods

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
CLP Volatiles:				
1,1,1-TRICHLOROETHANE	SWATER	60	1	0
1,1,2,2-TETRACHLOROETHANE	SWATER	60	1	0
1,1,2-TRICHLOROETHANE	SWATER	60	1	0
1,1-DICHLOROETHANE	SWATER	60	1	0
1,1-DICHLOROETHENE	SWATER	60	1	0
1,2-DICHLOROETHANE	SWATER	60	1	0
1,2-DICHLOROETHENE (TOTAL)	SWATER	60	1	0
1,2-DICHLOROPROPANE	SWATER	60	1	0
2-BUTANONE	SWATER	60	1	0
2-HEXANONE	SWATER	60	1	0
4-METHYL-2-PENTANONE	SWATER	60	1	0
ACETONE	SWATER	60	1	0
BENZENE	SWATER	60	1	0
BROMODICHLOROMETHANE	SWATER	60	1	0
BROMOFORM	SWATER	60	1	0
BROMOMETHANE	SWATER	60	1	0
CARBON DISULFIDE	SWATER	60	2	0
CARBON TETRACHLORIDE	SWATER	60	1	0
CHLOROBENZENE	SWATER	60	1	0
CHLOROETHANE	SWATER	60	1	0
CHLOROFORM	SWATER	60	1	0
CHLOROMETHANE	SWATER	60	1	0
CIS-1,3-DICHLOROPROPENE	SWATER	60	1	0
DIBROMOCHLOROMETHANE	SWATER	60	1	0
ETHYLBENZENE	SWATER	60	1	0
METHYLENE CHLORIDE	SWATER	60	1	0
STYRENE	SWATER	60	1	0
TETRACHLOROETHENE	SWATER	60	1	0

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
TOLUENE	SWATER	60	1	0
TRANS-1,3-DICHLOROPROPENE	SWATER	60	1	0
TRICHLOROETHENE	SWATER	60	1	0
VINYL CHLORIDE	SWATER	60	1	0
XYLENE (TOTAL)	SWATER	60	1	0
Total	SWATER	1980	34 (1.72%)	0 (0.00%)
CLP Semivolatiles				
1,2,4-TRICHLOROBENZENE	SOIL	101	0	1
1,2-DICHLOROBENZENE	SOIL	101	0	1
1,3-DICHLOROBENZENE	SOIL	101	0	1
1,4-DICHLOROBENZENE	SOIL	101	0	1
2,2'-OXYBIS(1-CHLOROPROPANE)	SOIL	101	0	1
2,4-DINITROTOLUENE	SOIL	101	0	1
2,6-DINITROTOLUENE	SOIL	101	0	1
2-CHLORONAPHTHALENE	SOIL	101	0	1
2-METHYLNAPHTHALENE	SOIL	101	0	1
2-NITROANILINE	SOIL	101	0	1
3,3'-DICHLOROBENZIDINE	SOIL	101	0	1
3-NITROANILINE	SOIL	101	0	1
4-BROMOPHENYL-PHENYLETHER	SOIL	101	0	1
4-CHLOROANILINE	SOIL	101	0	1
4-CHLOROPHENYL-PHENYLETHER	SOIL	101	0	1
4-NITROANILINE	SOIL	101	0	1
4-NITROPHENOL	SOIL	101	0	1
ACENAPHTHENE	SOIL	101	0	1
ACENAPHTHYLENE	SOIL	101	0	1
ANTHRACENE	SOIL	101	0	1
BENZO(A)ANTHRACENE	SOIL	101	0	1
BENZO(A)PYRENE	SOIL	101	0	1

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
BENZO(B)FLUORANTHENE	SOIL	101	0	1
BENZO(G,H,I)PERYLENE	SOIL	101	0	1
BENZO(K)FLUORANTHENE	SOIL	101	0	1
BIS(2-CHLOROETHOXY)METHANE	SOIL	101	0	1
BIS(2-CHLOROETHYL)ETHER	SOIL	101	0	1
BIS(2-ETHYLHEXYL)PHTHALATE	SOIL	101	0	1
BUTYLBENZYLPHTHALATE	SOIL	101	0	1
CARBAZOLE	SOIL	101	0	1
CHRYSENE	SOIL	101	0	1
DI-N-BUTYLPHTHALATE	SOIL	101	0	1
DI-N-OCTYLPHTHALATE	SOIL	101	0	1
DIBENZ(A,H)ANTHRACENE	SOIL	101	0	1
DIBENZOFURAN	SOIL	101	0	1
DIETHYLPHTHALATE	SOIL	101	0	1
DIMETHYLPHTHALATE	SOIL	101	0	1
FLUORANTHENE	SOIL	101	0	1
FLUORENE	SOIL	101	0	1
HEXACHLOROBENZENE	SOIL	101	0	1
HEXACHLOROBUTADIENE	SOIL	101	0	1
HEXACHLOROCYCLOPENTADIENE	SOIL	101	0	1
HEXACHLOROETHANE	SOIL	101	0	1
INDENO(1,2,3-CD)PYRENE	SOIL	101	0	1
ISOPHORONE	SOIL	101	0	1
N-NITROSO-DI-N-PROPYLAMINE	SOIL	101	0	1
N-NITROSODIPHENYLAMINE (1)	SOIL	101	0	1
NAPHTHALENE	SOIL	101	0	1
NITROBENZENE	SOIL	101	0	1
PHENANTHRENE	SOIL	101	0	1
PYRENE	SOIL	101	0	1

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
Total	SOIL	6464	0 (0.00%)	51 (0.79%)
Low Level CLP Semivolatiles:				
4-NITROPHENOL	SOIL	129	0	1
BENZOIC ACID	SOIL	129	2	0
HEXACHLOROCYCLOPENTADIENE	SOIL	129	2	0
PENTACHLOROPHENOL	SOIL	129	1	1
Total	SOIL	9546	5 (0.05%)	2 (0.02%)
CLP Pesticides/PCBs:				
4,4'-DDT	SOIL	100	11	0
ALDRIN	SOIL	100	11	0
DIELDRIN	SOIL	100	11	0
ENDRIN	SOIL	100	11	0
GAMMA-BHC (LINDANE)	SOIL	100	11	0
HEPTACHLOR	SOIL	100	11	0
Total	SOIL	2800	66 (2.36%)	0 (0.00%)
4,4'-DDD	SWATER	60	3	0
4,4'-DDE	SWATER	60	3	0
4,4'-DDT	SWATER	60	3	0
ALDRIN	SWATER	60	3	0
ALPHA-BHC	SWATER	60	3	0
ALPHA-CHLORDANE	SWATER	60	3	0
AROCLOR-1016	SWATER	60	3	0
AROCLOR-1221	SWATER	60	3	0
AROCLOR-1232	SWATER	60	3	0
AROCLOR-1242	SWATER	60	3	0
AROCLOR-1248	SWATER	60	3	0
AROCLOR-1254	SWATER	60	3	0
AROCLOR-1260	SWATER	60	3	0
BETA-BHC	SWATER	60	3	0
DELTA-BHC	SWATER	60	3	0

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
DIELDRIN	SWATER	60	3	0
ENDOSULFAN I	SWATER	60	3	0
ENDOSULFAN II	SWATER	60	3	0
ENDOSULFAN SULFATE	SWATER	60	3	0
ENDRIN	SWATER	60	3	0
ENDRIN ALDEHYDE	SWATER	60	3	0
ENDRIN KETONE	SWATER	60	3	0
GAMMA-BHC (LINDANE)	SWATER	60	3	0
GAMMA-CHLORDANE	SWATER	60	3	0
HEPTACHLOR	SWATER	60	3	0
HEPTACHLOR EPOXIDE	SWATER	60	3	0
METHOXYCHLOR	SWATER	60	3	0
TOXAPHENE	SWATER	60	3	0
Total	SWATER	1680	84 (5.00%)	0 (0.00%)
Low Level CLP Pesticides/PCBs:				
2,4'-DDD	SEDIMENT	5	2	0
2,4'-DDE	SEDIMENT	5	2	0
2,4'-DDT	SEDIMENT	5	2	0
4,4'-DDD	SEDIMENT	5	2	0
4,4'-DDE	SEDIMENT	5	2	0
4,4'-DDT	SEDIMENT	5	2	0
ALDRIN	SEDIMENT	5	1	0
ALPHA-CHLORDANE	SEDIMENT	5	2	0
DIELDRIN	SEDIMENT	5	2	0
GAMMA-BHC (LINDANE)	SEDIMENT	5	1	0
HEPTACHLOR	SEDIMENT	5	1	0
HEPTACHLOR EPOXIDE	SEDIMENT	5	1	0
HEXACHLOROBENZENE	SEDIMENT	5	2	0
MIREX	SEDIMENT	5	2	0

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
PCB-101 (2,2',3,5,5')	SEDIMENT	5	2	0
PCB-105 (2,3,3',4,4')	SEDIMENT	5	2	0
PCB-118 (2,3',4,4',5)	SEDIMENT	5	2	0
PCB-126 (3,3',4,4',5)	SEDIMENT	5	2	0
PCB-128 (2,2',3,3',4,4')	SEDIMENT	5	2	0
PCB-153 (2,2',4,4',5,5')	SEDIMENT	5	2	0
PCB-170 (2,2',3,3',4,4',5)	SEDIMENT	5	2	0
PCB-18 (2,2',5)	SEDIMENT	5	1	0
PCB-180 (2,2',3,4,4',5,5')	SEDIMENT	5	2	0
PCB-187 (2,2',3,4',5,5',6)	SEDIMENT	5	2	0
PCB-195 (2,2',3,3',4,4',5,6)	SEDIMENT	5	2	0
PCB-206 (2,2,',3,3',4,4',5,5',	SEDIMENT	5	2	0
PCB-209 (2,2',3,3',4,4',5,5',6	SEDIMENT	5	2	0
PCB-28 (2,4,4')	SEDIMENT	5	1	0
PCB-44 (2,2',3,5')	SEDIMENT	5	1	0
PCB-52 (2,2',5,5')	SEDIMENT	5	1	0
PCB-66 (2,3',4,4')	SEDIMENT	5	2	0
PCB-77 (3,3',4,4')	SEDIMENT	5	1	0
PCB-8 (2,4')	SEDIMENT	5	1	0
TRANS-NONACHLOR	SEDIMENT	5	2	0
Total	SEDIMENT	175	58 (33.14%)	0 (0.00%)
2,4'-DDD	SOIL	129	15	0
2,4'-DDE	SOIL	129	15	0
2,4'-DDT	SOIL	129	15	0
4,4'-DDD	SOIL	129	15	0
4,4'-DDE	SOIL	129	15	0
4,4'-DDT	SOIL	129	20	0
ALDRIN	SOIL	129	15	0
ALPHA-CHLORDANE	SOIL	129	15	0

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
DIELDRIN	SOIL	129	15	0
GAMMA-BHC (LINDANE)	SOIL	129	15	0
HEPTACHLOR	SOIL	129	14	0
HEPTACHLOR EPOXIDE	SOIL	129	16	0
HEXACHLOROBENZENE	SOIL	129	16	0
MIREX	SOIL	129	18	0
PCB-101 (2,2',3,5,5')	SOIL	129	21	0
PCB-105 (2,3,3',4,4')	SOIL	129	21	0
PCB-118 (2,3',4,4',5)	SOIL	129	21	0
PCB-126 (3,3',4,4',5)	SOIL	129	22	0
PCB-128 (2,2',3,3',4,4')	SOIL	129	21	0
PCB-138 (2,2',3,4,4',5')	SOIL	129	21	0
PCB-153 (2,2',4,4',5,5')	SOIL	129	21	0
PCB-170 (2,2',3,3',4,4',5)	SOIL	129	21	0
PCB-18 (2,2',5)	SOIL	129	20	0
PCB-180 (2,2',3,4,4',5,5')	SOIL	129	21	0
PCB-187 (2,2',3,4',5,5',6)	SOIL	129	21	0
PCB-195 (2,2',3,3',4,4',5,6)	SOIL	129	22	0
PCB-206 (2,2,',3,3',4,4',5,5',	SOIL	129	21	0
PCB-209 (2,2',3,3',4,4',5,5',6	SOIL	129	21	0
PCB-28 (2,4,4')	SOIL	129	21	0
PCB-44 (2,2',3,5')	SOIL	129	21	0
PCB-52 (2,2',5,5')	SOIL	129	20	0
PCB-66 (2,3',4,4')	SOIL	129	21	0
PCB-77 (3,3',4,4')	SOIL	129	20	0
PCB-8 (2,4')	SOIL	129	20	0
TRANS-NONACHLOR	SOIL	129	16	0
Total	SOIL	4515	653 (14.46%)	0 (0.00%)

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
Explosives:				
2-NITROTOLUENE	SOIL	77	3	0
4-NITROTOLUENE	SOIL	77	3	0
TETRYL	SOIL	77	7	14
Total	SOIL	924	13 (1.41%)	14 (1.52%)
1,3,5-TRINITROBENZENE	SWATER	60	4	0
1,3-DINITROBENZENE	SWATER	60	3	0
2,4,6-TRINITROTOLUENE	SWATER	60	5	0
2,4-DINITROTOLUENE	SWATER	60	3	0
2,6-DINITROTOLUENE	SWATER	60	3	0
2-NITROTOLUENE	SWATER	60	4	0
3-NITROTOLUENE	SWATER	60	4	0
4-NITROTOLUENE	SWATER	60	4	0
HMX	SWATER	60	3	0
NITROBENZENE	SWATER	60	3	0
RDX	SWATER	60	7	0
TETRYL	SWATER	60	16	2
Total	SWATER	720	59 (8.19%)	2 (0.28%)
1,3,5-TRINITROBENZENE	WATER	2	0	1
1,3-DINITROBENZENE	WATER	2	0	1
2,4,6-TRINITROTOLUENE	WATER	2	0	1
2,4-DINITROTOLUENE	WATER	2	0	1
2,6-DINITROTOLUENE	WATER	2	0	1
2-NITROTOLUENE	WATER	2	0	1
3-NITROTOLUENE	WATER	2	0	1
4-NITROTOLUENE	WATER	2	0	1
HMX	WATER	2	0	1
NITROBENZENE	WATER	2	0	1
RDX	WATER	2	0	1
TETRYL	WATER	2	0	1

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
Total	WATER	24	0 (0.00%)	12 (50.00%)
TPH-Extractables:				
DIESEL	SWATER	5	1	0
MOTOR OIL	SWATER	5	1	0
Total	SWATER	10	2 (20.00%)	0 (0.00%)
CLP Metals:				
ANTIMONY	SEDIMENT	5	2	0
BARIUM	SEDIMENT	5	2	0
THALLIUM	SEDIMENT	5	2	0
ZINC	SEDIMENT	5	2	0
Total	SEDIMENT	120	8 (6.67%)	0 (0.00%)
ANTIMONY	SOIL	294	216	25
BARIUM	SOIL	294	18	0
CHROMIUM	SOIL	294	20	0
LEAD	SOIL	294	74	0
MANGANESE	SOIL	294	35	0
MERCURY	SOIL	294	16	1
THALLIUM	SOIL	294	20	0
ZINC	SOIL	294	18	0
Total	SOIL	7056	417 (5.91%)	26 (0.37%)
WET Acid CLP Metals:				
MERCURY	SEDIMENT	5	2	0
SELENIUM	SEDIMENT	5	0	3
Total	SEDIMENT	120	2 (1.67%)	3 (2.50%)
ALUMINUM	SOIL	15	1	0
ARSENIC	SOIL	15	4	0
BERYLLIUM	SOIL	15	4	0
CADMIUM	SOIL	15	4	0
CHROMIUM	SOIL	15	4	0
COBALT	SOIL	15	4	0
LEAD	SOIL	15	4	0

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J4"	Number (Percent) of Analytes Rejected as "R4"
NICKEL	SOIL	15	4	0
SELENIUM	SOIL	15	4	0
ZINC	SOIL	15	4	0
Total	SOIL	360	37 (10.28%)	0 (0.00%)
WET CLP Metals:				
ALUMINUM	SOIL	47	16	0
ARSENIC	SOIL	47	3	0
BARIUM	SOIL	47	5	0
COBALT	SOIL	47	4	0
COPPER	SOIL	47	4	0
IRON	SOIL	47	18	0
LEAD	SOIL	47	3	0
MANGANESE	SOIL	47	5	0
MERCURY	SOIL	47	1	0
NICKEL	SOIL	47	5	0
SELENIUM	SOIL	47	1	0
SILVER	SOIL	47	3	0
VANADIUM	SOIL	47	4	0
ZINC	SOIL	47	3	0
Total	SOIL	1128	75 (6.65%)	0 (0.00%)
Hexavalent Chromium:				
HEXAVALENT CHROMIUM	SOIL	50	15	34
Total	SOIL	50	15 (30.00%)	34 (68.00%)
Total Organic Carbon:				
TOTAL ORGANIC CARBON	SOIL	228	14	0
Total	SOIL	228	14 (6.14%)	0 (0.00%)
Sulfides:				
SULFIDE	SEDIMENT	5	5	0
Total	SEDIMENT	10	5 (50.00%)	0 (0.00%)

TABLE H-9

DATA QUALIFICATION: ACCURACY EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J"	Number (Percent) of Analytes Rejected as "R"
SULFIDE	SOIL	201	92	23
Total	SOIL	375	92 (24.53%)	23 (6.13%)
Tidal Areas	All	49155	1639 (3.33%)	167 (0.34%)

Note: The following analyses had no accuracy exceedances: dioxins, TPH-purgeables, pH, and aromatic volatiles.

TABLE H-10

DATA QUALIFICATION: LABORATORY PRECISION EXCEEDANCES
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J5"
Low Level CLP Pesticides/PCBs:			
4,4'-DDD	SOIL	129	1
Total	SOIL	4515	1 (0.02%)
CLP Metals:			
ALUMINUM	SOIL	294	18
ARSENIC	SOIL	294	11
CALCIUM	SOIL	294	13
CHROMIUM	SOIL	294	12
COPPER	SOIL	294	11
IRON	SOIL	294	17
LEAD	SOIL	294	38
MANGANESE	SOIL	294	25
MERCURY	SOIL	294	8
MOLYBDENUM	SOIL	294	18
Total	SOIL	7056	171 (2.42%)
ZINC	SWATER	60	8
Total	SWATER	1440	8 (0.56%)
ZINC	WATER	2	2
Total	WATER	49	2 (4.08%)
WET Acid CLP Metals:			
THALLIUM	SOIL	15	2
Total	SOIL	360	2 (0.56%)
WET CLP Metals:			
ALUMINUM	SEDIMENT	5	5
BARIUM	SEDIMENT	5	3
CALCIUM	SEDIMENT	5	3
IRON	SEDIMENT	5	5
LEAD	SEDIMENT	5	3
MAGNESIUM	SEDIMENT	5	3
MANGANESE	SEDIMENT	5	5
POTASSIUM	SEDIMENT	5	3
Total	SEDIMENT	120	30 (25.00%)

TABLE H-10

DATA QUALIFICATION: LABORATORY PRECISION EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J5"
ALUMINUM	SOIL	47	22
BARIUM	SOIL	47	1
CALCIUM	SOIL	47	1
IRON	SOIL	47	21
LEAD	SOIL	47	1
MAGNESIUM	SOIL	47	1
MANGANESE	SOIL	47	4
MERCURY	SOIL	47	4
POTASSIUM	SOIL	47	1
ZINC	SOIL	47	1
Total	SOIL	1128	57 (5.05%)
Total Organic Carbon:			
TOTAL ORGANIC CARBON	SOIL	228	53
Total	SOIL	228	53 (23.25%)
Tidal Areas	All	49155	324 (0.66%)

Note: This qualification applies only to CLP metals, CLP WET metals, hexavalent chromium, pH, TOC, and sulfides. Hexavalent chromium, pH, and sulfides did not have any laboratory precision exceedances.

TABLE H-11

FIELD DUPLICATE SUMMARY TABLE
NAVAL WEAPONS STATION CONCORD

ANALYSIS	ANALYTE	ORIGINAL RESULT (28IRADSW003)	QUAL	UNIT	DUPLICATE RESULT (28IRADSW004)	QUAL	UNIT	RPD
SOLIDS	TOTAL SUSPENDED SOLIDS	10		MG/L	10	U	MG/L	0.0
TMETAL	ALUMINUM	393		UG/L	385		UG/L	2.1
TMETAL	BARIUM	48.8		UG/L	48.7		UG/L	0.2
TMETAL	CALCIUM	39000		UG/L	38500		UG/L	1.3
TMETAL	COBALT	0.51		UG/L	0.5	U	UG/L	2.0
TMETAL	COPPER	6.7	U	UG/L	11.4		UG/L	51.9
TMETAL	IRON	777		UG/L	774		UG/L	0.4
TMETAL	MAGNESIUM	100000		UG/L	99100		UG/L	0.9
TMETAL	MANGANESE	105		UG/L	106		UG/L	0.9
TMETAL	POTASSIUM	30200		UG/L	30500		UG/L	1.0
TMETAL	SODIUM	810000		UG/L	802000		UG/L	1.0
TOC	TOTAL ORGANIC CARBON	5.2		MG/L	5.2		MG/L	0.0

Notes: QUAL = Qualifier, U = Nondetected, J = Estimated, R = Rejected, RPD = Relative Percent Difference
MG/L = Milligrams per liter, UG/L = Micrograms per liter

Only analyses that were detected appear in the table.

TABLE H-11

FIELD DUPLICATE SUMMARY TABLE (CONTINUED)
NAVAL WEAPONS STATION CONCORD

ANALYSIS	ANALYTE	ORIGINAL RESULT (2B1RADSW104)	QUAL	UNIT	DUPLICATE RESULT (2B1RADSW105)	QUAL	UNIT	RPD
PEST	4,4'-DDT	0.027	J	UG/L	0.1	U	UG/L	115.0
PEST	ALDRIN	0.012	J	UG/L	0.05	U	UG/L	122.6
PEST	DIELDRIN	0.027	J	UG/L	0.1	U	UG/L	115.0
PEST	ENDRIN	0.028	J	UG/L	0.1	U	UG/L	112.5
PEST	GAMMA-BHC (LINDANE)	0.012	J	UG/L	0.05	U	UG/L	122.6
PEST	HEPTACHLOR	0.013	J	UG/L	0.05	U	UG/L	117.5
SOLIDS	TOTAL SUSPENDED SOLIDS	132		MG/L	96		MG/L	31.6
TMETAL	ALUMINUM	1350		UG/L	1430		UG/L	5.8
TMETAL	BARIUM	41.3		UG/L	41		UG/L	0.7
TMETAL	CALCIUM	47100		UG/L	43200		UG/L	8.6
TMETAL	CHROMIUM	4.2		UG/L	4.1		UG/L	2.4
TMETAL	COBALT	1.6		UG/L	1.3		UG/L	20.7
TMETAL	COPPER	8.2		UG/L	5.9		UG/L	32.6
TMETAL	IRON	1980		UG/L	2110		UG/L	6.4
TMETAL	MAGNESIUM	120000		UG/L	111000		UG/L	7.8
TMETAL	MANGANESE	90.6		UG/L	99.9		UG/L	9.8
TMETAL	MOLYBDENUM	1.9		UG/L	1.7		UG/L	11.1
TMETAL	NICKEL	7.9		UG/L	6.3		UG/L	22.5
TMETAL	POTASSIUM	32700		UG/L	34700		UG/L	5.9
TMETAL	SODIUM	926000		UG/L	867000		UG/L	6.6
TMETAL	VANADIUM	9.9		UG/L	9.2		UG/L	7.3
TOC	TOTAL ORGANIC CARBON	6.3		MG/L	8		MG/L	23.8

Notes: QUAL = Qualifier, U = Nondetected, J = Estimated, R = Rejected, RPD = Relative Percent Difference
MG/L = Milligrams per liter, UG/L = Micrograms per liter

Only analyses that were detected appear in the table.

TABLE H-11

FIELD DUPLICATE SUMMARY TABLE (CONTINUED)
NAVAL WEAPONS STATION CONCORD

ANALYSIS	ANALYTE	ORIGINAL RESULT (ZBTRADSW204)	QUAL	UNIT	DUPLICATE RESULT (ZBTRADSW2D5)	QUAL	UNIT	RPD
SOLIDS	TOTAL SUSPENDED SOLIDS	111		MG/L	275		MG/L	85.0
TMETAL	ALUMINUM	1250		UG/L	1320		UG/L	5.4
TMETAL	ARSENIC	1.8		UG/L	2.7		UG/L	40.0
TMETAL	BARIUM	27.9		UG/L	27.6		UG/L	1.1
TMETAL	CALCIUM	20000		UG/L	19900		UG/L	0.5
TMETAL	CHROMIUM	4.2		UG/L	4.2		UG/L	0.0
TMETAL	COPPER	8.3		UG/L	8		UG/L	3.7
TMETAL	IRON	1920		UG/L	1880		UG/L	2.1
TMETAL	MAGNESIUM	26900		UG/L	25200		UG/L	6.5
TMETAL	MANGANESE	74.3		UG/L	74.2		UG/L	0.1
TMETAL	NICKEL	6.7		UG/L	6.7		UG/L	0.0
TMETAL	POTASSIUM	7950		UG/L	6730		UG/L	16.6
TMETAL	SODIUM	178000		UG/L	151000		UG/L	16.4
TMETAL	VANADIUM	7.3		UG/L	7.1		UG/L	2.8
TOC	TOTAL ORGANIC CARBON	7.1		MG/L	6.6		MG/L	7.3

Notes: QUAL = Qualifier, U = Nondetected, J = Estimated, R = Rejected, RPD = Relative Percent Difference
MG/L = Milligrams per liter, UG/L = Micrograms per liter

Only analyses that were detected appear in the table.

TABLE H-11

FIELD DUPLICATE SUMMARY TABLE (CONTINUED)
NAVAL WEAPONS STATION CONCORD

ANALYSIS	ANALYTE	ORIGINAL RESULT (281RADSW012)	QUAL	UNIT	DUPLICATE RESULT (281RADSW013)	QUAL	UNIT	RPD
SOLIDS	TOTAL SUSPENDED SOLIDS	238		MG/L	332		MG/L	33.0
SVOA	FLUORANTHENE	10	U	UG/L	6	J	UG/L	50.0
TMETAL	ALUMINUM	678		UG/L	972		UG/L	35.6
TMETAL	ARSENIC	23.9		UG/L	33		UG/L	32.0
TMETAL	BARIUM	133		UG/L	151		UG/L	12.7
TMETAL	CALCIUM	123000		UG/L	122000		UG/L	0.8
TMETAL	COBALT	20.8		UG/L	26.7		UG/L	24.8
TMETAL	COPPER	10.6	J	UG/L	13.2		UG/L	21.8
TMETAL	IRON	53300		UG/L	70200		UG/L	27.4
TMETAL	LEAD	7.4	J	UG/L	10.9		UG/L	38.3
TMETAL	MAGNESIUM	290000		UG/L	292000		UG/L	0.7
TMETAL	MANGANESE	4540		UG/L	4650		UG/L	2.4
TMETAL	MOLYBDENUM	6.3	J	UG/L	5.6		UG/L	11.8
TMETAL	POTASSIUM	89100		UG/L	90000		UG/L	1.0
TMETAL	SODIUM	2280000		UG/L	2450000		UG/L	7.2
TMETAL	VANADIUM	18.5	J	UG/L	25.6		UG/L	32.2
TMETAL	ZINC	101	J	UG/L	135	J	UG/L	28.8
TOC	TOTAL ORGANIC CARBON	65.8		MG/L	63.7		MG/L	3.2

Notes: QUAL = Qualifier, U = Nondetected, J = Estimated, R = Rejected, RPD = Relative Percent Difference
MG/L = Milligrams per liter, UG/L = Micrograms per liter

Only analyses that were detected appear in the table.

TABLE H-11

FIELD DUPLICATE SUMMARY TABLE (CONTINUED)
NAVAL WEAPONS STATION CONCORD

ANALYSIS	ANALYTE	ORIGINAL RESULT (28IRAD8W213)	QUAL	UNIT	DUPLICATE RESULT (28IRAD5W214)	QUAL	UNIT	RPD
SOLIDS	TOTAL SUSPENDED SOLIDS	45		MG/L	30		MG/L	40.0
TMETAL	ALUMINUM	682		UG/L	310		UG/L	75.0
TMETAL	ARSENIC	2.7		UG/L	1.4	U	UG/L	63.4
TMETAL	BARIUM	43		UG/L	40.5		UG/L	6.0
TMETAL	CALCIUM	118000		UG/L	121000		UG/L	2.5
TMETAL	COBALT	17		UG/L	17		UG/L	0.0
TMETAL	COPPER	10.5		UG/L	9.6		UG/L	9.0
TMETAL	IRON	3760		UG/L	2210		UG/L	51.9
TMETAL	MAGNESIUM	145000		UG/L	150000		UG/L	3.4
TMETAL	MANGANESE	1820		UG/L	1870		UG/L	2.7
TMETAL	NICKEL	59.8		UG/L	60.6		UG/L	1.3
TMETAL	POTASSIUM	30600		UG/L	30500		UG/L	0.3
TMETAL	SELENIUM	2.3	U	UG/L	2.3		UG/L	0.0
TMETAL	SODIUM	807000		UG/L	824000		UG/L	2.1
TMETAL	ZINC	55.4		UG/L	63.6		UG/L	13.8
TOC	TOTAL ORGANIC CARBON	20.6		MG/L	22.2		MG/L	7.5

Notes: QUAL = Qualifier, U = Nondetected, J = Estimated, R = Rejected, RPD = Relative Percent Difference
MG/L = Milligrams per liter, UG/L = Micrograms per liter

Only analyses that were detected appear in the table.

TABLE H-11

FIELD DUPLICATE SUMMARY TABLE (CONTINUED)
NAVAL WEAPONS STATION CONCORD

ANALYSIS	ANALYTE	ORIGINAL RESULT (281WHSSW003)	QUAL	UNIT	DUPLICATE RESULT (281WHSSW004)	QUAL	UNIT	RPD
SOLIDS	TOTAL SUSPENDED SOLIDS	20		MG/L	10	U	MG/L	66.7
TMETAL	ALUMINUM	167		UG/L	146	U	UG/L	13.4
TMETAL	BARIUM	46.7		UG/L	48		UG/L	2.7
TMETAL	CALCIUM	40000		UG/L	40600		UG/L	1.5
TMETAL	COBALT	0.5	U	UG/L	0.73		UG/L	37.4
TMETAL	IRON	396		UG/L	410		UG/L	3.5
TMETAL	LEAD	1.5	U	UG/L	2		UG/L	28.6
TMETAL	MAGNESIUM	96500		UG/L	96100		UG/L	0.4
TMETAL	MANGANESE	44.6		UG/L	61.3		UG/L	31.5
TMETAL	POTASSIUM	30600		UG/L	30100		UG/L	1.6
TMETAL	SODIUM	807000		UG/L	791000		UG/L	2.0
TOC	TOTAL ORGANIC CARBON	6.7		MG/L	7.1		MG/L	5.8

Notes: QUAL = Qualifier, U = Nondetected, J = Estimated, R = Rejected, RPD = Relative Percent Difference
MG/L = Milligrams per liter, UG/L = Micrograms per liter

Only analyses that were detected appear in the table.

TABLE H-11

FIELD DUPLICATE SUMMARY TABLE (CONTINUED)
NAVAL WEAPONS STATION CONCORD

ANALYSIS	ANALYTE	ORIGINAL RESULT (281WNSSW203)	QUAL	UNIT	DUPLICATE RESULT (281WNSSW204)	QUAL	UNIT	RPD
SOLIDS	TOTAL SUSPENDED SOLIDS	19		MG/L	10	U	MG/L	62.1
TMETAL	ALUMINUM	818		UG/L	711		UG/L	14.0
TMETAL	ARSENIC	2.1		UG/L	2.2		UG/L	4.7
TMETAL	BARIUM	33.2		UG/L	27.8		UG/L	17.7
TMETAL	CALCIUM	30400		UG/L	25500		UG/L	17.5
TMETAL	COPPER	5.3		UG/L	5.3		UG/L	0.0
TMETAL	IRON	1470		UG/L	1260		UG/L	15.4
TMETAL	LEAD	1.4		UG/L	1.3		UG/L	7.4
TMETAL	MAGNESIUM	61600		UG/L	52100		UG/L	16.7
TMETAL	MANGANESE	82.3		UG/L	72.9		UG/L	12.1
TMETAL	NICKEL	4.7		UG/L	4		UG/L	16.1
TMETAL	POTASSIUM	20000		UG/L	17700		UG/L	12.2
TMETAL	SELENIUM	2.3	U	UG/L	3		UG/L	26.4
TMETAL	SODIUM	504000		UG/L	439000		UG/L	13.8
TMETAL	VANADIUM	5.1		UG/L	4.4		UG/L	14.7
TOC	TOTAL ORGANIC CARBON	9		MG/L	9.1		MG/L	1.1

Notes: QUAL = Qualifier, U = Nondetected, J = Estimated, R = Rejected, RPD = Relative Percent Difference
MG/L = Milligrams per liter, UG/L = Micrograms per liter

Only analyses that were detected appear in the table.

TABLE H-12

ANALYTICAL AND MATRIX PERFORMANCE REQUIREMENTS FOR ORGANIC ANALYSIS

NAVAL WEAPONS STATION CONCORD

Analysis	Performance Requirements	Detected Data Qualified as "J7" (Estimated)	Detected and Nondetected Data Qualified as "J7" (Estimated)	Detected Data Qualified as "J7" (Estimated) and Nondetected Data Qualified as "R7" (Rejected)
CLP volatiles, CLP semivolatiles, and low-level CLP semivolatiles	Sample IS: 50-150%	Sample IS: > 150%	Sample IS: < 50%	Sample IS: < 25%
	IPCS: meet all m/z criteria for volatiles[a] and for semivolatiles[b]	N/A	Criteria met for critical abundances, but not noncritical abundances[a,b]	Criteria not met for all critical abundances[a,b]
CLP pesticides/ polychlorinated biphenyls (PCBs) and low-level CLP pesticides/PCBs	RCM & PEM: meet all criteria[c]	N/A	PEM RPD: > ± 25%	RCM %res: < 60% PEM %res: < 100% PEM RT: > mRT ± 0.05 PEM %break: > 20% for each PEM %break: > 30% for both[d]
	Florisil %R: 80-120% & GPC %R: 80-110%[e]	Florisil %R: > 120% GPC %R: > 110%	Florisil or GPC %R: < 80%	Florisil or GPC %R: < 10%

TABLE H-12

ANALYTICAL AND MATRIX PERFORMANCE REQUIREMENTS FOR ORGANIC ANALYSIS

NAVAL WEAPONS STATION CONCORD (Continued)

Notes:

CLP:	Contract Laboratory Program
IS:	Internal standard
IPCS:	Instrument performance check sample
N/A:	Not applicable
RCM:	Resolution check mixture
PEM:	Performance evaluation mixture
RPD:	Relative percent difference
%res:	Percent resolution
RT:	Retention time
mRT:	Mean retention time
%break:	Percent breakdown
%R:	Percent recovery
GPC:	Gel permeation cleanup
m/z:	Mass ratio of the specific ion to the base peak

[a] Bromofluorobenzene (BFB)

m/z 50:	8.0-40.0% of m/z 95 *
m/z 75:	30.0-66.0% of m/z 95 *
m/z 95:	Base peak, 100%
m/z 96:	5.0-9.0% of m/z 95
m/z 173:	< 2.0% of m/z 174
m/z 174:	50.0-120.0% of m/z 95
m/z 175:	4.0-9.0% of m/z 174
m/z 176:	93.0-101.0% of m/z 174
m/z 177:	5.0-9.0% of m/z 176

[b] Decafluorotriphenylphosphine (DFTPP)

m/z 51:	30.0-80.0% of m/z 198 *
m/z 68:	Less than 2.0% of m/z 69
m/z 69:	Present
m/z 70:	Less than 2.0% of m/z 69
m/z 127:	25.0-75.0% of m/z 198 *
m/z 197:	Less than 1.0% of m/z 198
m/z 198:	Base peak, 100% relative abundance
m/z 199:	5.0-9.0% of m/z 198
m/z 275:	10.0-30.0% of m/z 198 *
m/z 365:	Greater than 0.75% of m/z 198
m/z 441:	Present, but less than m/z 443
m/z 442:	40.0-110.0% of m/z 198
m/z 443:	15.0-24.0% of m/z 442

TABLE H-12

ANALYTICAL AND MATRIX PERFORMANCE REQUIREMENTS FOR ORGANIC ANALYSIS

NAVAL WEAPONS STATION CONCORD (Continued)

Notes (continued): * noncritical abundances

[c]

RCM %res:	> 60.0%
PEM %res:	= 100%
PEM RT:	= mRT ± 0.05 minutes
PEM %RPD:	< 25%
PEM %break:	< 20.0% (4,4'-DDT and endrin singly)
PEM %break:	< 30.0% (4,4'-DDT and endrin together)

[d] Only affected nondetected data are qualified (e.g. unresolved or degraded compounds).
[e] Both apply to cleanup performance check samples.

Source: EPA 1990a; PRC 1992, 1994; and the specified analytical methods

TABLE H-13

ANALYTICAL AND MATRIX PERFORMANCE REQUIREMENTS FOR INORGANIC ANALYSIS

NAVAL WEAPONS STATION CONCORD

Analysis	Performance Requirements	Detected Data Estimated as Listed	Nondetected Data Estimated as Listed	Nondetected Data Rejected as Listed
CLP metals and modified WET CLP metals	ICPES serial dilution: %D ≤ 10%	%D > 10% (J7)	%D > 10% (J7)	N/A
	GFAA replicate analysis: RPD ≤ ± 20%	RPD > ± 20% (J5)	RPD > ± 20% (J5)	N/A
	GFAA analytical spike %R: 85-115%	%R > 115% (J4) %R < 85%[a] (J4)	%R < 85% (J4)	%R < 10% (R4)
	GFAA MSA: r ≥ 0.995	r < 0.995 (J7)	N/A	N/A

Notes:

CLP: Contract Laboratory Program
WET: Waste extraction test
ICPES: Inductively coupled plasma emission spectroscopy
%D: Percent difference
N/A: Not applicable
GFAA: Graphite furnace atomic absorption
RPD: Relative percent difference
%R: Percent recovery
MSA: Method of standard additions
r: Correlation coefficient
[a] If the %R is < 85% and the sample absorbance is > 50% of the analytical spike concentration, then the sample should have been run by MSA.

Source: EPA 1994; PRC 1992, 1994; and the specified analytical methods

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J/"	Number (Percent) of Analytes Rejected as "R/"	Number (Percent) of Analytes Qualified as "U/"
CLP Volatiles:					
1,1,1-TRICHLOROETHANE	SOIL	100	2	0	0
1,1,2,2-TETRACHLOROETHANE	SOIL	100	3	0	0
1,1,2-TRICHLOROETHANE	SOIL	100	2	0	0
1,1-DICHLOROETHANE	SOIL	100	2	0	0
1,1-DICHLOROETHENE	SOIL	100	2	0	0
1,2-DICHLOROETHANE	SOIL	100	2	0	0
1,2-DICHLOROETHENE (TOTAL)	SOIL	100	2	0	0
1,2-DICHLOROPROPANE	SOIL	100	2	0	0
2-BUTANONE	SOIL	100	2	0	0
2-HEXANONE	SOIL	100	2	0	0
4-METHYL-2-PENTANONE	SOIL	100	3	0	0
BENZENE	SOIL	100	2	0	0
BROMODICHLOROMETHANE	SOIL	100	2	0	0
BROMOFORM	SOIL	100	2	0	0
BROMOMETHANE	SOIL	100	2	0	0
CARBON DISULFIDE	SOIL	100	2	0	0
CARBON TETRACHLORIDE	SOIL	100	2	0	0
CHLOROBENZENE	SOIL	100	3	0	0
CHLOROETHANE	SOIL	100	2	0	0
CHLOROFORM	SOIL	100	2	0	0
CHLOROMETHANE	SOIL	100	2	0	0
CIS-1,3-DICHLOROPROPENE	SOIL	100	2	0	0
DIBROMOCHLOROMETHANE	SOIL	100	2	0	0
ETHYLBENZENE	SOIL	100	3	0	0
METHYLENE CHLORIDE	SOIL	100	2	0	0
STYRENE	SOIL	100	3	0	0
TETRACHLOROETHENE	SOIL	100	3	0	0
TOLUENE	SOIL	100	3	0	0

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J?"	Number (Percent) of Analytes Rejected as "R?"	Number (Percent) of Analytes Qualified as "J?"
TRANS-1,3-DICHLOROPROPENE	SOIL	100	2	0	0
TRICHLOROETHENE	SOIL	100	2	0	0
VINYL CHLORIDE	SOIL	100	2	0	0
XYLENE (TOTAL)	SOIL	100	3	0	0
Total	SOIL	3300	72 (2.18%)	0 (0.00%)	0 (0.00%)
CLP Semivolatiles:					
1,2,4-TRICHLOROBENZENE	SOIL	101	1	1	0
1,2-DICHLOROBENZENE	SOIL	101	1	1	0
1,3-DICHLOROBENZENE	SOIL	101	1	1	0
1,4-DICHLOROBENZENE	SOIL	101	1	1	0
2,2'-OXYBIS(1-CHLOROPROPANE)	SOIL	101	1	1	0
2,4,5-TRICHLOROPHENOL	SOIL	101	2	0	0
2,4,6-TRICHLOROPHENOL	SOIL	101	2	0	0
2,4-DICHLOROPHENOL	SOIL	101	2	0	0
2,4-DIMETHYLPHENOL	SOIL	101	2	0	0
2,4-DINITROPHENOL	SOIL	101	2	0	0
2,4-DINITROTOLUENE	SOIL	101	1	1	0
2,6-DINITROTOLUENE	SOIL	101	1	1	0
2-CHLORONAPHTHALENE	SOIL	101	1	1	0
2-CHLOROPHENOL	SOIL	101	2	0	0
2-METHYLNAPHTHALENE	SOIL	101	1	1	0
2-METHYLPHENOL	SOIL	101	2	0	0
2-NITROANILINE	SOIL	101	1	1	0
2-NITROPHENOL	SOIL	101	2	0	0
3,3'-DICHLOROBENZIDINE	SOIL	101	8	1	0
3-NITROANILINE	SOIL	101	1	1	0
4,6-DINITRO-2-METHYLPHENOL	SOIL	101	4	0	0
4-BROMOPHENYL-PHENYLETHER	SOIL	101	3	1	0
4-CHLORO-3-METHYLPHENOL	SOIL	101	2	0	0

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J"	Number (Percent) of Analytes Rejected as "R"	Number (Percent) of Analytes Qualified as "UJ"
4-CHLOROANILINE	SOIL	101	1	1	0
4-CHLOROPHENYL-PHENYLETHER	SOIL	101	1	1	0
4-METHYLPHENOL	SOIL	101	2	0	0
4-NITROANILINE	SOIL	101	1	1	0
4-NITROPHENOL	SOIL	101	2	0	0
ACENAPHTHENE	SOIL	101	1	1	0
ACENAPHTHYLENE	SOIL	101	1	1	0
ANTHRACENE	SOIL	101	3	1	0
BENZO(A)ANTHRACENE	SOIL	101	8	1	0
BENZO(A)PYRENE	SOIL	101	9	1	0
BENZO(B)FLUORANTHENE	SOIL	101	9	1	0
BENZO(G,H,I)PERYLENE	SOIL	101	9	1	0
BENZO(K)FLUORANTHENE	SOIL	101	9	1	0
BIS(2-CHLOROETHOXY)METHANE	SOIL	101	1	1	0
BIS(2-CHLOROETHYL)ETHER	SOIL	101	1	1	0
BIS(2-ETHYLHEXYL)PHTHALATE	SOIL	101	7	1	0
BUTYLBENZYLPHTHALATE	SOIL	101	8	1	0
CARBAZOLE	SOIL	101	3	1	0
CHRYSENE	SOIL	101	8	1	0
DI-N-BUTYLPHTHALATE	SOIL	101	3	1	0
DI-N-OCTYLPHTHALATE	SOIL	101	9	1	0
DIBENZ(A,H)ANTHRACENE	SOIL	101	8	1	0
DIBENZOFURAN	SOIL	101	1	1	0
DIETHYLPHTHALATE	SOIL	101	1	1	0
DIMETHYLPHTHALATE	SOIL	101	1	1	0
FLUORANTHENE	SOIL	101	3	1	0
FLUORENE	SOIL	101	1	1	0
HEXACHLOROBENZENE	SOIL	101	3	1	0
HEXACHLOROBUTADIENE	SOIL	101	1	1	0

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J?"	Number (Percent) of Analytes Rejected as "R?"	Number (Percent) of Analytes Qualified as "U?"
HEXACHLOROCYCLOPENTADIENE	SOIL	101	2	1	0
HEXACHLOROETHANE	SOIL	101	1	1	0
INDENO(1,2,3-CD)PYRENE	SOIL	101	9	1	0
ISOPHORONE	SOIL	101	1	1	0
N-NITROSO-DI-N-PROPYLAMINE	SOIL	101	1	1	0
N-NITROSODIPHENYLAMINE (1)	SOIL	101	3	1	0
NAPHTHALENE	SOIL	101	1	1	0
NITROBENZENE	SOIL	101	1	1	0
PENTACHLOROPHENOL	SOIL	101	4	0	0
PHENANTHRENE	SOIL	101	3	1	0
PHENOL	SOIL	101	1	0	0
PYRENE	SOIL	101	7	1	0
Total	SOIL	6464	193 (2.99%)	50 (0.77%)	0 (0.00%)
2,4,5-TRICHLOROPHENOL	SWATER	60	1	0	0
2,4,6-TRICHLOROPHENOL	SWATER	60	1	0	0
2,4-DINITROPHENOL	SWATER	60	1	0	0
2,4-DINITROTOLUENE	SWATER	60	1	0	0
2,6-DINITROTOLUENE	SWATER	60	1	0	0
2-CHLORONAPHTHALENE	SWATER	60	1	0	0
2-NITROANILINE	SWATER	60	1	0	0
3-NITROANILINE	SWATER	60	1	0	0
4-CHLOROPHENYL-PHENYLETHER	SWATER	60	1	0	0
4-NITROANILINE	SWATER	60	1	0	0
4-NITROPHENOL	SWATER	60	1	0	0
ACENAPHTHENE	SWATER	60	1	0	0
ACENAPHTHYLENE	SWATER	60	1	0	0
BENZO(A)PYRENE	SWATER	60	1	1	0
BENZO(B)FLUORANTHENE	SWATER	60	1	1	0
BENZO(G,H,I)PERYLENE	SWATER	60	1	1	0

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J"	Number (Percent) of Analytes Rejected as "R"	Number (Percent) of Analytes Qualified as "J"
BENZO(K)FLUORANTHENE	SWATER	60	1	1	0
DI-N-OCTYLPHTHALATE	SWATER	60	1	1	0
DIBENZ(A,H)ANTHRACENE	SWATER	60	1	1	0
DIBENZOFURAN	SWATER	60	1	0	0
DIETHYLPHTHALATE	SWATER	60	1	0	0
DIMETHYLPHTHALATE	SWATER	60	1	0	0
FLUORENE	SWATER	60	1	0	0
HEXACHLOROCYCLOPENTADIENE	SWATER	60	1	0	0
INDENO(1,2,3-CD)PYRENE	SWATER	60	1	1	0
Total	SWATER	3840	25 (0.65%)	7 (0.18%)	0 (0.00%)
3,3'-DICHLOROBENZIDINE	WATER	2	1	0	0
BENZO(A)ANTHRACENE	WATER	2	1	0	0
BIS(2-ETHYLHEXYL)PHTHALATE	WATER	2	1	0	0
BUTYLBENZYLPHTHALATE	WATER	2	1	0	0
CHRYSENE	WATER	2	1	0	0
PYRENE	WATER	2	1	0	0
Total	WATER	128	6 (4.69%)	0 (0.00%)	0 (0.00%)
CLP Pesticides/PCBs:					
4,4'-DDD	SOIL	100	1	0	0
4,4'-DDE	SOIL	100	1	0	0
4,4'-DDT	SOIL	100	2	0	0
AROCLOR-1260	SOIL	100	1	0	0
ENDOSULFAN II	SOIL	100	1	0	0
ENDOSULFAN SULFATE	SOIL	100	1	0	0
ENDRIN	SOIL	100	1	0	0
ENDRIN ALDEHYDE	SOIL	100	1	0	0
ENDRIN KETONE	SOIL	100	1	0	0
METHOXYCHLOR	SOIL	100	1	0	0
TOXAPHENE	SOIL	100	1	0	0
Total	SOIL	2800	12 (0.43%)	0 (0.00%)	0 (0.00%)

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J"	Number (Percent) of Analytes Rejected as "R"	Number (Percent) of Analytes Qualified as "J"
ALDRIN	SWATER	60	1	0	0
Total	SWATER	1680	1 (0.06%)	0 (0.00%)	0 (0.00%)
4,4'-DDD	WATER	2	1	0	0
4,4'-DDE	WATER	2	1	0	0
4,4'-DDT	WATER	2	1	0	0
ALDRIN	WATER	2	1	0	0
ALPHA-BHC	WATER	2	1	0	0
ALPHA-CHLORDANE	WATER	2	1	0	0
AROCLOR-1016	WATER	2	1	0	0
AROCLOR-1232	WATER	2	1	0	0
AROCLOR-1242	WATER	2	1	0	0
AROCLOR-1260	WATER	2	1	0	0
BETA-BHC	WATER	2	1	0	0
DELTA-BHC	WATER	2	1	0	0
DIELDRIN	WATER	2	1	0	0
ENDOSULFAN I	WATER	2	1	0	0
ENDOSULFAN II	WATER	2	1	0	0
ENDOSULFAN SULFATE	WATER	2	1	0	0
ENDRIN	WATER	2	1	0	0
ENDRIN ALDEHYDE	WATER	2	1	0	0
ENDRIN KETONE	WATER	2	1	0	0
GAMMA-BHC (LINDANE)	WATER	2	1	0	0
GAMMA-CHLORDANE	WATER	2	1	0	0
HEPTACHLOR	WATER	2	1	0	0
HEPTACHLOR EPOXIDE	WATER	2	1	0	0
METHOXYCHLOR	WATER	2	1	0	0
TOXAPHENE	WATER	2	1	0	0
Total	WATER	56	25 (44.64%)	0 (0.00%)	0 (0.00%)

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J?"	Number (Percent) of Analytes Rejected as "R?"	Number (Percent) of Analytes Qualified as "U?"
Low Level CLP Pesticides/PCBs:					
4,4'-DDD	SEDIMENT	5	1	0	0
PCB-153 (2,2',4,4',5,5')	SEDIMENT	5	1	0	0
PCB-52 (2,2',5,5')	SEDIMENT	5	1	0	0
PCB-66 (2,3',4,4')	SEDIMENT	5	1	0	0
Total	SEDIMENT	175	4 (2.29%)	0 (0.00%)	0 (0.00%)
2,4'-DDD	SOIL	129	28	0	0
2,4'-DDE	SOIL	129	3	0	0
2,4'-DDT	SOIL	129	9	0	0
4,4'-DDD	SOIL	129	5	0	0
4,4'-DDE	SOIL	129	5	0	0
4,4'-DDT	SOIL	129	12	0	0
ALDRIN	SOIL	129	4	0	0
ALPHA-CHLORDANE	SOIL	129	14	0	0
GAMMA-BHC (LINDANE)	SOIL	129	2	0	0
HEPTACHLOR EPOXIDE	SOIL	129	1	0	0
HEXACHLOROBENZENE	SOIL	129	5	0	0
MIREX	SOIL	129	9	0	0
PCB-101 (2,2',3,5,5')	SOIL	129	27	0	0
PCB-105 (2,3,3',4,4')	SOIL	129	17	0	0
PCB-118 (2,3',4,4',5)	SOIL	129	15	0	0
PCB-126 (3,3',4,4',5)	SOIL	129	5	0	0
PCB-128 (2,2',3,3',4,4')	SOIL	129	6	0	0
PCB-138 (2,2',3,4,4',5')	SOIL	129	25	0	0
PCB-153 (2,2',4,4',5,5')	SOIL	129	10	0	0
PCB-170 (2,2',3,3',4,4',5)	SOIL	129	5	0	0
PCB-18 (2,2',5)	SOIL	129	8	0	0
PCB-180 (2,2',3,4,4',5,5')	SOIL	129	14	0	0
PCB-187 (2,2',3,4',5,5',6)	SOIL	129	13	0	0

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J"	Number (Percent) of Analytes Rejected as "R"	Number (Percent) of Analytes Qualified as "U"
PCB-195 (2,2',3,3',4,4',5,6)	SOIL	129	4	0	1
PCB-206 (2,2,',3,3',4,4',5,5',	SOIL	129	15	0	0
PCB-28 (2,4,4')	SOIL	129	1	0	0
PCB-44 (2,2',3,5')	SOIL	129	8	0	0
PCB-52 (2,2',5,5')	SOIL	129	15	0	0
PCB-66 (2,3',4,4')	SOIL	129	8	0	1
PCB-77 (3,3',4,4')	SOIL	129	8	0	0
PCB-8 (2,4')	SOIL	129	3	0	0
TRANS-NONACHLOR	SOIL	129	16	0	0
Total	SOIL	4515	320 (7.09%)	0 (0.00%)	2 (0.04%)
Explosives:					
TETRYL	WATER	2	1	0	0
Total	WATER	24	1 (4.17%)	0 (0.00%)	0 (0.00%)
CLP Metals:					
CADMIUM	SEDIMENT	5	2	0	0
MOLYBDENUM	SEDIMENT	5	1	0	0
POTASSIUM	SEDIMENT	5	2	0	0
THALLIUM	SEDIMENT	5	1	0	0
Total	SEDIMENT	120	6 (5.00%)	0 (0.00%)	0 (0.00%)
ANTIMONY	SOIL	294	2	0	0
ARSENIC	SOIL	294	1	0	0
CADMIUM	SOIL	294	5	0	0
COPPER	SOIL	294	23	0	0
LEAD	SOIL	294	5	0	0
MOLYBDENUM	SOIL	294	2	0	0
POTASSIUM	SOIL	294	278	0	0
SELENIUM	SOIL	294	3	0	0
SODIUM	SOIL	294	121	0	0
THALLIUM	SOIL	294	4	0	0
ZINC	SOIL	294	18	0	0

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J"	Number (Percent) of Analytes Rejected as "R"	Number (Percent) of Analytes Qualified as "U"
Total	SOIL	7056	462 (6.55%)	0 (0.00%)	0 (0.00%)
ARSENIC	SWATER	60	2	0	0
CADMIUM	SWATER	60	3	0	0
COBALT	SWATER	60	2	0	0
COPPER	SWATER	60	3	0	0
LEAD	SWATER	60	2	0	0
MOLYBDENUM	SWATER	60	3	0	0
NICKEL	SWATER	60	2	0	0
SELENIUM	SWATER	60	2	0	0
SILVER	SWATER	60	1	0	0
THALLIUM	SWATER	60	1	0	0
VANADIUM	SWATER	60	3	0	0
ZINC	SWATER	60	3	0	0
Total	SWATER	1440	27 (1.88%)	0 (0.00%)	0 (0.00%)
MOLYBDENUM	WATER	2	1	0	0
SODIUM	WATER	2	1	0	0
THALLIUM	WATER	2	1	0	0
Total	WATER	49	3 (6.12%)	0 (0.00%)	0 (0.00%)
WET Acid CLP Metals:					
ALUMINUM	SOIL	15	1	0	0
BERYLLIUM	SOIL	15	1	0	0
CADMIUM	SOIL	15	2	0	0
CALCIUM	SOIL	15	1	0	0
COBALT	SOIL	15	5	0	0
IRON	SOIL	15	4	0	0
LEAD	SOIL	15	10	0	0
MOLYBDENUM	SOIL	15	1	0	0
NICKEL	SOIL	15	10	0	0
POTASSIUM	SOIL	15	5	0	0
SELENIUM	SOIL	15	1	0	0

TABLE H-14

DATA QUALIFICATION: ANALYTICAL AND MATRIX PERFORMANCE EXCEEDANCES (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J?"	Number (Percent) of Analytes Rejected as "R?"	Number (Percent) of Analytes Qualified as "U?"
THALLIUM	SOIL	15	1	0	0
ZINC	SOIL	15	6	0	0
Total	SOIL	360	48 (13.33%)	0 (0.00%)	0 (0.00%)
WET CLP Metals:					
ALUMINUM	SEDIMENT	5	2	0	0
IRON	SEDIMENT	5	2	0	0
MANGANESE	SEDIMENT	5	2	0	0
MOLYBDENUM	SEDIMENT	5	1	0	0
POTASSIUM	SEDIMENT	5	2	0	0
SILVER	SEDIMENT	5	1	0	0
THALLIUM	SEDIMENT	5	1	0	0
VANADIUM	SEDIMENT	5	2	0	0
Total	SEDIMENT	120	13 (10.83%)	0 (0.00%)	0 (0.00%)
ALUMINUM	SOIL	47	16	0	0
BARIUM	SOIL	47	8	0	0
CALCIUM	SOIL	47	2	0	0
COPPER	SOIL	47	3	0	0
IRON	SOIL	47	17	0	0
MAGNESIUM	SOIL	47	11	0	0
MANGANESE	SOIL	47	14	0	0
POTASSIUM	SOIL	47	31	0	0
SODIUM	SOIL	47	4	0	0
VANADIUM	SOIL	47	4	0	0
ZINC	SOIL	47	26	0	0
Total	SOIL	1128	136 (12.06%)	0 (0.00%)	0 (0.00%)
Tidal Areas	All	49155	1354 (2.75%)	57 (0.12%)	2 (0.00%)

Note: This qualification applies to CLP volatiles, CLP semivolatiles, CLP pesticides/PCBs, CLP metals, WET CLP metals, low level CLP semivolatiles, and low level CLP pesticides/PCBs.

TABLE H-15

DATA QUALIFICATION: RESULTS REPORTED BELOW THE CRQL
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J2"
CLP Volatiles:			
2-BUTANONE	SOIL	100	1
CARBON DISULFIDE	SOIL	100	8
CHLOROMETHANE	SOIL	100	3
XYLENE (TOTAL)	SOIL	100	2
Total	SOIL	3300	14 (0.42%)
XYLENE (TOTAL)	SWATER	60	1
Total	SWATER	1980	1 (0.05%)
CLP Semivolatiles:			
BENZO(A)ANTHRACENE	SOIL	101	1
BENZO(B)FLUORANTHENE	SOIL	101	2
CARBAZOLE	SOIL	101	1
CHRYSENE	SOIL	101	2
NAPHTHALENE	SOIL	101	1
PHENANTHRENE	SOIL	101	1
PHENOL	SOIL	101	12
Total	SOIL	6464	20 (0.31%)
Low Level CLP Semivolatiles:			
2,6-DIMETHYLNAPHTHALENE	SEDIMENT	5	1
ANTHRACENE	SEDIMENT	5	1
BENZO(A)PYRENE	SEDIMENT	5	1
BENZO(E)PYRENE	SEDIMENT	5	1
FLUORANTHENE	SEDIMENT	5	1
INDENO(1,2,3-CD)PYRENE	SEDIMENT	5	1
PERYLENE	SEDIMENT	5	2
PHENANTHRENE	SEDIMENT	5	1
PYRENE	SEDIMENT	5	1
Total	SEDIMENT	370	10 (2.70%)
1,1'-BIPHENYL	SOIL	129	1
1-METHYLNAPHTHALENE	SOIL	129	2
1-METHYLPHENANTHRENE	SOIL	129	2

TABLE H-15

DATA QUALIFICATION: RESULTS REPORTED BELOW THE CRQL (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J2"
2,4-DIMETHYLPHENOL	SOIL	129	3
2,6-DIMETHYLNAPHTHALENE	SOIL	129	9
2-METHYLNAPHTHALENE	SOIL	129	3
4-METHYLPHENOL	SOIL	129	6
ACENAPHTHENE	SOIL	129	6
ACENAPHTHYLENE	SOIL	129	1
ANTHRACENE	SOIL	129	12
BENZO(A)ANTHRACENE	SOIL	129	26
BENZO(A)PYRENE	SOIL	129	27
BENZO(B)FLUORANTHENE	SOIL	129	26
BENZO(E)PYRENE	SOIL	129	31
BENZO(G,H,I)PERYLENE	SOIL	129	21
BENZO(K)FLUORANTHENE	SOIL	129	25
BENZOIC ACID	SOIL	129	29
BUTYLBENZYLPHTHALATE	SOIL	129	2
CARBAZOLE	SOIL	129	13
CHRYSENE	SOIL	129	31
DIBENZ(A,H)ANTHRACENE	SOIL	129	8
DIBENZOFURAN	SOIL	129	3
DIBENZOTHIOPHENE	SOIL	129	4
FLUORANTHENE	SOIL	129	43
FLUORENE	SOIL	129	5
INDENO(1,2,3-CD)PYRENE	SOIL	129	18
ISOPHORONE	SOIL	129	1
NAPHTHALENE	SOIL	129	5
PENTACHLOROPHENOL	SOIL	129	3
PERYLENE	SOIL	129	10
PHENANTHRENE	SOIL	129	29
PYRENE	SOIL	129	40

TABLE H-15

DATA QUALIFICATION: RESULTS REPORTED BELOW THE CRQL (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analysis	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J2"
Total	SOIL	9546	445 (4.66%)
CLP Pesticides/PCBs)			
4,4'-DDD	SOIL	100	3
4,4'-DDE	SOIL	100	2
4,4'-DDT	SOIL	100	3
ALPHA-CHLORDANE	SOIL	100	2
ENDRIN KETONE	SOIL	100	1
GAMMA-CHLORDANE	SOIL	100	1
Total	SOIL	2800	12 (0.43%)
4,4'-DDT	SWATER	60	1
ALDRIN	SWATER	60	1
DIELDRIN	SWATER	60	1
ENDRIN	SWATER	60	1
GAMMA-BHC (LINDANE)	SWATER	60	1
HEPTACHLOR	SWATER	60	1
Total	SWATER	1680	6 (0.36%)
Low Level CLP Pesticides/PCBs)			
PCB-101 (2,2',3,5,5')	SEDIMENT	5	1
PCB-153 (2,2',4,4',5,5')	SEDIMENT	5	1
Total	SEDIMENT	175	2 (1.14%)
2,4'-DDD	SOIL	129	2
2,4'-DDE	SOIL	129	1
MIREX	SOIL	129	8
PCB-101 (2,2',3,5,5')	SOIL	129	12
PCB-105 (2,3,3',4,4')	SOIL	129	2
PCB-118 (2,3',4,4',5)	SOIL	129	6
PCB-126 (3,3',4,4',5)	SOIL	129	4
PCB-128 (2,2',3,3',4,4')	SOIL	129	1
PCB-138 (2,2',3,4,4',5')	SOIL	129	4
PCB-153 (2,2',4,4',5,5')	SOIL	129	8
PCB-170 (2,2',3,3',4,4',5)	SOIL	129	1

TABLE H-15

DATA QUALIFICATION: RESULTS REPORTED BELOW THE CRQL (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes Reported	Number (Percent) of Analytes Estimated as "J2"
PCB-18 (2,2',5)	SOIL	129	10
PCB-180 (2,2',3,4,4',5,5')	SOIL	129	4
PCB-187 (2,2',3,4',5,5',6)	SOIL	129	13
PCB-206 (2,2,',3,3',4,4',5,5',	SOIL	129	9
PCB-209 (2,2',3,3',4,4',5,5',6	SOIL	129	1
PCB-44 (2,2',3,5')	SOIL	129	1
PCB-52 (2,2',5,5')	SOIL	129	10
PCB-66 (2,3',4,4')	SOIL	129	1
PCB-77 (3,3',4,4')	SOIL	129	3
Total	SOIL	4515	101 (2.24%)
TPH-Extractables:			
MOTOR OIL	SOIL	25	1
Total	SOIL	50	1 (2.00%)
DIESEL	SWATER	5	1
Total	SWATER	10	1 (10.00%)
TPH-Purgeables:			
GASOLINE	SOIL	7	1
Total	SOIL	7	1 (14.29%)
Dioxins:			
1,2,3,4,6,7,8-HPCDF	SOIL	2	1
HPCDFS (TOTAL)	SOIL	2	1
OCDD	SOIL	2	1
Total	SOIL	50	3 (6.00%)
Solids:			
TOTAL SUSPENDED SOLIDS	SWATER	60	2
Total	SWATER	60	2 (3.33%)
Tidal Areas	All	49155	619 (1.26%)

Note: This qualification applies only to CLP volatiles, CLP semivolatiles, CLP pesticides/PCBs, PCBs, TPH-extractables, TPH-purgeables, aromatic volatiles, low level CLP semivolatiles, low level CLP pesticides/PCBs, explosives, dioxins, and total suspended solids. Aromatic volatiles and explosives did not have any qualifications.

TABLE H-16

DATA EVALUATION: REPORTING LIMITS
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
Aromatic Volatiles:							
BENZENE	SOIL	1	56	56	56	5	UG/KG
ETHYLBENZENE	SOIL	1	56	56	56	5	UG/KG
TOLUENE	SOIL	1	56	56	56	5	UG/KG
XYLENE (TOTAL)	SOIL	1	56	56	56	15	UG/KG
CLP Volatiles:							
1,1,1-TRICHLOROETHANE	SOIL	100	11	140	25	10	UG/KG
1,1,2,2-TETRACHLOROETHANE	SOIL	100	11	140	25	10	UG/KG
1,1,2-TRICHLOROETHANE	SOIL	100	11	140	25	10	UG/KG
1,1-DICHLOROETHANE	SOIL	100	11	140	25	10	UG/KG
1,1-DICHLOROETHENE	SOIL	100	11	140	25	10	UG/KG
1,2-DICHLOROETHANE	SOIL	100	11	140	25	10	UG/KG
1,2-DICHLOROETHENE (TOTAL)	SOIL	100	11	140	25	10	UG/KG
1,2-DICHLOROPROPANE	SOIL	100	11	140	25	10	UG/KG
2-BUTANONE	SOIL	100	11	140	25	10	UG/KG
2-HEXANONE	SOIL	100	11	140	25	10	UG/KG
4-METHYL-2-PENTANONE	SOIL	100	11	140	25	10	UG/KG
ACETONE	SOIL	100	11	140	25	10	UG/KG
BENZENE	SOIL	100	11	140	25	10	UG/KG
BROMODICHLOROMETHANE	SOIL	100	11	140	25	10	UG/KG
BROMOFORM	SOIL	100	11	140	25	10	UG/KG
BROMOMETHANE	SOIL	100	11	140	25	10	UG/KG
CARBON DISULFIDE	SOIL	100	11	140	25	10	UG/KG
CARBON TETRACHLORIDE	SOIL	100	11	140	25	10	UG/KG
CHLOROBENZENE	SOIL	100	11	140	25	10	UG/KG
CHLOROETHANE	SOIL	100	11	140	25	10	UG/KG
CHLOROFORM	SOIL	100	11	140	25	10	UG/KG
CHLOROMETHANE	SOIL	100	11	140	25	10	UG/KG
CIS-1,3-DICHLOROPROPENE	SOIL	100	11	140	25	10	UG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
DIBROMOCHLOROMETHANE	SOIL	100	11	140	25	10	UG/KG
ETHYLBENZENE	SOIL	100	11	140	25	10	UG/KG
METHYLENE CHLORIDE	SOIL	100	11	140	25	10	UG/KG
STYRENE	SOIL	100	11	140	25	10	UG/KG
TETRACHLOROETHENE	SOIL	100	11	140	25	10	UG/KG
TOLUENE	SOIL	100	11	140	25	10	UG/KG
TRANS-1,3-DICHLOROPROPENE	SOIL	100	11	140	25	10	UG/KG
TRICHLOROETHENE	SOIL	100	11	140	25	10	UG/KG
VINYL CHLORIDE	SOIL	100	11	140	25	10	UG/KG
XYLENE (TOTAL)	SOIL	100	11	140	25	10	UG/KG
1,1,1-TRICHLOROETHANE	SWATER	60	10	10	10	2	UG/L
1,1,2,2-TETRACHLOROETHANE	SWATER	60	10	10	10	2	UG/L
1,1,2-TRICHLOROETHANE	SWATER	60	10	10	10	2	UG/L
1,1-DICHLOROETHANE	SWATER	60	10	10	10	2	UG/L
1,1-DICHLOROETHENE	SWATER	60	10	10	10	2	UG/L
1,2-DICHLOROETHANE	SWATER	60	10	10	10	0.5	UG/L
1,2-DICHLOROETHENE (TOTAL)	SWATER	60	10	10	10	2	UG/L
1,2-DICHLOROPROPANE	SWATER	60	10	10	10	2	UG/L
2-BUTANONE	SWATER	60	10	10	10	2	UG/L
2-HEXANONE	SWATER	60	10	10	10	2	UG/L
4-METHYL-2-PENTANONE	SWATER	60	10	10	10	2	UG/L
ACETONE	SWATER	60	10	10	10	2	UG/L
BENZENE	SWATER	60	10	10	10	0.5	UG/L
BROMODICHLOROMETHANE	SWATER	60	10	10	10	2	UG/L
BROMOFORM	SWATER	60	10	10	10	2	UG/L
BROMOMETHANE	SWATER	60	10	10	10	1	UG/L
CARBON DISULFIDE	SWATER	60	10	10	10	2	UG/L
CARBON TETRACHLORIDE	SWATER	60	10	10	10	0.5	UG/L
CHLOROBENZENE	SWATER	60	10	10	10	2	UG/L

TABLE H-16

DATA EVALUATION: REPORTING-LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
CHLOROETHANE	SWATER	60	10	10	10	2	UG/L
CHLOROFORM	SWATER	60	10	10	10	2	UG/L
CHLOROMETHANE	SWATER	60	10	10	10	2	UG/L
CIS-1,3-DICHLOROPROPENE	SWATER	60	10	10	10	0.5	UG/L
DIBROMOCHLOROMETHANE	SWATER	60	10	10	10	2	UG/L
ETHYLBENZENE	SWATER	60	10	10	10	2	UG/L
METHYLENE CHLORIDE	SWATER	60	10	10	10	2	UG/L
STYRENE	SWATER	60	10	10	10	2	UG/L
TETRACHLOROETHENE	SWATER	60	10	10	10	2	UG/L
TOLUENE	SWATER	60	10	10	10	2	UG/L
TRANS-1,3-DICHLOROPROPENE	SWATER	60	10	10	10	0.5	UG/L
TRICHLOROETHENE	SWATER	60	10	10	10	2	UG/L
VINYL CHLORIDE	SWATER	60	10	10	10	0.5	UG/L
XYLENE (TOTAL)	SWATER	60	10	10	10	2	UG/L
1,1,1-TRICHLOROETHANE	WATER	2	10	10	10	2	UG/L
1,1,2,2-TETRACHLOROETHANE	WATER	2	10	10	10	2	UG/L
1,1,2-TRICHLOROETHANE	WATER	2	10	10	10	2	UG/L
1,1-DICHLOROETHANE	WATER	2	10	10	10	2	UG/L
1,1-DICHLOROETHENE	WATER	2	10	10	10	2	UG/L
1,2-DICHLOROETHANE	WATER	2	10	10	10	0.5	UG/L
1,2-DICHLOROETHENE (TOTAL)	WATER	2	10	10	10	2	UG/L
1,2-DICHLOROPROPANE	WATER	2	10	10	10	2	UG/L
2-BUTANONE	WATER	2	10	10	10	2	UG/L
2-HEXANONE	WATER	2	10	10	10	2	UG/L
4-METHYL-2-PENTANONE	WATER	2	10	10	10	2	UG/L
ACETONE	WATER	2	10	10	10	2	UG/L
BENZENE	WATER	2	10	10	10	0.5	UG/L
BROMODICHLOROMETHANE	WATER	2	10	10	10	2	UG/L
BROMOFORM	WATER	2	10	10	10	2	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
BROMOMETHANE	WATER	2	10	10	10	1	UG/L
CARBON DISULFIDE	WATER	2	10	10	10	2	UG/L
CARBON TETRACHLORIDE	WATER	2	10	10	10	0.5	UG/L
CHLOROBENZENE	WATER	2	10	10	10	2	UG/L
CHLOROETHANE	WATER	2	10	10	10	2	UG/L
CHLOROFORM	WATER	2	10	10	10	2	UG/L
CHLOROMETHANE	WATER	2	10	10	10	2	UG/L
CIS-1,3-DICHLOROPROPENE	WATER	2	10	10	10	0.5	UG/L
DIBROMOCHLOROMETHANE	WATER	2	10	10	10	2	UG/L
ETHYLBENZENE	WATER	2	10	10	10	2	UG/L
METHYLENE CHLORIDE	WATER	2	10	10	10	2	UG/L
STYRENE	WATER	2	10	10	10	2	UG/L
TETRACHLOROETHENE	WATER	2	10	10	10	2	UG/L
TOLUENE	WATER	2	10	10	10	2	UG/L
TRANS-1,3-DICHLOROPROPENE	WATER	2	10	10	10	0.5	UG/L
TRICHLOROETHENE	WATER	2	10	10	10	2	UG/L
VINYL CHLORIDE	WATER	2	10	10	10	0.5	UG/L
XYLENE (TOTAL)	WATER	2	10	10	10	2	UG/L
CLP Semivolatiles:							
1,2,4-TRICHLOROBENZENE	SOIL	101	330	20000	990	330	UG/KG
1,2-DICHLOROBENZENE	SOIL	101	330	20000	990	330	UG/KG
1,3-DICHLOROBENZENE	SOIL	101	330	20000	990	330	UG/KG
1,4-DICHLOROBENZENE	SOIL	101	330	20000	990	330	UG/KG
2,2'-OXYBIS(1-CHLOROPROPANE)	SOIL	101	330	20000	990	330	UG/KG
2,4,5-TRICHLOROPHENOL	SOIL	101	800	50000	2500	800	UG/KG
2,4,6-TRICHLOROPHENOL	SOIL	101	330	20000	990	330	UG/KG
2,4-DICHLOROPHENOL	SOIL	101	330	20000	990	330	UG/KG
2,4-DIMETHYLPHENOL	SOIL	101	330	20000	990	330	UG/KG
2,4-DINITROPHENOL	SOIL	101	800	50000	2500	800	UG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
2,4-DINITROTOLUENE	SOIL	101	330	20000	990	330	UG/KG
2,6-DINITROTOLUENE	SOIL	101	330	20000	990	330	UG/KG
2-CHLORONAPHTHALENE	SOIL	101	330	20000	990	330	UG/KG
2-CHLOROPHENOL	SOIL	101	330	20000	990	330	UG/KG
2-METHYLNAPHTHALENE	SOIL	101	330	20000	990	330	UG/KG
2-METHYLPHENOL	SOIL	101	330	20000	990	330	UG/KG
2-NITROANILINE	SOIL	101	800	50000	2500	800	UG/KG
2-NITROPHENOL	SOIL	101	330	20000	990	330	UG/KG
3,3'-DICHLOROBENZIDINE	SOIL	101	330	20000	990	330	UG/KG
3-NITROANILINE	SOIL	101	800	50000	2500	800	UG/KG
4,6-DINITRO-2-METHYLPHENOL	SOIL	101	800	50000	2500	800	UG/KG
4-BROMOPHENYL-PHENYLETHER	SOIL	101	330	20000	990	330	UG/KG
4-CHLORO-3-METHYLPHENOL	SOIL	101	330	20000	990	330	UG/KG
4-CHLOROANILINE	SOIL	101	330	20000	990	330	UG/KG
4-CHLOROPHENYL-PHENYLETHER	SOIL	101	330	20000	990	330	UG/KG
4-METHYLPHENOL	SOIL	101	330	20000	990	330	UG/KG
4-NITROANILINE	SOIL	101	800	50000	2500	800	UG/KG
4-NITROPHENOL	SOIL	101	800	50000	2500	800	UG/KG
ACENAPHTHENE	SOIL	101	330	20000	990	330	UG/KG
ACENAPHTHYLENE	SOIL	101	330	20000	990	330	UG/KG
ANTHRACENE	SOIL	101	330	20000	990	330	UG/KG
BENZO(A)ANTHRACENE	SOIL	101	330	20000	990	330	UG/KG
BENZO(A)PYRENE	SOIL	101	330	20000	990	330	UG/KG
BENZO(B)FLUORANTHENE	SOIL	101	330	20000	990	330	UG/KG
BENZO(G,H,I)PERYLENE	SOIL	101	330	20000	990	330	UG/KG
BENZO(K)FLUORANTHENE	SOIL	101	330	20000	990	330	UG/KG
BIS(2-CHLOROETHOXY)METHANE	SOIL	101	330	20000	990	330	UG/KG
BIS(2-CHLOROETHYL)ETHER	SOIL	101	330	20000	990	330	UG/KG
BIS(2-ETHYLHEXYL)PHTHALATE	SOIL	101	330	20000	990	330	UG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
BUTYLBENZYLPHTHALATE	SOIL	101	330	20000	990	330	UG/KG
CARBAZOLE	SOIL	101	330	20000	990	330	UG/KG
CHRYSENE	SOIL	101	330	20000	990	330	UG/KG
DI-N-BUTYLPHTHALATE	SOIL	101	330	20000	990	330	UG/KG
DI-N-OCTYLPHTHALATE	SOIL	101	330	20000	990	330	UG/KG
DIBENZ(A,H)ANTHRACENE	SOIL	101	330	20000	990	330	UG/KG
DIBENZOFURAN	SOIL	101	330	20000	990	330	UG/KG
DIETHYLPHTHALATE	SOIL	101	330	20000	990	330	UG/KG
DIMETHYLPHTHALATE	SOIL	101	330	20000	990	330	UG/KG
FLUORANTHENE	SOIL	101	330	20000	990	330	UG/KG
FLUORENE	SOIL	101	330	20000	990	330	UG/KG
HEXACHLOROBENZENE	SOIL	101	330	20000	990	330	UG/KG
HEXACHLOROBUTADIENE	SOIL	101	330	20000	990	330	UG/KG
HEXACHLOROCYCLOPENTADIENE	SOIL	101	330	20000	990	330	UG/KG
HEXACHLOROETHANE	SOIL	101	330	20000	990	330	UG/KG
INDENO(1,2,3-CD)PYRENE	SOIL	101	330	20000	990	330	UG/KG
ISOPHORONE	SOIL	101	330	20000	990	330	UG/KG
N-NITROSO-DI-N-PROPYLAMINE	SOIL	101	330	20000	990	330	UG/KG
N-NITROSODIPHENYLAMINE (1)	SOIL	101	330	20000	990	330	UG/KG
NAPHTHALENE	SOIL	101	330	20000	990	330	UG/KG
NITROBENZENE	SOIL	101	330	20000	990	330	UG/KG
PENTACHLOROPHENOL	SOIL	101	800	50000	2500	800	UG/KG
PHENANTHRENE	SOIL	101	330	20000	990	330	UG/KG
PHENOL	SOIL	101	330	20000	980	330	UG/KG
PYRENE	SOIL	101	330	20000	990	330	UG/KG
1,2,4-TRICHLOROBENZENE	SWATER	60	10	100	13	10	UG/L
1,2-DICHLOROBENZENE	SWATER	60	5	50	6	5	UG/L
1,3-DICHLOROBENZENE	SWATER	60	5	50	6	5	UG/L
1,4-DICHLOROBENZENE	SWATER	60	5	50	6	5	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
2,2'-OXYBIS(1-CHLOROPROPANE)	SWATER	60	10	100	13	10	UG/L
2,4,5-TRICHLOROPHENOL	SWATER	60	25	250	32	25	UG/L
2,4,6-TRICHLOROPHENOL	SWATER	60	10	100	13	10	UG/L
2,4-DICHLOROPHENOL	SWATER	60	10	100	13	10	UG/L
2,4-DIMETHYLPHENOL	SWATER	60	10	100	13	10	UG/L
2,4-DINITROPHENOL	SWATER	60	25	250	32	25	UG/L
2,4-DINITROTOLUENE	SWATER	60	10	100	13	10	UG/L
2,6-DINITROTOLUENE	SWATER	60	10	100	13	10	UG/L
2-CHLORONAPHTHALENE	SWATER	60	10	100	13	10	UG/L
2-CHLOROPHENOL	SWATER	60	10	100	13	10	UG/L
2-METHYLNAPHTHALENE	SWATER	60	10	100	13	10	UG/L
2-METHYLPHENOL	SWATER	60	10	100	13	10	UG/L
2-NITROANILINE	SWATER	60	25	250	32	25	UG/L
2-NITROPHENOL	SWATER	60	10	100	13	10	UG/L
3,3'-DICHLOROBENZIDINE	SWATER	60	10	100	13	10	UG/L
3-NITROANILINE	SWATER	60	25	250	32	25	UG/L
4,6-DINITRO-2-METHYLPHENOL	SWATER	60	25	250	32	25	UG/L
4-BROMOPHENYL-PHENYLETHER	SWATER	60	10	100	13	10	UG/L
4-CHLORO-3-METHYLPHENOL	SWATER	60	10	100	13	10	UG/L
4-CHLOROANILINE	SWATER	60	10	100	13	10	UG/L
4-CHLOROPHENYL-PHENYLETHER	SWATER	60	10	100	13	10	UG/L
4-METHYLPHENOL	SWATER	60	10	100	13	10	UG/L
4-NITROANILINE	SWATER	60	25	250	32	25	UG/L
4-NITROPHENOL	SWATER	60	25	250	32	25	UG/L
ACENAPHTHENE	SWATER	60	10	100	13	10	UG/L
ACENAPHTHYLENE	SWATER	60	10	100	13	10	UG/L
ANTHRACENE	SWATER	60	10	100	13	10	UG/L
BENZO(A)ANTHRACENE	SWATER	60	10	100	13	10	UG/L
BENZO(A)PYRENE	SWATER	60	10	100	13	10	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
BENZO(B)FLUORANTHENE	SWATER	60	10	100	13	10	UG/L
BENZO(G,H,I)PERYLENE	SWATER	60	10	100	13	10	UG/L
BENZO(K)FLUORANTHENE	SWATER	60	10	100	13	10	UG/L
BIS(2-CHLOROETHOXY)METHANE	SWATER	60	10	100	13	10	UG/L
BIS(2-CHLOROETHYL)ETHER	SWATER	60	10	100	13	10	UG/L
BIS(2-ETHYLHEXYL)PHTHALATE	SWATER	60	4	50	6	4	UG/L
BUTYLBENZYLPHTHALATE	SWATER	60	10	100	13	10	UG/L
CARBAZOLE	SWATER	60	10	100	13	10	UG/L
CHRYSENE	SWATER	60	10	100	13	10	UG/L
DI-N-BUTYLPHTHALATE	SWATER	60	10	100	13	10	UG/L
DI-N-OCTYLPHTHALATE	SWATER	60	10	100	13	10	UG/L
DIBENZ(A,H)ANTHRACENE	SWATER	60	10	100	13	10	UG/L
DIBENZOFURAN	SWATER	60	10	100	13	10	UG/L
DIETHYLPHTHALATE	SWATER	60	10	100	13	10	UG/L
DIMETHYLPHTHALATE	SWATER	60	10	100	13	10	UG/L
FLUORANTHENE	SWATER	60	10	100	13	10	UG/L
FLUORENE	SWATER	60	10	100	13	10	UG/L
HEXACHLOROBENZENE	SWATER	60	10	100	13	10	UG/L
HEXACHLOROBUTADIENE	SWATER	60	10	100	13	10	UG/L
HEXACHLOROCYCLOPENTADIENE	SWATER	60	10	100	13	10	UG/L
HEXACHLOROETHANE	SWATER	60	10	100	13	10	UG/L
INDENO(1,2,3-CD)PYRENE	SWATER	60	10	100	13	10	UG/L
ISOPHORONE	SWATER	60	10	100	13	10	UG/L
N-NITROSO-DI-N-PROPYLAMINE	SWATER	60	10	100	13	10	UG/L
N-NITROSODIPHENYLAMINE (1)	SWATER	60	10	100	13	10	UG/L
NAPHTHALENE	SWATER	60	10	100	13	10	UG/L
NITROBENZENE	SWATER	60	10	100	13	10	UG/L
PENTACHLOROPHENOL	SWATER	60	25	250	32	25	UG/L
PHENANTHRENE	SWATER	60	10	100	13	10	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
PHENOL	SWATER	60	10	100	13	10	UG/L
PYRENE	SWATER	60	10	100	13	10	UG/L
1,2,4-TRICHLOROBENZENE	WATER	2	10	10	10	10	UG/L
1,2-DICHLOROBENZENE	WATER	2	5	5	5	5	UG/L
1,3-DICHLOROBENZENE	WATER	2	5	5	5	5	UG/L
1,4-DICHLOROBENZENE	WATER	2	5	5	5	5	UG/L
2,2'-OXYBIS(1-CHLOROPROPANE)	WATER	2	10	10	10	10	UG/L
2,4,5-TRICHLOROPHENOL	WATER	2	25	25	25	25	UG/L
2,4,6-TRICHLOROPHENOL	WATER	2	10	10	10	10	UG/L
2,4-DICHLOROPHENOL	WATER	2	10	10	10	10	UG/L
2,4-DIMETHYLPHENOL	WATER	2	10	10	10	10	UG/L
2,4-DINITROPHENOL	WATER	2	25	25	25	25	UG/L
2,4-DINITROTOLUENE	WATER	2	10	10	10	10	UG/L
2,6-DINITROTOLUENE	WATER	2	10	10	10	10	UG/L
2-CHLORONAPHTHALENE	WATER	2	10	10	10	10	UG/L
2-CHLOROPHENOL	WATER	2	10	10	10	10	UG/L
2-METHYLNAPHTHALENE	WATER	2	10	10	10	10	UG/L
2-METHYLPHENOL	WATER	2	10	10	10	10	UG/L
2-NITROANILINE	WATER	2	25	25	25	25	UG/L
2-NITROPHENOL	WATER	2	10	10	10	10	UG/L
3,3'-DICHLOROBENZIDINE	WATER	2	10	10	10	10	UG/L
3-NITROANILINE	WATER	2	25	25	25	25	UG/L
4,6-DINITRO-2-METHYLPHENOL	WATER	2	25	25	25	25	UG/L
4-BROMOPHENYL-PHENYLETHER	WATER	2	10	10	10	10	UG/L
4-CHLORO-3-METHYLPHENOL	WATER	2	10	10	10	10	UG/L
4-CHLOROANILINE	WATER	2	10	10	10	10	UG/L
4-CHLOROPHENYL-PHENYLETHER	WATER	2	10	10	10	10	UG/L
4-METHYLPHENOL	WATER	2	10	10	10	10	UG/L
4-NITROANILINE	WATER	2	25	25	25	25	UG/L

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DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
4-NITROPHENOL	WATER	2	25	25	25	25	UG/L
ACENAPHTHENE	WATER	2	10	10	10	10	UG/L
ACENAPHTHYLENE	WATER	2	10	10	10	10	UG/L
ANTHRACENE	WATER	2	10	10	10	10	UG/L
BENZO(A)ANTHRACENE	WATER	2	10	10	10	10	UG/L
BENZO(A)PYRENE	WATER	2	10	10	10	10	UG/L
BENZO(B)FLUORANTHENE	WATER	2	10	10	10	10	UG/L
BENZO(G,H,I)PERYLENE	WATER	2	10	10	10	10	UG/L
BENZO(K)FLUORANTHENE	WATER	2	10	10	10	10	UG/L
BIS(2-CHLOROETHOXY)METHANE	WATER	2	10	10	10	10	UG/L
BIS(2-CHLOROETHYL)ETHER	WATER	2	10	10	10	10	UG/L
BIS(2-ETHYLHEXYL)PHTHALATE	WATER	2	4	4	4	4	UG/L
BUTYLBENZYLPHTHALATE	WATER	2	10	10	10	10	UG/L
CARBAZOLE	WATER	2	10	10	10	10	UG/L
CHRYSENE	WATER	2	10	10	10	10	UG/L
DI-N-BUTYLPHTHALATE	WATER	2	10	10	10	10	UG/L
DI-N-OCTYLPHTHALATE	WATER	2	10	10	10	10	UG/L
DIBENZ(A,H)ANTHRACENE	WATER	2	10	10	10	10	UG/L
DIBENZOFURAN	WATER	2	10	10	10	10	UG/L
DIETHYLPHTHALATE	WATER	2	10	10	10	10	UG/L
DIMETHYLPHTHALATE	WATER	2	10	10	10	10	UG/L
FLUORANTHENE	WATER	2	10	10	10	10	UG/L
FLUORENE	WATER	2	10	10	10	10	UG/L
HEXACHLOROBENZENE	WATER	2	10	10	10	10	UG/L
HEXACHLOROBUTADIENE	WATER	2	10	10	10	10	UG/L
HEXACHLOROCYCLOPENTADIENE	WATER	2	10	10	10	10	UG/L
HEXACHLOROETHANE	WATER	2	10	10	10	10	UG/L
INDENO(1,2,3-CD)PYRENE	WATER	2	10	10	10	10	UG/L
ISOPHORONE	WATER	2	10	10	10	10	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
N-NITROSO-DI-N-PROPYLAMINE	WATER	2	10	10	10	10	UG/L
N-NITROSODIPHENYLAMINE (1)	WATER	2	10	10	10	10	UG/L
NAPHTHALENE	WATER	2	10	10	10	10	UG/L
NITROBENZENE	WATER	2	10	10	10	10	UG/L
PENTACHLOROPHENOL	WATER	2	25	25	25	25	UG/L
PHENANTHRENE	WATER	2	10	10	10	10	UG/L
PHENOL	WATER	2	10	10	10	10	UG/L
PYRENE	WATER	2	10	10	10	10	UG/L
Low Level CLP Semivolatiles:							
1,1'-BIPHENYL	SEDIMENT	5	110	460	340	3	UG/KG
1,2,4-TRICHLOROBENZENE	SEDIMENT	5	110	460	340	11	UG/KG
1,2-DICHLOROBENZENE	SEDIMENT	5	110	460	340	11	UG/KG
1,3-DICHLOROBENZENE	SEDIMENT	5	110	460	340	11	UG/KG
1,4-DICHLOROBENZENE	SEDIMENT	5	110	460	340	11	UG/KG
1-METHYLNAPHTHALENE	SEDIMENT	5	110	460	340	3	UG/KG
1-METHYLPHENANTHRENE	SEDIMENT	5	110	460	340	3	UG/KG
2,2'-OXYBIS(1-CHLOROPROPANE)	SEDIMENT	5	110	460	340	11	UG/KG
2,3,5-TRIMETHYLNAPHTHALENE	SEDIMENT	5	110	460	340	3	UG/KG
2,4,5-TRICHLOROPHENOL	SEDIMENT	5	270	1100	840	27	UG/KG
2,4,6-TRICHLOROPHENOL	SEDIMENT	5	110	460	340	11	UG/KG
2,4-DICHLOROPHENOL	SEDIMENT	5	110	460	340	11	UG/KG
2,4-DIMETHYLPHENOL	SEDIMENT	5	110	460	340	11	UG/KG
2,4-DINITROPHENOL	SEDIMENT	5	270	1100	840	27	UG/KG
2,4-DINITROTOLUENE	SEDIMENT	5	110	460	340	11	UG/KG
2,6-DIMETHYLNAPHTHALENE	SEDIMENT	5	110	460	340	3	UG/KG
2,6-DINITROTOLUENE	SEDIMENT	5	110	460	340	11	UG/KG
2-CHLORONAPHTHALENE	SEDIMENT	5	110	460	340	11	UG/KG
2-CHLOROPHENOL	SEDIMENT	5	110	460	340	11	UG/KG
2-METHYLNAPHTHALENE	SEDIMENT	5	110	460	340	11	UG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
2-METHYLPHENOL	SEDIMENT	5	110	460	340	11	UG/KG
2-NITROANILINE	SEDIMENT	5	270	1100	840	27	UG/KG
2-NITROPHENOL	SEDIMENT	5	110	460	340	11	UG/KG
3,3'-DICHLOROBENZIDINE	SEDIMENT	5	110	460	340	11	UG/KG
3-NITROANILINE	SEDIMENT	5	270	1100	840	27	UG/KG
4,6-DINITRO-2-METHYLPHENOL	SEDIMENT	5	270	1100	840	27	UG/KG
4-BROMOPHENYL-PHENYLETHER	SEDIMENT	5	110	460	340	11	UG/KG
4-CHLORO-3-METHYLPHENOL	SEDIMENT	5	110	460	340	11	UG/KG
4-CHLOROANILINE	SEDIMENT	5	110	460	340	11	UG/KG
4-CHLOROPHENYL-PHENYLETHER	SEDIMENT	5	110	460	340	11	UG/KG
4-METHYLPHENOL	SEDIMENT	5	110	460	340	11	UG/KG
4-NITROANILINE	SEDIMENT	5	270	1100	840	27	UG/KG
4-NITROPHENOL	SEDIMENT	5	270	1100	840	27	UG/KG
ACENAPHTHENE	SEDIMENT	5	110	460	340	11	UG/KG
ACENAPHTHYLENE	SEDIMENT	5	110	460	340	11	UG/KG
ANTHRACENE	SEDIMENT	5	110	460	340	11	UG/KG
BENZO(A)ANTHRACENE	SEDIMENT	5	110	460	340	11	UG/KG
BENZO(A)PYRENE	SEDIMENT	5	110	460	340	11	UG/KG
BENZO(B)FLUORANTHENE	SEDIMENT	5	110	460	340	11	UG/KG
BENZO(E)PYRENE	SEDIMENT	5	110	460	340	3	UG/KG
BENZO(G,H,I)PERYLENE	SEDIMENT	5	110	460	340	11	UG/KG
BENZO(K)FLUORANTHENE	SEDIMENT	5	110	460	340	11	UG/KG
BENZOIC ACID	SEDIMENT	5	270	1100	840	3	UG/KG
BENZYL ALCOHOL	SEDIMENT	5	110	460	340	3	UG/KG
BIS(2-CHLOROETHOXY)METHANE	SEDIMENT	5	110	460	340	11	UG/KG
BIS(2-CHLOROETHYL)ETHER	SEDIMENT	5	110	460	340	11	UG/KG
BIS(2-ETHYLHEXYL)PHTHALATE	SEDIMENT	5	110	460	340	11	UG/KG
BUTYLBENZYLPHTHALATE	SEDIMENT	5	110	460	340	11	UG/KG
CARBAZOLE	SEDIMENT	5	110	460	340	11	UG/KG

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DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
CHRYSENE	SEDIMENT	5	110	460	340	11	UG/KG
DI-N-BUTYLPHTHALATE	SEDIMENT	5	110	460	340	11	UG/KG
DI-N-OCTYLPHTHALATE	SEDIMENT	5	110	460	340	11	UG/KG
DIBENZ(A,H)ANTHRACENE	SEDIMENT	5	110	460	340	11	UG/KG
DIBENZOFURAN	SEDIMENT	5	110	460	340	11	UG/KG
DIBENZOTHIOPHENE	SEDIMENT	5	110	460	340	3	UG/KG
DIETHYLPHTHALATE	SEDIMENT	5	110	460	340	11	UG/KG
DIMETHYLPHTHALATE	SEDIMENT	5	110	460	340	11	UG/KG
FLUORANTHENE	SEDIMENT	5	110	460	340	11	UG/KG
FLUORENE	SEDIMENT	5	110	460	340	11	UG/KG
HEXACHLOROBENZENE	SEDIMENT	5	110	460	340	11	UG/KG
HEXACHLOROBUTADIENE	SEDIMENT	5	110	460	340	11	UG/KG
HEXACHLOROCYCLOPENTADIENE	SEDIMENT	5	110	460	340	11	UG/KG
HEXACHLOROETHANE	SEDIMENT	5	110	460	340	11	UG/KG
INDENO(1,2,3-CD)PYRENE	SEDIMENT	5	110	460	340	11	UG/KG
ISOPHORONE	SEDIMENT	5	110	460	340	11	UG/KG
N-NITROSO-DI-N-PROPYLAMINE	SEDIMENT	5	110	460	340	11	UG/KG
N-NITROSODIPHENYLAMINE (1)	SEDIMENT	5	110	460	340	11	UG/KG
NAPHTHALENE	SEDIMENT	5	110	460	340	11	UG/KG
NITROBENZENE	SEDIMENT	5	110	460	340	11	UG/KG
PENTACHLOROPHENOL	SEDIMENT	5	270	1100	840	27	UG/KG
PERYLENE	SEDIMENT	5	110	460	340	3	UG/KG
PHENANTHRENE	SEDIMENT	5	110	460	340	11	UG/KG
PHENOL	SEDIMENT	5	110	460	340	11	UG/KG
PYRENE	SEDIMENT	5	110	460	340	11	UG/KG
1,1'-BIPHENYL	SOIL	129	34	22000	660	3	UG/KG
1,2,4-TRICHLOROBENZENE	SOIL	129	34	22000	660	11	UG/KG
1,2-DICHLOROBENZENE	SOIL	129	34	22000	660	11	UG/KG
1,3-DICHLOROBENZENE	SOIL	129	34	22000	660	11	UG/KG

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DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
1,4-DICHLOROBENZENE	SOIL	129	34	22000	660	11	UG/KG
1-METHYLNAPHTHALENE	SOIL	129	34	22000	660	3	UG/KG
1-METHYLPHENANTHRENE	SOIL	129	34	22000	660	3	UG/KG
2,2'-OXYBIS(1-CHLOROPROPANE)	SOIL	129	34	22000	660	11	UG/KG
2,3,5-TRIMETHYLNAPHTHALENE	SOIL	129	34	22000	660	3	UG/KG
2,4,5-TRICHLOROPHENOL	SOIL	129	86	53000	1600	27	UG/KG
2,4,6-TRICHLOROPHENOL	SOIL	129	34	22000	660	11	UG/KG
2,4-DICHLOROPHENOL	SOIL	129	34	22000	660	11	UG/KG
2,4-DIMETHYLPHENOL	SOIL	129	34	22000	660	11	UG/KG
2,4-DINITROPHENOL	SOIL	129	86	53000	1600	27	UG/KG
2,4-DINITROTOLUENE	SOIL	129	34	22000	660	11	UG/KG
2,6-DIMETHYLNAPHTHALENE	SOIL	129	34	22000	660	3	UG/KG
2,6-DINITROTOLUENE	SOIL	129	34	22000	660	11	UG/KG
2-CHLORONAPHTHALENE	SOIL	129	34	22000	660	11	UG/KG
2-CHLOROPHENOL	SOIL	129	34	22000	660	11	UG/KG
2-METHYLNAPHTHALENE	SOIL	129	34	22000	660	11	UG/KG
2-METHYLPHENOL	SOIL	129	34	22000	660	11	UG/KG
2-NITROANILINE	SOIL	129	86	53000	1600	27	UG/KG
2-NITROPHENOL	SOIL	129	34	22000	660	11	UG/KG
3,3'-DICHLOROBENZIDINE	SOIL	129	34	22000	660	11	UG/KG
3-NITROANILINE	SOIL	129	86	53000	1600	27	UG/KG
4,6-DINITRO-2-METHYLPHENOL	SOIL	129	86	53000	1600	27	UG/KG
4-BROMOPHENYL-PHENYLETHER	SOIL	129	34	22000	660	11	UG/KG
4-CHLORO-3-METHYLPHENOL	SOIL	129	34	22000	660	11	UG/KG
4-CHLOROANILINE	SOIL	129	34	22000	660	11	UG/KG
4-CHLOROPHENYL-PHENYLETHER	SOIL	129	34	22000	660	11	UG/KG
4-METHYLPHENOL	SOIL	129	34	22000	660	11	UG/KG
4-NITROANILINE	SOIL	129	86	53000	1600	27	UG/KG
4-NITROPHENOL	SOIL	129	86	53000	1600	27	UG/KG

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DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
ACENAPHTHENE	SOIL	129	34	22000	660	11	UG/KG
ACENAPHTHYLENE	SOIL	129	34	22000	660	11	UG/KG
ANTHRACENE	SOIL	129	34	22000	660	11	UG/KG
BENZO(A)ANTHRACENE	SOIL	129	34	22000	680	11	UG/KG
BENZO(A)PYRENE	SOIL	129	34	22000	680	11	UG/KG
BENZO(B)FLUORANTHENE	SOIL	129	34	22000	680	11	UG/KG
BENZO(E)PYRENE	SOIL	129	34	22000	680	3	UG/KG
BENZO(G,H,I)PERYLENE	SOIL	129	34	22000	660	11	UG/KG
BENZO(K)FLUORANTHENE	SOIL	129	34	22000	680	11	UG/KG
BENZOIC ACID	SOIL	129	86	53000	1600	3	UG/KG
BENZYL ALCOHOL	SOIL	129	34	22000	660	3	UG/KG
BIS(2-CHLOROETHOXY)METHANE	SOIL	129	34	22000	660	11	UG/KG
BIS(2-CHLOROETHYL)ETHER	SOIL	129	34	22000	660	11	UG/KG
BIS(2-ETHYLHEXYL)PHTHALATE	SOIL	129	34	22000	660	11	UG/KG
BUTYLBENZYLPHTHALATE	SOIL	129	34	22000	660	11	UG/KG
CARBAZOLE	SOIL	129	34	22000	660	11	UG/KG
CHRYSENE	SOIL	129	34	22000	680	11	UG/KG
DI-N-BUTYLPHTHALATE	SOIL	129	34	22000	660	11	UG/KG
DI-N-OCTYLPHTHALATE	SOIL	129	34	22000	660	11	UG/KG
DIBENZ(A,H)ANTHRACENE	SOIL	129	34	22000	660	11	UG/KG
DIBENZOFURAN	SOIL	129	34	22000	660	11	UG/KG
DIBENZOTHIOPHENE	SOIL	129	34	22000	660	3	UG/KG
DIETHYLPHTHALATE	SOIL	129	34	22000	660	11	UG/KG
DIMETHYLPHTHALATE	SOIL	129	34	22000	660	11	UG/KG
FLUORANTHENE	SOIL	129	34	22000	680	11	UG/KG
FLUORENE	SOIL	129	34	22000	660	11	UG/KG
HEXACHLOROBENZENE	SOIL	129	34	22000	660	11	UG/KG
HEXACHLOROBUTADIENE	SOIL	129	34	22000	660	11	UG/KG
HEXACHLOROCYCLOPENTADIENE	SOIL	129	34	22000	660	11	UG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
HEXACHLOROETHANE	SOIL	129	34	22000	660	11	UG/KG
INDENO(1,2,3-CD)PYRENE	SOIL	129	34	22000	660	11	UG/KG
ISOPHORONE	SOIL	129	34	22000	660	11	UG/KG
N-NITROSO-DI-N-PROPYLAMINE	SOIL	129	34	22000	660	11	UG/KG
N-NITROSODIPHENYLAMINE (1)	SOIL	129	34	22000	660	11	UG/KG
NAPHTHALENE	SOIL	129	34	22000	660	11	UG/KG
NITROBENZENE	SOIL	129	34	22000	660	11	UG/KG
PENTACHLOROPHENOL	SOIL	129	86	53000	1600	27	UG/KG
PERYLENE	SOIL	129	34	22000	660	3	UG/KG
PHENANTHRENE	SOIL	129	34	22000	680	11	UG/KG
PHENOL	SOIL	129	34	22000	660	11	UG/KG
PYRENE	SOIL	129	34	22000	680	11	UG/KG
CLP Pesticides:							
4,4'-DDD	SOIL	100	4	73	9	3.3	UG/KG
4,4'-DDE	SOIL	100	4	73	9	3.3	UG/KG
4,4'-DDT	SOIL	100	4	73	9	3.3	UG/KG
ALDRIN	SOIL	100	2	36	5	1.7	UG/KG
ALPHA-BHC	SOIL	100	2	36	5	1.7	UG/KG
ALPHA-CHLORDANE	SOIL	100	2	36	5	1.7	UG/KG
AROCLOR-1016	SOIL	100	20	730	94	33	UG/KG
AROCLOR-1221	SOIL	100	20	1500	190	67	UG/KG
AROCLOR-1232	SOIL	100	20	730	94	33	UG/KG
AROCLOR-1242	SOIL	100	20	730	94	33	UG/KG
AROCLOR-1248	SOIL	100	20	730	94	33	UG/KG
AROCLOR-1254	SOIL	100	20	730	94	33	UG/KG
AROCLOR-1260	SOIL	100	20	730	94	33	UG/KG
BETA-BHC	SOIL	100	2	36	5	1.7	UG/KG
DELTA-BHC	SOIL	100	2	36	5	1.7	UG/KG
DIELDRIN	SOIL	100	4	73	9	3.3	UG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
ENDOSULFAN I	SOIL	100	2	36	5	1.7	UG/KG
ENDOSULFAN II	SOIL	100	4	73	9	3.3	UG/KG
ENDOSULFAN SULFATE	SOIL	100	4	73	9	3.3	UG/KG
ENDRIN	SOIL	100	4	73	9	3.3	UG/KG
ENDRIN ALDEHYDE	SOIL	100	4	73	9	3.3	UG/KG
ENDRIN KETONE	SOIL	100	4	73	9	3.3	UG/KG
GAMMA-BHC (LINDANE)	SOIL	100	2	36	5	1.7	UG/KG
GAMMA-CHLORDANE	SOIL	100	2	36	5	1.7	UG/KG
HEPTACHLOR	SOIL	100	2	36	5	1.7	UG/KG
HEPTACHLOR EPOXIDE	SOIL	100	0.4	36	5	1.7	UG/KG
METHOXYCHLOR	SOIL	100	18	360	47	17	UG/KG
TOXAPHENE	SOIL	100	120	3600	470	170	UG/KG
4,4'-DDD	SWATER	60	0.1	0.5	0.1	0.10	UG/L
4,4'-DDE	SWATER	60	0.1	0.5	0.1	0.10	UG/L
4,4'-DDT	SWATER	60	0.1	0.5	0.1	0.10	UG/L
ALDRIN	SWATER	60	0.05	0.3	0.05	0.05	UG/L
ALPHA-BHC	SWATER	60	0.05	0.3	0.05	0.05	UG/L
ALPHA-CHLORDANE	SWATER	60	0.05	0.3	0.05	0.05	UG/L
AROCLOR-1016	SWATER	60	0.5	3	0.5	0.50	UG/L
AROCLOR-1221	SWATER	60	0.5	3	0.5	0.50	UG/L
AROCLOR-1232	SWATER	60	0.5	3	0.5	0.50	UG/L
AROCLOR-1242	SWATER	60	0.5	3	0.5	0.50	UG/L
AROCLOR-1248	SWATER	60	0.5	3	0.5	0.50	UG/L
AROCLOR-1254	SWATER	60	0.5	3	0.5	0.50	UG/L
AROCLOR-1260	SWATER	60	0.5	3	0.5	0.50	UG/L
BETA-BHC	SWATER	60	0.05	0.3	0.05	0.05	UG/L
DELTA-BHC	SWATER	60	0.05	0.3	0.05	0.05	UG/L
DIELDRIN	SWATER	60	0.1	0.5	0.1	0.10	UG/L
ENDOSULFAN I	SWATER	60	0.05	0.3	0.05	0.05	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
ENDOSULFAN II	SWATER	60	0.1	0.5	0.1	0.10	UG/L
ENDOSULFAN SULFATE	SWATER	60	0.1	0.5	0.1	0.10	UG/L
ENDRIN	SWATER	60	0.1	0.5	0.1	0.10	UG/L
ENDRIN ALDEHYDE	SWATER	60	0.1	0.5	0.1	0.10	UG/L
ENDRIN KETONE	SWATER	60	0.1	0.5	0.1	0.10	UG/L
GAMMA-BHC (LINDANE)	SWATER	60	0.05	0.3	0.05	0.05	UG/L
GAMMA-CHLORDANE	SWATER	60	0.05	0.3	0.05	0.05	UG/L
HEPTACHLOR	SWATER	60	0.05	0.3	0.05	0.05	UG/L
HEPTACHLOR EPOXIDE	SWATER	60	0.01	0.05	0.01	0.01	UG/L
METHOXYCHLOR	SWATER	60	0.5	3	0.5	0.50	UG/L
TOXAPHENE	SWATER	60	3	15	3	3.0	UG/L
4,4'-DDD	WATER	2	0.1	0.1	0.1	0.10	UG/L
4,4'-DDE	WATER	2	0.1	0.1	0.1	0.10	UG/L
4,4'-DDT	WATER	2	0.1	0.1	0.1	0.10	UG/L
ALDRIN	WATER	2	0.05	0.05	0.05	0.05	UG/L
ALPHA-BHC	WATER	2	0.05	0.05	0.05	0.05	UG/L
ALPHA-CHLORDANE	WATER	2	0.05	0.05	0.05	0.05	UG/L
AROCLOR-1016	WATER	2	0.5	0.5	0.5	0.50	UG/L
AROCLOR-1221	WATER	2	0.5	0.5	0.5	0.50	UG/L
AROCLOR-1232	WATER	2	0.5	0.5	0.5	0.50	UG/L
AROCLOR-1242	WATER	2	0.5	0.5	0.5	0.50	UG/L
AROCLOR-1248	WATER	2	0.5	0.5	0.5	0.50	UG/L
AROCLOR-1254	WATER	2	0.5	0.5	0.5	0.50	UG/L
AROCLOR-1260	WATER	2	0.5	0.5	0.5	0.50	UG/L
BETA-BHC	WATER	2	0.05	0.05	0.05	0.05	UG/L
DELTA-BHC	WATER	2	0.05	0.05	0.05	0.05	UG/L
DIELDRIN	WATER	2	0.1	0.1	0.1	0.10	UG/L
ENDOSULFAN I	WATER	2	0.05	0.05	0.05	0.05	UG/L
ENDOSULFAN II	WATER	2	0.1	0.1	0.1	0.10	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
ENDOSULFAN SULFATE	WATER	2	0.1	0.1	0.1	0.10	UG/L
ENDRIN	WATER	2	0.1	0.1	0.1	0.10	UG/L
ENDRIN ALDEHYDE	WATER	2	0.1	0.1	0.1	0.10	UG/L
ENDRIN KETONE	WATER	2	0.1	0.1	0.1	0.10	UG/L
GAMMA-BHC (LINDANE)	WATER	2	0.05	0.05	0.05	0.05	UG/L
GAMMA-CHLORDANE	WATER	2	0.05	0.05	0.05	0.05	UG/L
HEPTACHLOR	WATER	2	0.05	0.05	0.05	0.05	UG/L
HEPTACHLOR EPOXIDE	WATER	2	0.01	0.01	0.01	0.01	UG/L
METHOXYCHLOR	WATER	2	0.5	0.5	0.5	0.50	UG/L
TOXAPHENE	WATER	2	3	3	3	3.0	UG/L
Low Level CLP Pesticides:							
2,4'-DDD	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
2,4'-DDE	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
2,4'-DDT	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
4,4'-DDD	SEDIMENT	5	0.2	0.5	0.3	0.2	UG/KG
4,4'-DDE	SEDIMENT	5	0.2	0.5	0.3	0.2	UG/KG
4,4'-DDT	SEDIMENT	5	0.2	0.5	0.3	0.2	UG/KG
ALDRIN	SEDIMENT	5	0.2	0.5	0.3	0.1	UG/KG
ALPHA-CHLORDANE	SEDIMENT	5	0.2	0.5	0.3	0.1	UG/KG
DIELDRIN	SEDIMENT	5	0.2	0.5	0.3	0.2	UG/KG
GAMMA-BHC (LINDANE)	SEDIMENT	5	0.2	0.5	0.3	0.1	UG/KG
HEPTACHLOR	SEDIMENT	5	0.2	0.5	0.3	0.1	UG/KG
HEPTACHLOR EPOXIDE	SEDIMENT	5	0.2	0.5	0.3	0.1	UG/KG
HEXACHLOROBENZENE	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
MIREX	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-101 (2,2',3,5,5')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-105 (2,3,3',4,4')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-118 (2,3',4,4',5)	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-126 (3,3',4,4',5)	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
PCB-128 (2,2',3,3',4,4')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-138 (2,2',3,4,4',5')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-153 (2,2',4,4',5,5')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-170 (2,2',3,3',4,4',5)	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-18 (2,2',5)	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-180 (2,2',3,4,4',5,5')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-187 (2,2',3,4',5,5',6)	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-195 (2,2',3,3',4,4',5,6)	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-206 (2,2,',3,3',4,4',5,5',	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-209 (2,2',3,3',4,4',5,5',6	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-28 (2,4,4')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-44 (2,2',3,5')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-52 (2,2',5,5')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-66 (2,3',4,4')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-77 (3,3',4,4')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
PCB-8 (2,4')	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
TRANS-NONACHLOR	SEDIMENT	5	0.2	0.5	0.3	1.1	UG/KG
2,4'-DDD	SOIL	129	0.1	7	0.4	1.1	UG/KG
2,4'-DDE	SOIL	129	0.1	7	0.4	1.1	UG/KG
2,4'-DDT	SOIL	129	0.1	7	0.4	1.1	UG/KG
4,4'-DDD	SOIL	129	0.1	7	0.4	0.2	UG/KG
4,4'-DDE	SOIL	129	0.1	7	0.4	0.2	UG/KG
4,4'-DDT	SOIL	129	0.1	7	0.4	0.2	UG/KG
ALDRIN	SOIL	129	0.1	7	0.4	0.1	UG/KG
ALPHA-CHLORDANE	SOIL	129	0.1	7	0.4	0.1	UG/KG
DIELDRIN	SOIL	129	0.1	7	0.4	0.2	UG/KG
GAMMA-BHC (LINDANE)	SOIL	129	0.1	7	0.4	0.1	UG/KG
HEPTACHLOR	SOIL	129	0.1	7	0.4	0.1	UG/KG
HEPTACHLOR EPOXIDE	SOIL	129	0.1	7	0.4	0.1	UG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
HEXACHLOROBENZENE	SOIL	129	0.1	7	0.4	1.1	UG/KG
MIREX	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-101 (2,2',3,5,5')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-105 (2,3,3',4,4')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-118 (2,3',4,4',5)	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-126 (3,3',4,4',5)	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-128 (2,2',3,3',4,4')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-138 (2,2',3,4,4',5')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-153 (2,2',4,4',5,5')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-170 (2,2',3,3',4,4',5)	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-18 (2,2',5)	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-180 (2,2',3,4,4',5,5')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-187 (2,2',3,4',5,5',6)	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-195 (2,2',3,3',4,4',5,6)	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-206 (2,2,',3,3',4,4',5,5',	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-209 (2,2',3,3',4,4',5,5',6	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-28 (2,4,4')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-44 (2,2',3,5')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-52 (2,2',5,5')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-66 (2,3',4,4')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-77 (3,3',4,4')	SOIL	129	0.1	7	0.4	1.1	UG/KG
PCB-8 (2,4')	SOIL	129	0.1	7	0.4	1.1	UG/KG
TRANS-NONACHLOR	SOIL	129	0.1	7	0.4	1.1	UG/KG
Explosives:							
1,3,5-TRINITROBENZENE	SOIL	77	120	120	120	500	UG/KG
1,3-DINITROBENZENE	SOIL	77	120	120	120	500	UG/KG
2,4,6-TRINITROTOLUENE	SOIL	77	120	120	120	500	UG/KG
2,4-DINITROTOLUENE	SOIL	77	120	120	120	500	UG/KG
2,6-DINITROTOLUENE	SOIL	77	120	120	120	500	UG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
2-NITROTOLUENE	SOIL	77	120	120	120	500	UG/KG
3-NITROTOLUENE	SOIL	77	120	120	120	500	UG/KG
4-NITROTOLUENE	SOIL	77	120	120	120	500	UG/KG
HMX	SOIL	77	120	120	120	500	UG/KG
NITROBENZENE	SOIL	77	120	120	120	500	UG/KG
RDX	SOIL	77	120	120	120	500	UG/KG
TETRYL	SOIL	77	120	120	120	500	UG/KG
1,3,5-TRINITROBENZENE	SWATER	60	0.1	0.1	0.1	0.5	UG/L
1,3-DINITROBENZENE	SWATER	60	0.1	0.1	0.1	0.5	UG/L
2,4,6-TRINITROTOLUENE	SWATER	60	0.1	0.1	0.1	0.5	UG/L
2,4-DINITROTOLUENE	SWATER	60	0.1	0.1	0.1	0.5	UG/L
2,6-DINITROTOLUENE	SWATER	60	0.1	0.1	0.1	0.5	UG/L
2-NITROTOLUENE	SWATER	60	0.1	0.1	0.1	0.5	UG/L
3-NITROTOLUENE	SWATER	60	0.1	0.1	0.1	0.5	UG/L
4-NITROTOLUENE	SWATER	60	0.1	0.1	0.1	0.5	UG/L
HMX	SWATER	60	0.1	0.1	0.1	0.5	UG/L
NITROBENZENE	SWATER	60	0.1	0.1	0.1	0.5	UG/L
RDX	SWATER	60	0.1	0.1	0.1	0.5	UG/L
TETRYL	SWATER	60	0.1	0.1	0.1	0.5	UG/L
1,3,5-TRINITROBENZENE	WATER	2	0.1	0.1	0.1	0.5	UG/L
1,3-DINITROBENZENE	WATER	2	0.1	0.1	0.1	0.5	UG/L
2,4,6-TRINITROTOLUENE	WATER	2	0.1	0.1	0.1	0.5	UG/L
2,4-DINITROTOLUENE	WATER	2	0.1	0.1	0.1	0.5	UG/L
2,6-DINITROTOLUENE	WATER	2	0.1	0.1	0.1	0.5	UG/L
2-NITROTOLUENE	WATER	2	0.1	0.1	0.1	0.5	UG/L
3-NITROTOLUENE	WATER	2	0.1	0.1	0.1	0.5	UG/L
4-NITROTOLUENE	WATER	2	0.1	0.1	0.1	0.5	UG/L
HMX	WATER	2	0.1	0.1	0.1	0.5	UG/L
NITROBENZENE	WATER	2	0.1	0.1	0.1	0.5	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
RDX	WATER	2	0.1	0.1	0.1	0.5	UG/L
TETRYL	WATER	2	0.1	0.1	0.1	0.5	UG/L
TPH-:							
DIESEL	SOIL	25	12	1400	170	10	MG/KG
GASOLINE	SOIL	7	0.6	6	1	0.5	MG/KG
MOTOR OIL	SOIL	25	12	1400	170	10	MG/KG
DIESEL	SWATER	5	0.1	1	0.3	0.1	MG/L
MOTOR OIL	SWATER	5	0.1	1	0.3	0.1	MG/L
Dioxins:							
1,2,3,4,6,7,8-HPCDD	SOIL	2	0.06	0.06	0.06	1	UG/KG
1,2,3,4,6,7,8-HPCDF	SOIL	2	0.08	0.08	0.08	1	UG/KG
1,2,3,4,7,8,9-HPCDF	SOIL	2	0.04	0.08	0.06	1	UG/KG
1,2,3,4,7,8-HXCDD	SOIL	2	0.05	0.07	0.06	0.5	UG/KG
1,2,3,4,7,8-HXCDF	SOIL	2	0.02	0.06	0.04	0.5	UG/KG
1,2,3,6,7,8-HXCDD	SOIL	2	0.05	0.07	0.06	0.5	UG/KG
1,2,3,6,7,8-HXCDF	SOIL	2	0.02	0.06	0.04	0.5	UG/KG
1,2,3,7,8,9-HXCDD	SOIL	2	0.05	0.07	0.06	0.5	UG/KG
1,2,3,7,8,9-HXCDF	SOIL	2	0.02	0.06	0.04	0.5	UG/KG
1,2,3,7,8-PECDD	SOIL	2	0.06	0.08	0.07	0.1	UG/KG
1,2,3,7,8-PECDF	SOIL	2	0.04	0.09	0.06	0.1	UG/KG
2,3,4,6,7,8-HXCDF	SOIL	2	0.02	0.06	0.04	0.5	UG/KG
2,3,4,7,8-PECDF	SOIL	2	0.04	0.09	0.06	0.1	UG/KG
2,3,7,8-TCDF	SOIL	2	0.06	0.1	0.08	0.1	UG/KG
2,3,7,8-TETRACHLORODIBENZO-P-D	SOIL	2	0.02	0.03	0.02	0.1	UG/KG
HPCDDS (TOTAL)	SOIL	2	0.1	0.1	0.1	1	UG/KG
HPCDFS (TOTAL)	SOIL	2	0.08	0.08	0.08	1	UG/KG
HXCDDS (TOTAL)	SOIL	2	0.05	0.07	0.06	0.5	UG/KG
HXCDFS (TOTAL)	SOIL	2	0.06	0.2	0.1	0.5	UG/KG
OCDD	SOIL	2	0.2	0.2	0.2	1	UG/KG

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DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
OCDF	SOIL	2	0.08	0.2	0.2	1	UG/KG
PECDDS (TOTAL)	SOIL	2	0.06	0.08	0.07	0.1	UG/KG
PECDFS (TOTAL)	SOIL	2	0.04	0.09	0.06	0.1	UG/KG
TCDDS (TOTAL)	SOIL	2	0.02	0.03	0.02	0.1	UG/KG
TCDFS (TOTAL)	SOIL	2	0.06	0.1	0.08	0.1	UG/KG
CLP Metals:							
ALUMINUM	SEDIMENT	5	3.1	10.2	5.6	10	MG/KG
ANTIMONY	SEDIMENT	5	0.70	1.3	0.95	1.2	MG/KG
ARSENIC	SEDIMENT	5	0.67	1.8	1.1	2.0	MG/KG
BARIUM	SEDIMENT	5	0.11	1.7	0.88	40	MG/KG
BERYLLIUM	SEDIMENT	5	0.04	0.10	0.07	0.8	MG/KG
CADMIUM	SEDIMENT	5	0.07	0.15	0.11	0.2	MG/KG
CALCIUM	SEDIMENT	5	5.4	43.1	23.9	1000	MG/KG
CHROMIUM	SEDIMENT	5	0.16	1.1	0.48	2.0	MG/KG
COBALT	SEDIMENT	5	0.19	0.50	0.34	10	MG/KG
COPPER	SEDIMENT	5	0.22	0.50	0.33	0.8	MG/KG
IRON	SEDIMENT	5	5.9	9.8	7.6	20	MG/KG
LEAD	SEDIMENT	5	0.48	0.94	0.66	0.6	MG/KG
MAGNESIUM	SEDIMENT	5	6.1	45.8	25.6	1000	MG/KG
MANGANESE	SEDIMENT	5	0.13	0.38	0.22	3.0	MG/KG
MERCURY	SEDIMENT	5	0.02	0.10	0.05	0.2	MG/KG
MOLYBDENUM	SEDIMENT	5	0.34	0.69	0.52	1.0	MG/KG
NICKEL	SEDIMENT	5	0.32	2.1	0.90	1.6	MG/KG
POTASSIUM	SEDIMENT	5	10.4	52.1	30.9	1000	MG/KG
SELENIUM	SEDIMENT	5	1.2	2.1	1.6	1.0	MG/KG
SILVER	SEDIMENT	5	0.22	0.40	0.31	0.4	MG/KG
SODIUM	SEDIMENT	5	47.8	99.1	73.8	1000	MG/KG
THALLIUM	SEDIMENT	5	0.51	1.2	0.75	0.4	MG/KG
VANADIUM	SEDIMENT	5	0.22	0.54	0.38	10	MG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
ZINC	SEDIMENT	5	0.11	0.20	0.16	4.0	MG/KG
ALUMINUM	SOIL	294	1.3	25.3	6.0	10	MG/KG
ANTIMONY	SOIL	294	0.39	4.9	0.84	1.2	MG/KG
ARSENIC	SOIL	294	0.30	4.3	1.0	2.0	MG/KG
BARIUM	SOIL	294	0.06	3.5	0.19	40	MG/KG
BERYLLIUM	SOIL	294	0.01	0.18	0.04	0.8	MG/KG
CADMIUM	SOIL	294	0.02	0.31	0.08	0.2	MG/KG
CALCIUM	SOIL	294	2.5	81.2	6.9	1000	MG/KG
CHROMIUM	SOIL	294	0.21	2.8	0.66	2.0	MG/KG
COBALT	SOIL	294	0.08	0.91	0.20	10	MG/KG
COPPER	SOIL	294	0.11	1.2	0.31	0.8	MG/KG
IRON	SOIL	294	2.1	26.4	6.1	20	MG/KG
LEAD	SOIL	294	0.27	2.3	0.58	0.6	MG/KG
MAGNESIUM	SOIL	294	1.1	84.4	7.4	1000	MG/KG
MANGANESE	SOIL	294	0.04	0.93	0.22	3.0	MG/KG
MERCURY	SOIL	294	0.01	0.39	0.08	0.2	MG/KG
MOLYBDENUM	SOIL	294	0.17	1.9	0.36	1.0	MG/KG
NICKEL	SOIL	294	0.26	5.1	1.2	1.6	MG/KG
POTASSIUM	SOIL	294	5.6	96.0	11.6	1000	MG/KG
SELENIUM	SOIL	294	0.48	5.3	1.3	1.0	MG/KG
SILVER	SOIL	294	0.11	1.6	0.25	0.4	MG/KG
SODIUM	SOIL	294	25.6	283	52.1	1000	MG/KG
THALLIUM	SOIL	294	0.08	4.7	0.76	0.4	MG/KG
VANADIUM	SOIL	294	0.12	1.2	0.24	10	MG/KG
ZINC	SOIL	294	0.06	0.87	0.13	4.0	MG/KG
ALUMINUM	SWATER	60	16.3	19.1	17.8	50	UG/L
ANTIMONY	SWATER	60	1.6	8.0	2.2	6	UG/L
ARSENIC	SWATER	60	1.4	7.0	2.3	10	UG/L
BARIUM	SWATER	60	0.30	1.5	0.34	200	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
BERYLLIUM	SWATER	60	0.10	0.50	0.11	4	UG/L
CADMIUM	SWATER	60	0.20	1.0	0.21	1	UG/L
CALCIUM	SWATER	60	8.2	71.0	13.9	5000	UG/L
CHROMIUM	SWATER	60	0.40	2.5	0.97	10	UG/L
COBALT	SWATER	60	0.40	2.0	0.49	50	UG/L
COPPER	SWATER	60	0.50	2.5	0.71	4	UG/L
IRON	SWATER	60	11.0	55.0	14.1	100	UG/L
LEAD	SWATER	60	0.80	4.0	1.2	3	UG/L
MAGNESIUM	SWATER	60	16.3	261	40.2	5000	UG/L
MANGANESE	SWATER	60	0.10	0.60	0.33	15	UG/L
MERCURY	SWATER	60	0.10	0.10	0.10	0.2	UG/L
MOLYBDENUM	SWATER	60	0.60	3.0	0.88	5	UG/L
NICKEL	SWATER	60	0.70	3.5	1.8	8	UG/L
POTASSIUM	SWATER	60	484	5990	1080	5000	UG/L
SELENIUM	SWATER	60	2.3	11.5	3.2	5	UG/L
SILVER	SWATER	60	0.50	2.5	0.61	2	UG/L
SODIUM	SWATER	60	25.7	257	107	5000	UG/L
THALLIUM	SWATER	60	1.9	9.5	2.1	2	UG/L
VANADIUM	SWATER	60	0.40	2.0	0.59	50	UG/L
ZINC	SWATER	60	0.30	5.0	0.85	20	UG/L
ALUMINUM	WATER	2	6.3	6.3	6.3	50	UG/L
ANTIMONY	WATER	2	9.5	9.5	9.5	6	UG/L
ARSENIC	WATER	3	1.4	2.8	1.9	10	UG/L
BARIUM	WATER	2	0.40	0.40	0.40	200	UG/L
BERYLLIUM	WATER	2	0.10	0.10	0.10	4	UG/L
CADMIUM	WATER	2	0.10	0.10	0.10	1	UG/L
CALCIUM	WATER	2	11.9	11.9	11.9	5000	UG/L
CHROMIUM	WATER	2	1.0	1.0	1.0	10	UG/L
COBALT	WATER	2	0.40	0.40	0.40	50	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
COPPER	WATER	2	0.50	0.50	0.50	4	UG/L
IRON	WATER	2	10.1	10.1	10.1	100	UG/L
LEAD	WATER	2	1.3	1.3	1.3	3	UG/L
MAGNESIUM	WATER	2	5.1	5.1	5.1	5000	UG/L
MANGANESE	WATER	2	0.20	0.20	0.20	15	UG/L
MERCURY	WATER	2	0.10	0.10	0.10	0.2	UG/L
MOLYBDENUM	WATER	2	0.80	4.0	2.4	5	UG/L
NICKEL	WATER	2	1.3	1.3	1.3	8	UG/L
POTASSIUM	WATER	2	43.9	43.9	43.9	5000	UG/L
SELENIUM	WATER	2	17.5	17.5	17.5	5	UG/L
SILVER	WATER	2	2.5	2.5	2.5	2	UG/L
SODIUM	WATER	2	129	129	129	5000	UG/L
THALLIUM	WATER	2	1.5	7.5	4.5	2	UG/L
VANADIUM	WATER	2	0.70	0.70	0.70	50	UG/L
ZINC	WATER	2	0.30	0.30	0.30	20	UG/L
WET Acid CLP Metals:							
ALUMINUM	SEDIMENT	5	12.1	16.3	13.8	250	UG/L
ANTIMONY	SEDIMENT	5	2.1	2.4	2.3	30	UG/L
ARSENIC	SEDIMENT	5	2.1	2.8	2.4	50	UG/L
BARIUM	SEDIMENT	5	0.30	3.2	2.0	1000	UG/L
BERYLLIUM	SEDIMENT	5	0.07	0.10	0.08	20	UG/L
CADMIUM	SEDIMENT	5	0.20	0.20	0.20	5	UG/L
CALCIUM	SEDIMENT	5	14.4	74.5	50.3	25000	UG/L
CHROMIUM	SEDIMENT	5	1.3	1.8	1.5	50	UG/L
COBALT	SEDIMENT	5	0.50	0.80	0.68	250	UG/L
COPPER	SEDIMENT	5	0.80	1.1	0.98	20	UG/L
IRON	SEDIMENT	5	15.7	243	151	500	UG/L
LEAD	SEDIMENT	5	1.5	1.7	1.6	15	UG/L
MAGNESIUM	SEDIMENT	5	16.4	68.7	47.6	25000	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
MANGANESE	SEDIMENT	5	0.30	0.60	0.42	75	UG/L
MERCURY	SEDIMENT	5	0.08	0.10	0.09	1	UG/L
MOLYBDENUM	SEDIMENT	5	0.90	1.7	1.4	25	UG/L
NICKEL	SEDIMENT	5	1.6	3.3	2.3	40	UG/L
POTASSIUM	SEDIMENT	5	27.8	38.8	34.3	25000	UG/L
SELENIUM	SEDIMENT	5	3.0	3.4	3.2	25	UG/L
SILVER	SEDIMENT	5	0.60	1.5	1.1	10	UG/L
SODIUM	SEDIMENT	5	128	2590	1140	25000	UG/L
THALLIUM	SEDIMENT	5	3.5	10.0	6.1	10	UG/L
VANADIUM	SEDIMENT	5	0.60	1.1	0.90	250	UG/L
ZINC	SEDIMENT	5	0.30	8.0	4.9	100	UG/L
ALUMINUM	SOIL	15	6.3	16.3	14.3	250	UG/L
ANTIMONY	SOIL	15	1.9	10.5	2.6	30	UG/L
ARSENIC	SOIL	15	1.4	2.8	2.5	50	UG/L
BARIUM	SOIL	15	0.30	0.40	0.32	1000	UG/L
BERYLLIUM	SOIL	15	0.10	0.10	0.10	20	UG/L
CADMIUM	SOIL	15	0.10	0.20	0.18	5	UG/L
CALCIUM	SOIL	15	11.9	14.4	13.9	25000	UG/L
CHROMIUM	SOIL	15	1.0	1.8	1.6	50	UG/L
COBALT	SOIL	15	0.40	0.50	0.48	250	UG/L
COPPER	SOIL	15	0.50	0.80	0.74	20	UG/L
IRON	SOIL	15	10.1	78.5	18.8	500	UG/L
LEAD	SOIL	15	1.3	1.5	1.5	15	UG/L
MAGNESIUM	SOIL	15	5.1	30.0	17.4	25000	UG/L
MANGANESE	SOIL	15	0.20	3.0	0.68	75	UG/L
MERCURY	SOIL	15	0.10	0.10	0.10	1	UG/L
MOLYBDENUM	SOIL	15	0.80	4.5	1.1	25	UG/L
NICKEL	SOIL	15	1.3	3.3	2.9	40	UG/L
POTASSIUM	SOIL	15	27.8	602	215	25000	UG/L

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DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
SELENIUM	SOIL	15	3.4	34.0	12.1	25	UG/L
SILVER	SOIL	15	0.50	3.0	0.90	10	UG/L
SODIUM	SOIL	15	128	129	128	25000	UG/L
THALLIUM	SOIL	15	1.5	10.0	4.3	10	UG/L
VANADIUM	SOIL	15	0.60	0.70	0.62	250	UG/L
ZINC	SOIL	15	0.30	1.5	0.38	100	UG/L
WET CLP Metals:							
ALUMINUM	SEDIMENT	5	12.1	16.3	13.8	250	UG/L
ANTIMONY	SEDIMENT	5	2.1	2.4	2.3	30	UG/L
ARSENIC	SEDIMENT	5	2.1	2.8	2.4	50	UG/L
BARIUM	SEDIMENT	5	0.30	3.2	2.0	1000	UG/L
BERYLLIUM	SEDIMENT	5	0.07	0.10	0.08	20	UG/L
CADMIUM	SEDIMENT	5	0.20	0.20	0.20	5	UG/L
CALCIUM	SEDIMENT	5	14.4	74.6	50.4	25000	UG/L
CHROMIUM	SEDIMENT	5	1.3	1.8	1.5	50	UG/L
COBALT	SEDIMENT	5	0.50	0.80	0.68	250	UG/L
COPPER	SEDIMENT	5	0.80	1.1	0.98	20	UG/L
IRON	SEDIMENT	5	15.7	24.3	20.8	500	UG/L
LEAD	SEDIMENT	5	1.5	1.7	1.6	15	UG/L
MAGNESIUM	SEDIMENT	5	16.4	68.8	47.7	25000	UG/L
MANGANESE	SEDIMENT	5	0.30	0.60	0.42	75	UG/L
MERCURY	SEDIMENT	5	0.08	0.10	0.09	1	UG/L
MOLYBDENUM	SEDIMENT	5	0.90	1.7	1.4	25	UG/L
NICKEL	SEDIMENT	5	1.6	3.3	2.3	40	UG/L
POTASSIUM	SEDIMENT	5	27.8	38.9	34.4	25000	UG/L
SELENIUM	SEDIMENT	5	3.0	3.4	3.2	25	UG/L
SILVER	SEDIMENT	5	0.60	1.5	1.1	10	UG/L
SODIUM	SEDIMENT	5	128	2600	1140	25000	UG/L
THALLIUM	SEDIMENT	5	0.50	2.0	1.1	10	UG/L

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
VANADIUM	SEDIMENT	5	0.60	1.1	0.90	250	UG/L
ZINC	SEDIMENT	5	0.30	0.80	0.60	100	UG/L
ALUMINUM	SOIL	47	6.3	16.3	16.0	250	UG/L
ANTIMONY	SOIL	47	1.9	10.5	2.3	30	UG/L
ARSENIC	SOIL	47	1.4	2.8	2.8	50	UG/L
BARIUM	SOIL	47	0.30	3.2	0.36	1000	UG/L
BERYLLIUM	SOIL	47	0.07	0.10	0.10	20	UG/L
CADMIUM	SOIL	47	0.10	0.20	0.20	5	UG/L
CALCIUM	SOIL	47	11.9	73.9	15.6	25000	UG/L
CHROMIUM	SOIL	47	1.0	1.8	1.8	50	UG/L
COBALT	SOIL	47	0.40	0.79	0.50	250	UG/L
COPPER	SOIL	47	0.50	1.1	0.80	20	UG/L
IRON	SOIL	47	10.1	24.1	15.8	500	UG/L
LEAD	SOIL	47	1.3	1.7	1.5	15	UG/L
MAGNESIUM	SOIL	47	5.1	68.1	21.3	25000	UG/L
MANGANESE	SOIL	47	0.20	0.60	0.59	75	UG/L
MERCURY	SOIL	47	0.08	0.10	0.10	1	UG/L
MOLYBDENUM	SOIL	47	0.80	1.7	0.92	25	UG/L
NICKEL	SOIL	47	1.3	3.3	3.2	40	UG/L
POTASSIUM	SOIL	47	27.8	602	236	25000	UG/L
SELENIUM	SOIL	47	3.0	3.5	3.4	25	UG/L
SILVER	SOIL	47	0.50	1.5	0.62	10	UG/L
SODIUM	SOIL	47	128	2580	180	25000	UG/L
THALLIUM	SOIL	47	0.50	10.0	2.1	10	UG/L
VANADIUM	SOIL	47	0.60	1.1	0.61	250	UG/L
ZINC	SOIL	47	0.30	0.79	0.31	100	UG/L
Hexavalent Chromium:							
HEXAVALENT CHROMIUM	SOIL	50	2.0	2500	171	50	UG/KG
Sulfides:							
SULFIDE	SEDIMENT	5	0.50	1.0	0.80	5	MG/KG

TABLE H-16

DATA EVALUATION: REPORTING LIMITS (CONTINUED)
NAVAL WEAPONS STATION CONCORD

Analyte	Matrix	Number of Analytes	Minimum Reporting Limits	Maximum Reporting Limits	Average Reporting Limits	QAPP Reporting Limits Goals *	Units
SULFIDE	SOIL	201	0.50	264	24.6	5	MG/KG
SULFIDE	SWATER	3	0.10	0.20	0.13	0.01	MG/L
Total Organic Carbon:							
TOTAL ORGANIC CARBON	SEDIMENT	5	100	100	100	10	MG/KG
TOTAL ORGANIC CARBON	SOIL	228	100	135	102	10	MG/KG
TOTAL ORGANIC CARBON	SWATER	60	0.50	0.50	0.50	1	MG/L
TOTAL ORGANIC CARBON	WATER	2	0.50	0.50	0.50	1	MG/L
pH:							
PH	SEDIMENT	5				0.1	
PH	SOIL	294		1.0	0.00	0.1	
PH	WATER	3				0.1	
Total Suspended Solids:							
TOTAL SUSPENDED SOLIDS	SWATER	60	10.0	20.0	10.3	10	MG/L
Percent Moisture:							
PERCENT MOISTURE	SEDIMENT	5	1.0	1.0	0.40	0.1	%
PERCENT MOISTURE	SOIL	162		1.0	0.17	0.1	%
PERCENT SOLID	SOIL	12				0.1	%

* Quantitation limits for soil/concrete are based on wet weight; the soil/concrete quantitation limits calculated on a dry weight basis will be higher.

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APPENDIX I

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TABLE

Table

1 AMBIENT METALS CONCENTRATIONS IN SOILS OF THE TIDAL AREA SITES

1.0 INTRODUCTION

This technical memorandum, prepared by PRC Environmental Management, Inc. (PRC), presents the approach for estimating ambient metal concentration limits in Tidal Area soils at Naval Weapons Station (NWS) Concord, California (Figure 1). The estimated ambient concentration limits are intended for use in the baseline human health risk assessment, ecological risk assessment, and remedial investigation (RI) of NWS Concord Installation Restoration Program sites.

Naturally occurring concentrations of metals in soil, rock, and water are usually referred to as "background" concentrations. To evaluate the effects of site activities on the environment, constituent concentrations found at a site are typically compared to the background concentrations, and the difference between the site and background concentrations is assumed to be the impact of site activities.

In some cases, land development activities that are not associated with the specific Installation Restoration Program site activities being assessed may have resulted in relatively uniform changes to the original background concentrations. These concentrations represent conditions that existed before potential impacts from site-specific activities and will be referred to as "ambient" concentrations.

Because of the proximity of potential contamination sources, such as chemical plants, undisturbed or "true" background conditions are unlikely to occur within or near the Tidal Area. Efforts to identify a background or reference area upgradient from the Tidal Area sites have not been successful. U.S. Environmental Protection Agency (EPA) collected samples from two areas southwest of the Tidal Area sites in an attempt to identify a representative background site. Soil samples from the first area contained elevated levels of metals, specifically lead. Soil and water samples collected from an area farther inland than the first area also contained elevated levels of metals. In addition, petroleum hydrocarbons were observed in shallow soils. Consequently, EPA abandoned this second location. Therefore, in the absence of locations with background conditions within the Tidal Area or adjacent to it, the approach presented in this memorandum entails use of the site-specific soil metals data collected for the RI to estimate upper limits for ambient concentrations.

This document describes the approach, conceptual model, and statistical analysis used in estimating ambient metal concentrations of the Tidal Area soils. The results of the estimation are summarized in Table 1 and Figures 3 through 19.

2.0 APPROACH

A step-by-step approach for estimating ambient metal concentration limits is defined as follows:

Step 1. Develop a conceptual model of soils in the Tidal Area and select the RI soil samples to be used in the estimation.

Step 2. Query the database of RI soil analytical results for all metals except essential nutrients. Exclude from the data set the soil samples that may have been affected by site activities.

Step 3. For metals with high detection frequencies, substitute values of one-half the sample quantitation limit (SQL) for all analytical results reported as not detected. For metals with low detection frequencies, replace not detected values with the lowest detected values. Use probability plots to explore the data and exclude outliers from the metal data sets. Test the distribution of the resulting ambient data sets.

Step 4. Use nonparametric formula to estimate the ambient limit as the 95th or 99th percentile of the metal data set.

3.0 CONCEPTUAL MODEL

The conceptual model developed for this task is a generalized representation of soil conditions and was used to justify the selection of the RI soil samples in estimating ambient limits for inorganic constituents. The model is based on a characterization of the Tidal Area subsurface materials and preliminary analysis of the grain size distribution in soil samples from the four sites.

Subsurface geology of the Tidal Area is best described as a zone of interfingering alluvial and estuarine depositional environments. The Tidal Area is divided into three distinct landforms, all of Quaternary age: foot slopes, flood plains, and marsh or wetlands (Figure 2). The four Tidal Area sites (IR sites 1, 2, 9, and 11) are located within the wetlands adjacent to Suisun Bay and underlain by fine grained silt and clay mixed with organic material that make up bay muds (Lee et al. 1986).

These bay muds have been divided into Younger Bay Mud and Older Bay Mud (McCulley, Frick and Gilman, Inc. 1987). Soil borings drilled at the four Tidal Area sites are confined to the Younger Bay Mud stratigraphic unit. The Younger Bay Mud is an estuarine/marine silty clay that is commonly compacted

stiff to semi-hard, and varies in thickness from 15 to 50 feet. Sand lenses occur in the Younger Bay Mud and may represent historic streambeds or outwash deposits. Mineral compositions of bay muds consist of mica, montmorillinite, chlorite, kaolinite, quartz, and feldspar (Goldman 1969).

Soils beneath the four Tidal Area sites are composed of silty, and locally sandy, clay. Silty, fine grained sand lenses were observed in a few soil borings, but the lenses can not be correlated between soil borings (IT Corp. 1992). Based upon a preliminary analysis of the grain size distribution in soil samples collected from the sites during the remedial investigation, the fraction of silt and clay in subsurface materials tends to increase with depth; the sediments with highest ratios of coarse to fine materials are generally confined to the upper 0.5 feet below ground surface (bgs). Due to a general decrease in permeability and an increase in the sorptive properties of soils with depth, the leaching of metals downward from potentially affected surface soils is expected to be limited. Thus, the concentrations of metals at depths greater than 0.5 feet bgs are expected to represent ambient conditions.

Statistical analysis of data on nineteen metals (excluding essential nutrients) from over 200 RI soil samples collected at the four sites has shown that some metals (aluminum, arsenic, chromium, nickel, and vanadium) have similar concentrations regardless of the depth of the sample. However, many other metals exhibit higher concentrations in the surface soils than deep soils. For example, lead concentrations in shallow samples (up to 0.5 feet deep) are, on average, three times higher than in deep samples. Mercury and zinc concentrations in the surface soils are almost twice as high as in the deeper deposits. Using statistical comparisons with t-test and K-S test (Gilbert 1987), the statistically significant differences in concentrations versus depth were confirmed for antimony, barium, cobalt, copper, lead, manganese, mercury, molybdenum, and zinc.

The consistency of concentrations at different depths and relatively narrow ranges of concentrations of aluminum, arsenic, chromium, nickel, and vanadium suggests they may be naturally occurring. The ranges of concentrations of arsenic, chromium, and nickel observed in the soils in the Tidal Area are comparable with the reported concentrations in the Suisun Bay sediments (San Francisco Estuary Institute 1994).

The elevated concentrations of lead, mercury, zinc, antimony, and copper in the uppermost soils may be related to both natural factors and the potential contamination sources. Relatively high levels of lead of about 200 milligrams per kilogram (mg/kg) in the upper 0.5 feet of soils may be related to potential contamination releases from surrounding chemical plants. The occurrence of elevated mercury in the

uppermost soils is likely attributable to the erosion and deposition of mineralized source materials from Los Medanos Hills. Further, there has been mining activity on the western slope of the Sierra Nevada mountain range since the late 1800s that may have indirectly contributed to accumulation of some metals (iron, copper, and lead) in soils of the Tidal Area. Under this hypothesis, metals dissolved by acid mine drainage or bound to particulates were transported via surface water to the Sacramento/San Joaquin river delta, and ultimately deposited in the Bay. Similarly, some metal compounds might have been deposited directly on the surface within the Tidal Area due to its flooding during high tides.

Because it is difficult to distinguish the influence of natural and anthropogenic factors on concentrations of metals encountered in the uppermost soils of the Tidal Area, the evaluation of ambient metal limits is conducted using subsurface soil samples only. These subsurface soil samples used in the evaluation were collected between one and ten feet below ground surface.

Ambient metal concentration limits were estimated for all the metals available in the database of RI soil analytical results, excluding sodium, potassium, calcium, magnesium, and iron which are essential nutrients. Several soil samples (from IR sites 1, 2, and 11) expected to be potentially affected by site activities have been excluded from the metal data sets before the evaluation. The size of the resulting data sets was in the order of 60 values (Table 1), which is sufficient to allow estimation of ambient limits using statistical methods that are discussed below.

4.0 ESTIMATION METHODOLOGY

Statistical procedures consistent with U.S. Environmental Protection Agency (EPA) and Department of Toxic Substances Control (DTSC) guidance documents (EPA 1989; DTSC 1992, 1994, 1997) and current practices in the environmental industry were used to establish ambient concentrations of metals in soils. When defining a reasonable upper level of the ambient concentrations of metals in Tidal area soils, the 95th percentile of the distribution was used. The 95th percentile was calculated for each metal data set using nonparametric formula (Gilbert 1997). Because the 95th percentile provides a conservative (low) estimate of the upper ambient limit, the 99th percentile was also calculated for each metal. For data sets with less than 100 values, the nonparametric estimate of the 99th percentile exceeds the maximum value in a data set. Therefore, a maximum value in a metal data set was used as a less conservative upper limit of ambient metal concentrations.

The following sections describe briefly the statistical methods that are used to estimate ambient concentration limits for soil metals. A more detailed description of specific procedures used in the estimation may be found in the Technical Memorandum on Estimation of Ambient Metal Concentrations in Soils prepared for Mare Island Naval Shipyard in December 1995.

4.1 DATA SET PREPARATION

Before ambient metal concentrations can be estimated, most of the data sets required special preparation. Preparation procedures included steps to account for the analytical results reported as not detected and transformation of the data to approximate normal distributions.

Not detected results must be treated the same way in the ambient evaluation and in the risk assessment. In consultation with regulatory agencies, however, and based on DTSC guidance (DTSC 1997), the following procedure was used. For metals with high detection frequency (greater than 50 percent) that included aluminum, barium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc a value of one-half the sample quantitation limit (SQL) for all analytical results reported as not detected. For metals with low detection frequencies (less than 50 percent), the not detected results were replaced with the lowest detected values. This group of metals included antimony, arsenic, beryllium, cadmium, mercury, molybdenum, selenium, silver, and thallium (Table 1). Arsenic was included in this group of metals at the request of the DTCS although arsenic has a high detection frequency (51 detections of 61 samples analyzed). The selenium and silver data sets almost entirely consist of not detected results.

To evaluate whether it was necessary to transform a specific data set to logarithms to approximate a normal distribution, summary statistics, including the mean, standard deviation, coefficient of variation, skewness, and kurtosis were calculated. In particular, the values of skewness and kurtosis were useful indicators of the need for data set transformation.

Following transformation, if necessary, a working set of histograms and probability plots was built with Geo-EAS geostatistical software (EPA 1991) for interim graphical analysis. These figures were reviewed to evaluate the effectiveness of the data transformations applied, and to identify anomalously high metal concentrations or outliers. These outliers are likely to be associated with site activities and were excluded from ambient data sets as described below.

4.2 EXCLUSION OF OUTLIERS

In performing frequency distribution analysis, a few metal concentration data points may be found at concentrations significantly greater than the main population. These outliers can be initially identified on histograms and probability plots, but more rigorously are defined as concentrations greater than three times the standard deviation from the mean. The outliers are generally attributed to site activities and are excluded from the data sets. It should be noted that since the data points considered as outliers may also represent extreme values of actual ambient concentrations, their exclusion may lead to conservative (low) estimates of ambient limits. The simultaneous exclusion of anomalously low or not detected values from some data sets may partially compensate for this bias.

4.3 CALCULATION OF AMBIENT METAL CONCENTRATION LIMITS

After making final adjustments to the ambient data sets as described above, a probability plot is prepared for each metal of interest to confirm the effectiveness of the preparation procedures and to proceed with calculation of ambient limits. To estimate upper limit of ambient concentrations for a particular metal, the 95th percentile of the distribution is calculated using a step-by-step procedure (Gilbert 1987) as follows:

Step 1. Rank the data from minimum to maximum to obtain the sample order statistics:

$$x_1 \leq x_2 \leq \ldots \leq x_l \ldots \leq x_n$$

Step 2. Calculate l:

$$l = p(n + 1)$$

Where

p = 0.95

n = number of values in the ambient data set

Step 3. If the calculated l is an integer, then the 95th percentile is the lth largest datum (among the ranked concentrations) in the data set. If l is not an integer, estimate the 95th percentile by linear interpolation between the two concentrations closest to l.

The 99th percentile is estimated in the same way using $p = 0.99$. For data sets with less than 100 values, the calculated l exceeds the largest datum in the data set. Therefore, the 99th percentile is estimated as the maximum value in the data set.

5.0 SUMMARY OF FINDINGS

The ambient concentration limits estimated for metals in the Tidal Area soils through the procedures described above are presented in Table 1. The table includes PRGs (EPA 2002) for comparison purposes. The estimated ambient limits for arsenic exceed the PRG for arsenic, as indicated in Table 1 by asterisks.

The probability plots that support the estimations are attached as Figures 3 through 19. The plots include only the data points that remained in the data set after the exclusion of outliers; the number of data points used corresponds to the data set size column shown in Tables 1. The plots also provide summary statistics including the mean, standard deviation, coefficient of variation, skewness, and kurtosis. The type of underlying data set distribution (normal, lognormal, and nonparametric) is also noted.

6.0 REFERENCES

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EPA. 2002. Region 9 PRGs Table 2002 Update. October. http://www.epa.gov/region09/waste/sfund/prg/index.htm

FIGURES

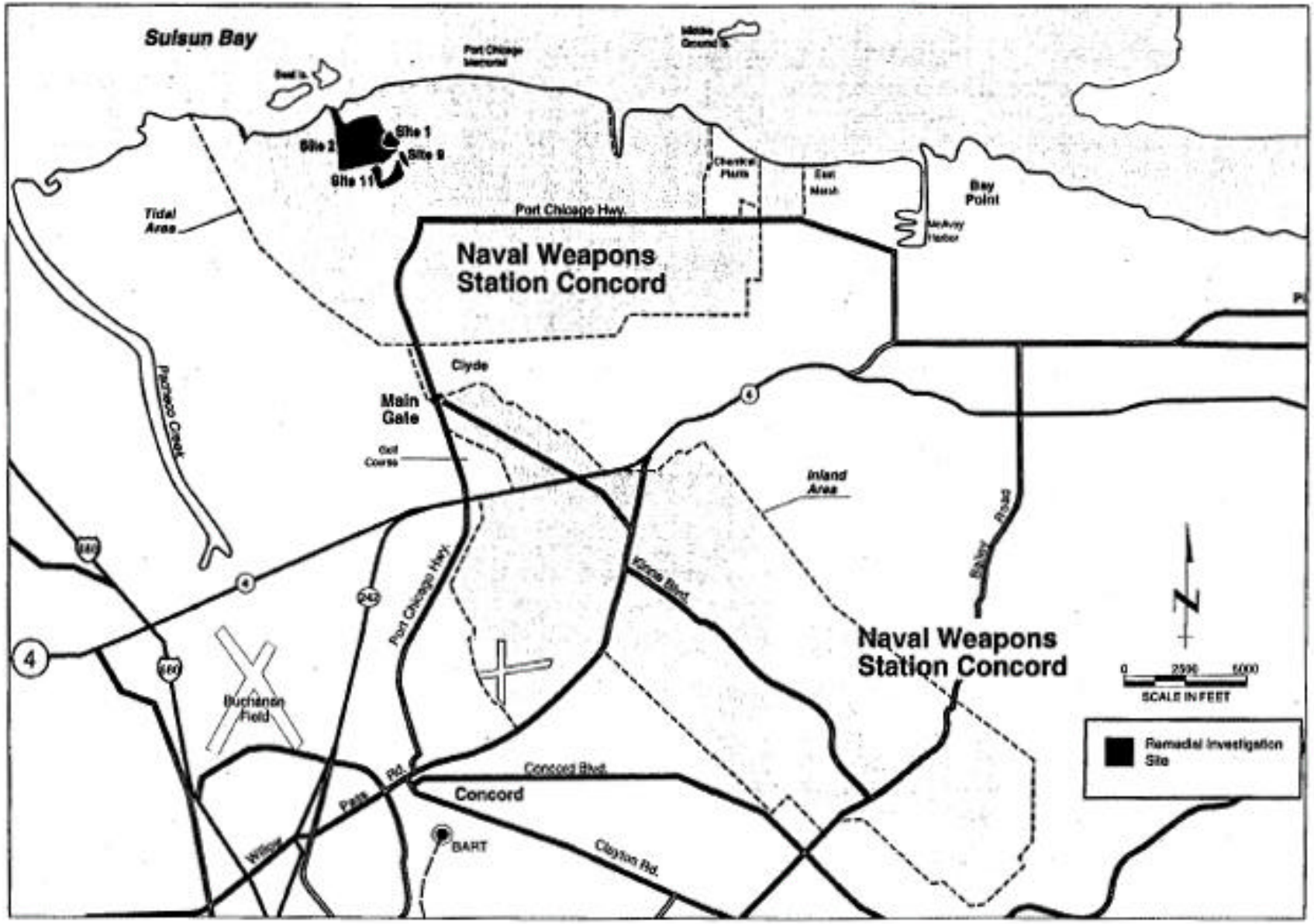
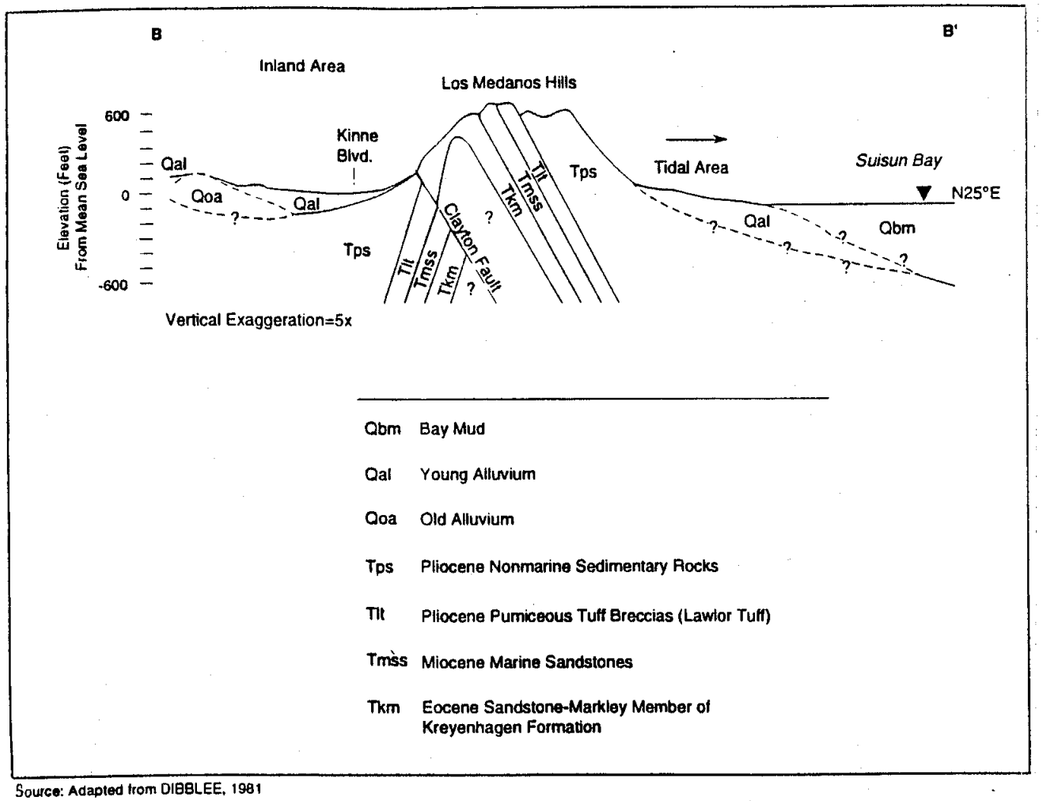
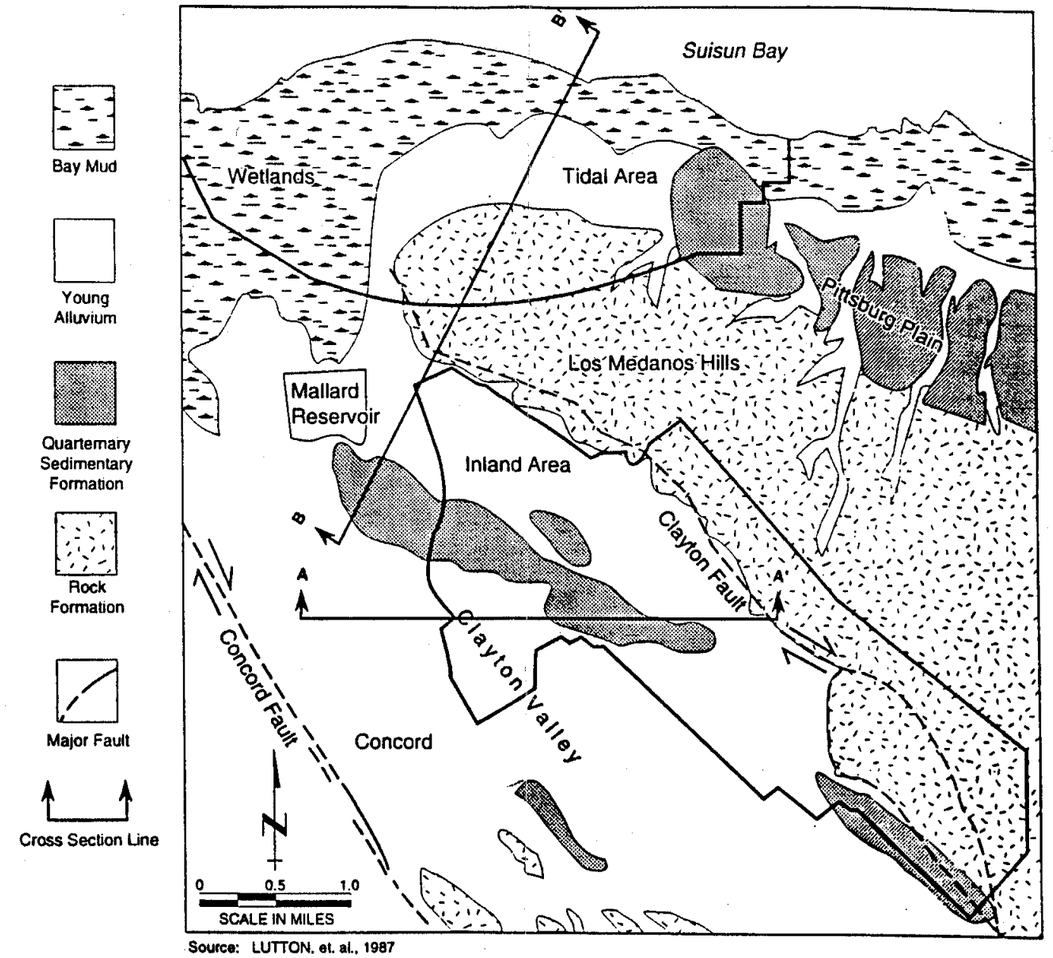


FIGURE 1
TIDAL AREA INVESTIGATION SITES
NAVAL WEAPONS STATION CONCORD



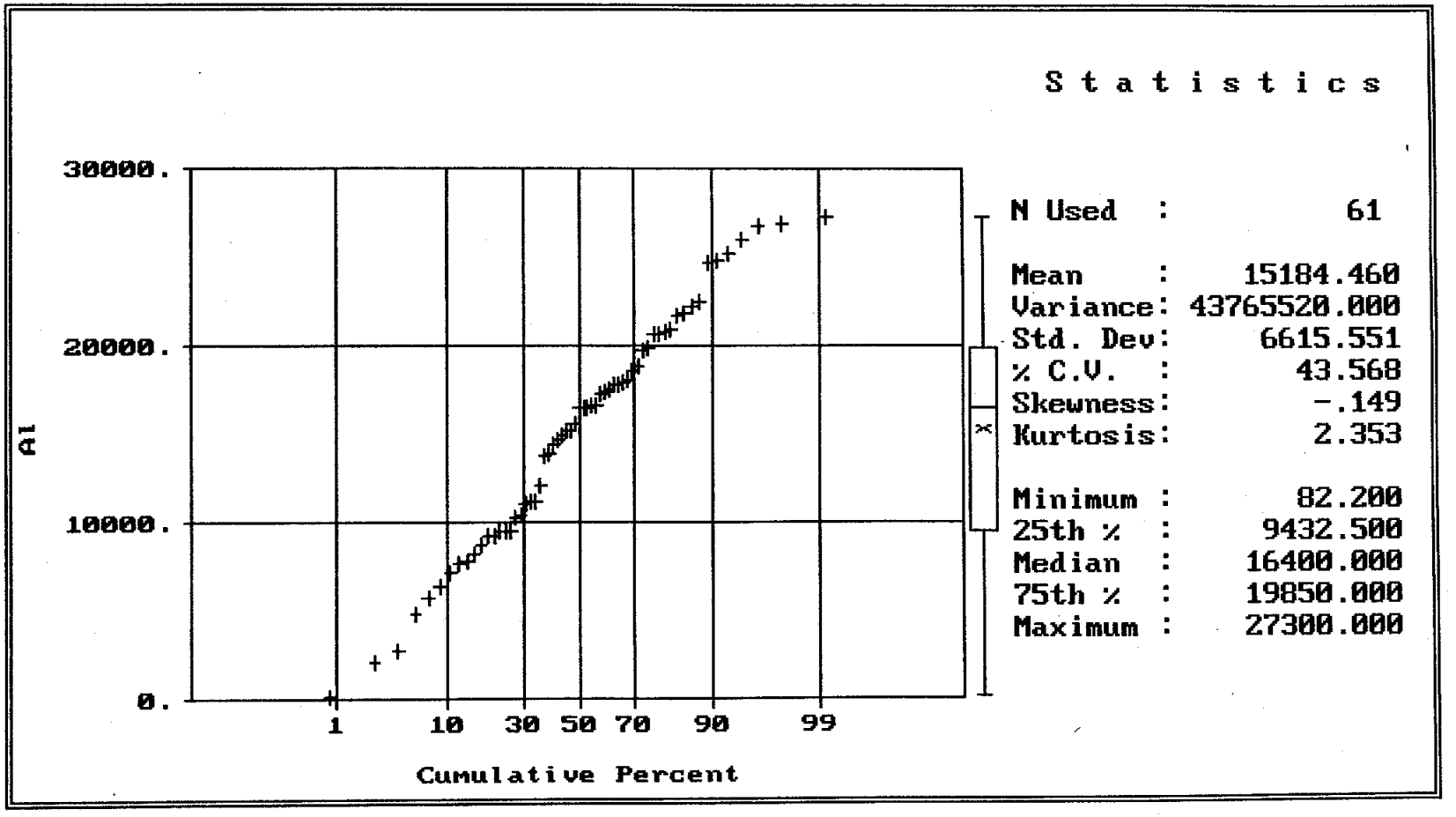
Source: Adapted from DIBBLEE, 1981



Source: LUTTON, et. al., 1987
DIBBLEE, 1980a,b,c, 1981

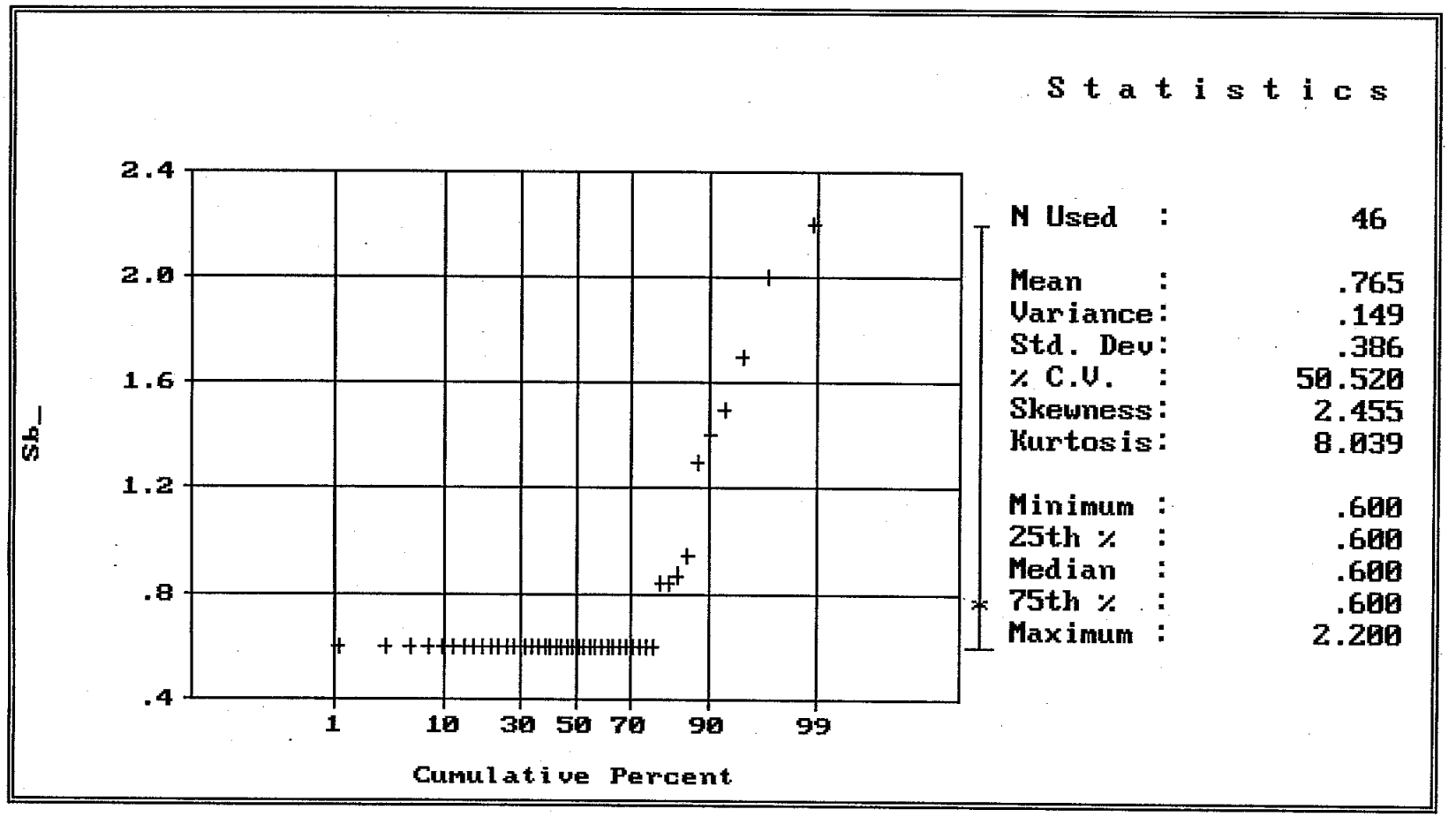
FIGURE 2
GEOLOGIC MAP
NAVAL WEAPONS
STATION CONCORD

7/93 CO



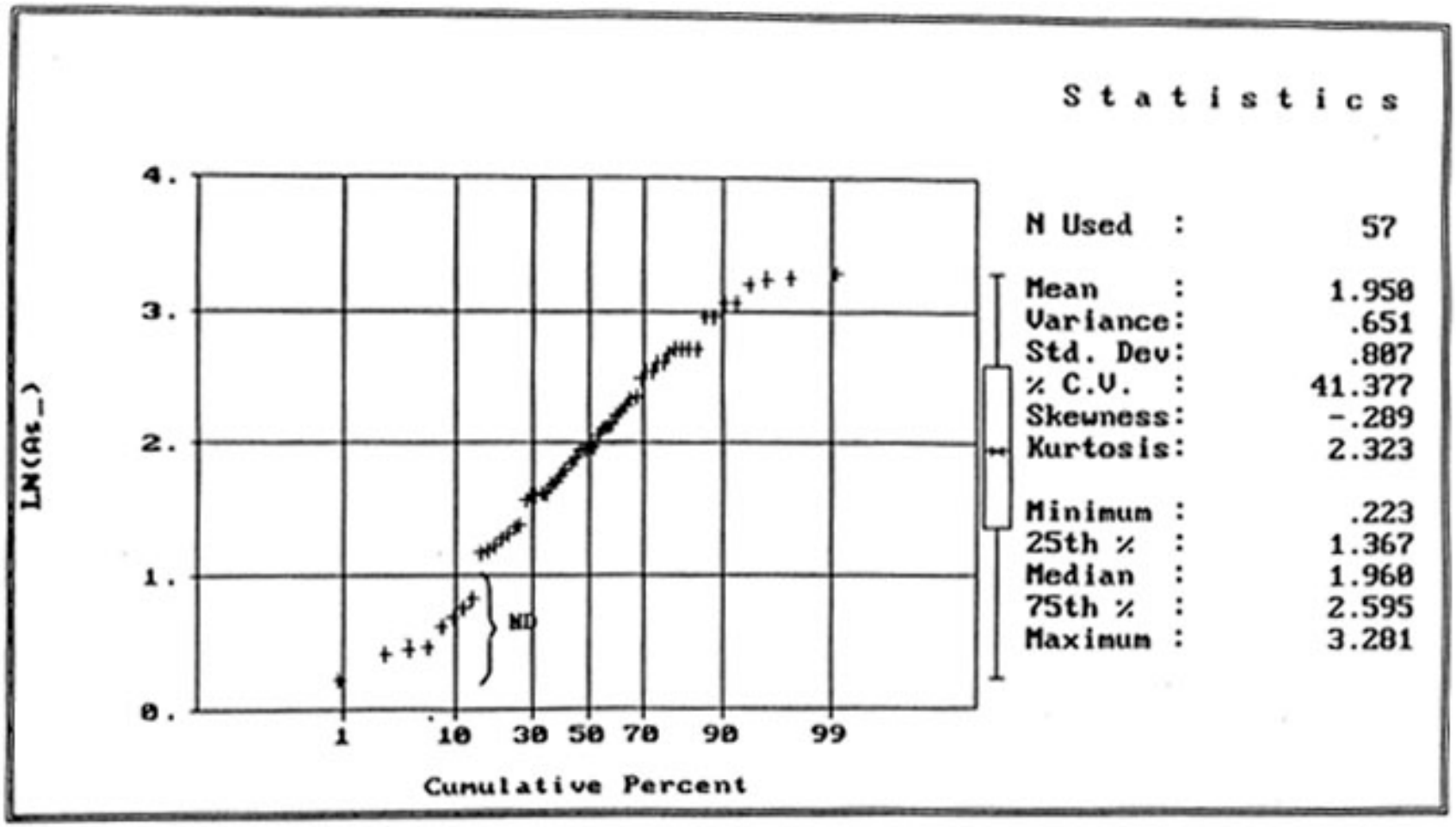
Note: The data set distribution is normal.

FIGURE 3
PROBABILITY PLOT OF ALUMINUM CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



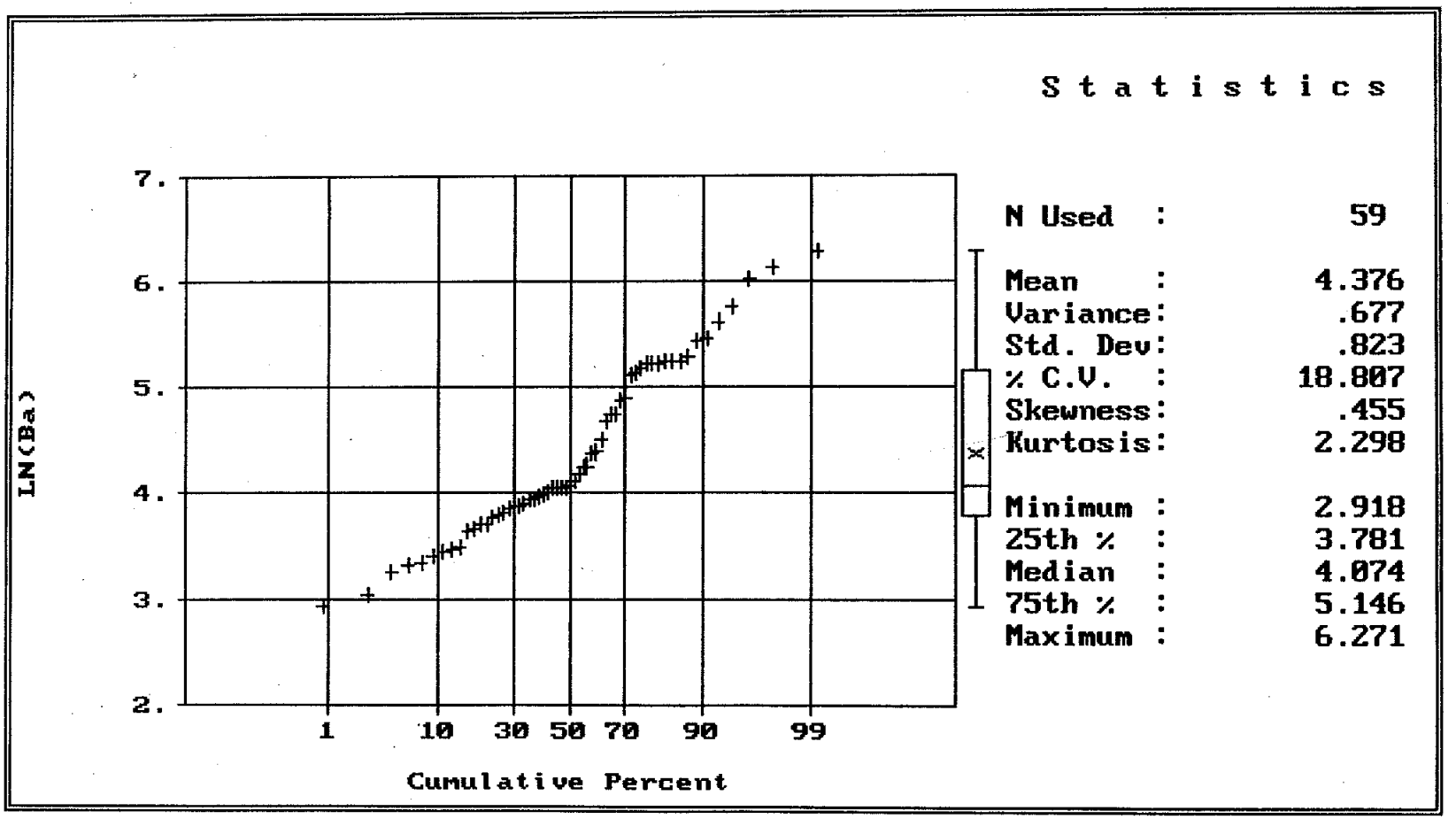
Note: The data set distribution is nonparametric.

FIGURE 4
PROBABILITY PLOT OF ANTIMONY CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



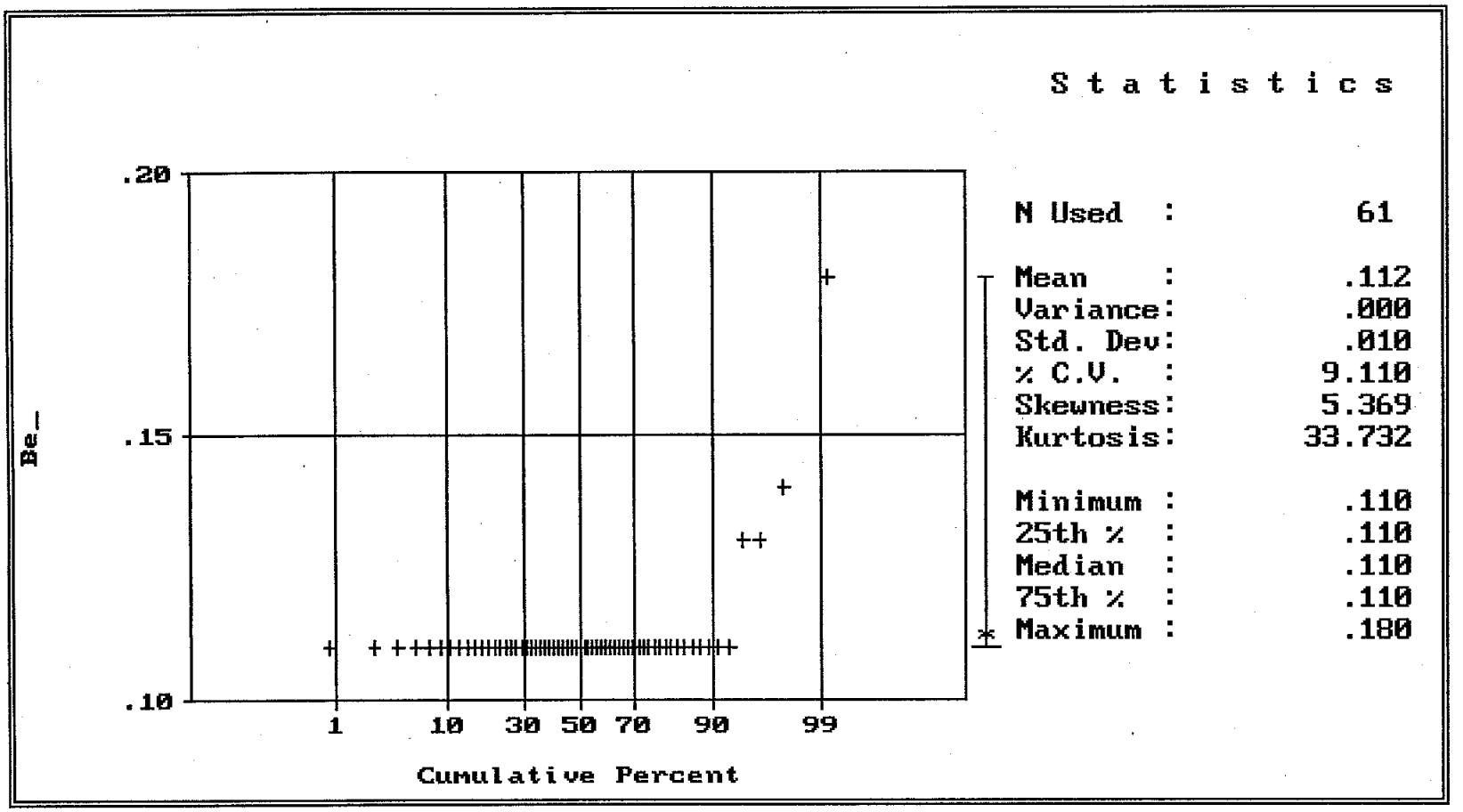
Note: The data set distribution is lognormal

FIGURE 5
PROBABILITY PLOT OF ARSENIC CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



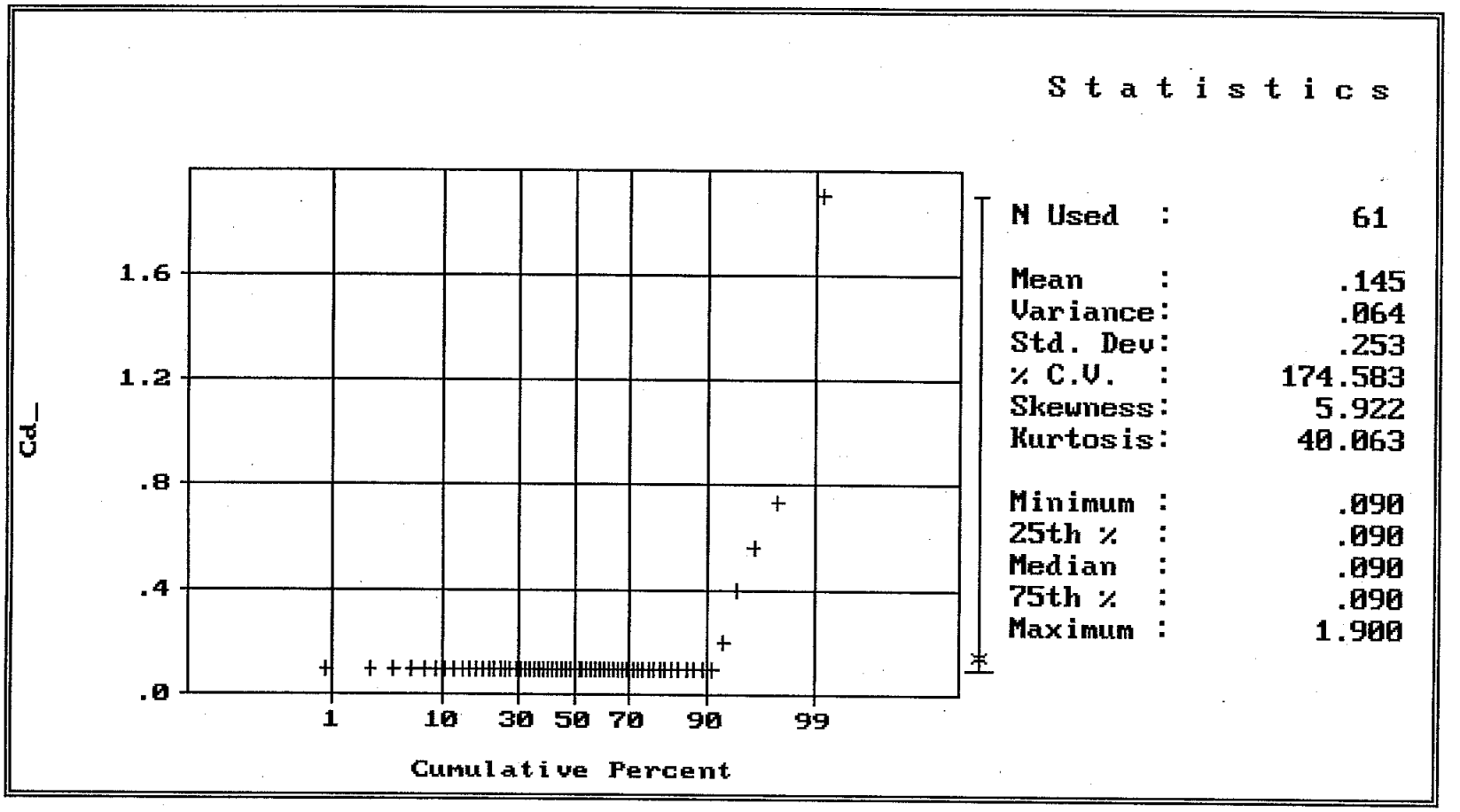
Note: The data set distribution is lognormal.

FIGURE 6
PROBABILITY PLOT OF BARIUM CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



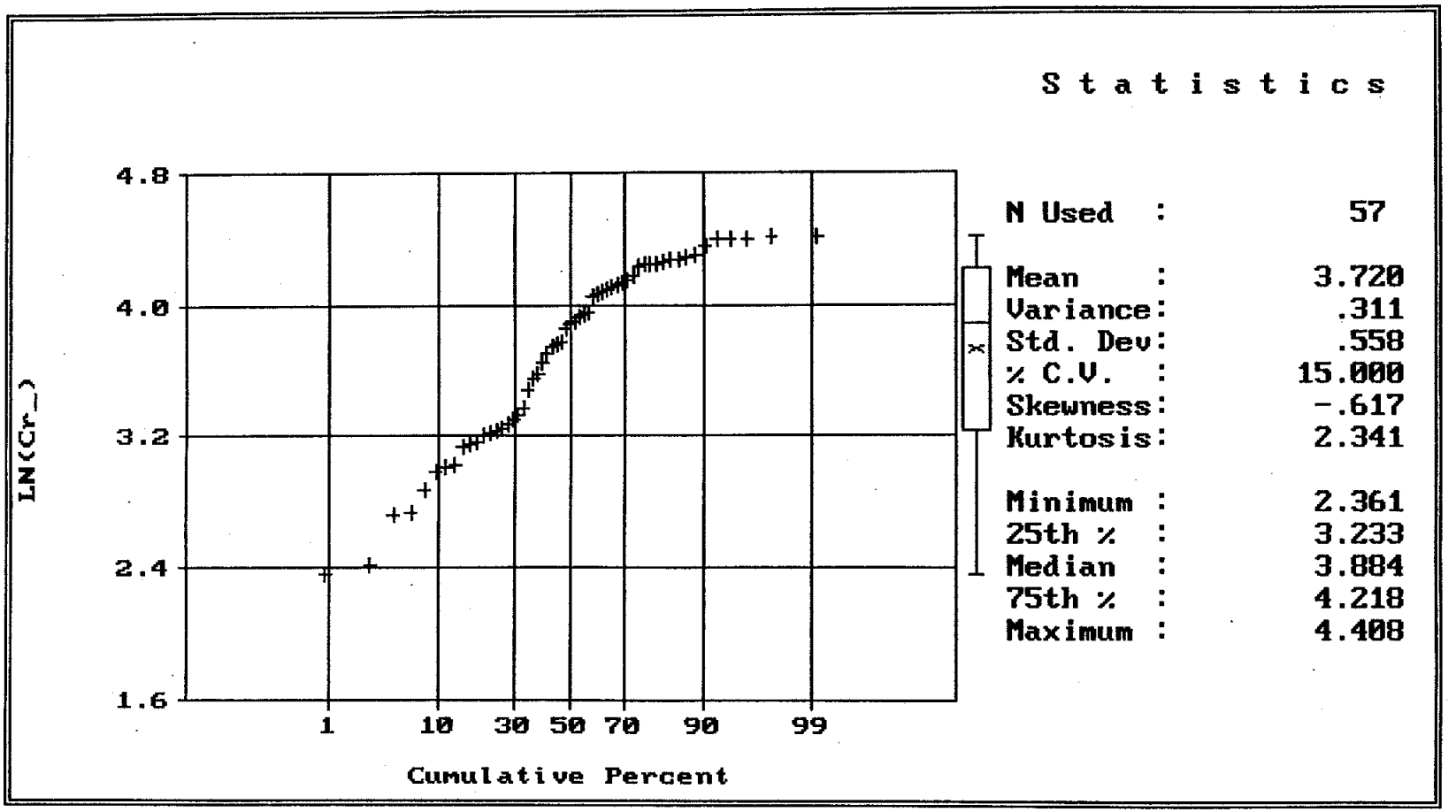
Note: The data set distribution is nonparametric.

FIGURE 7
PROBABILITY PLOT OF BERYLLIUM CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



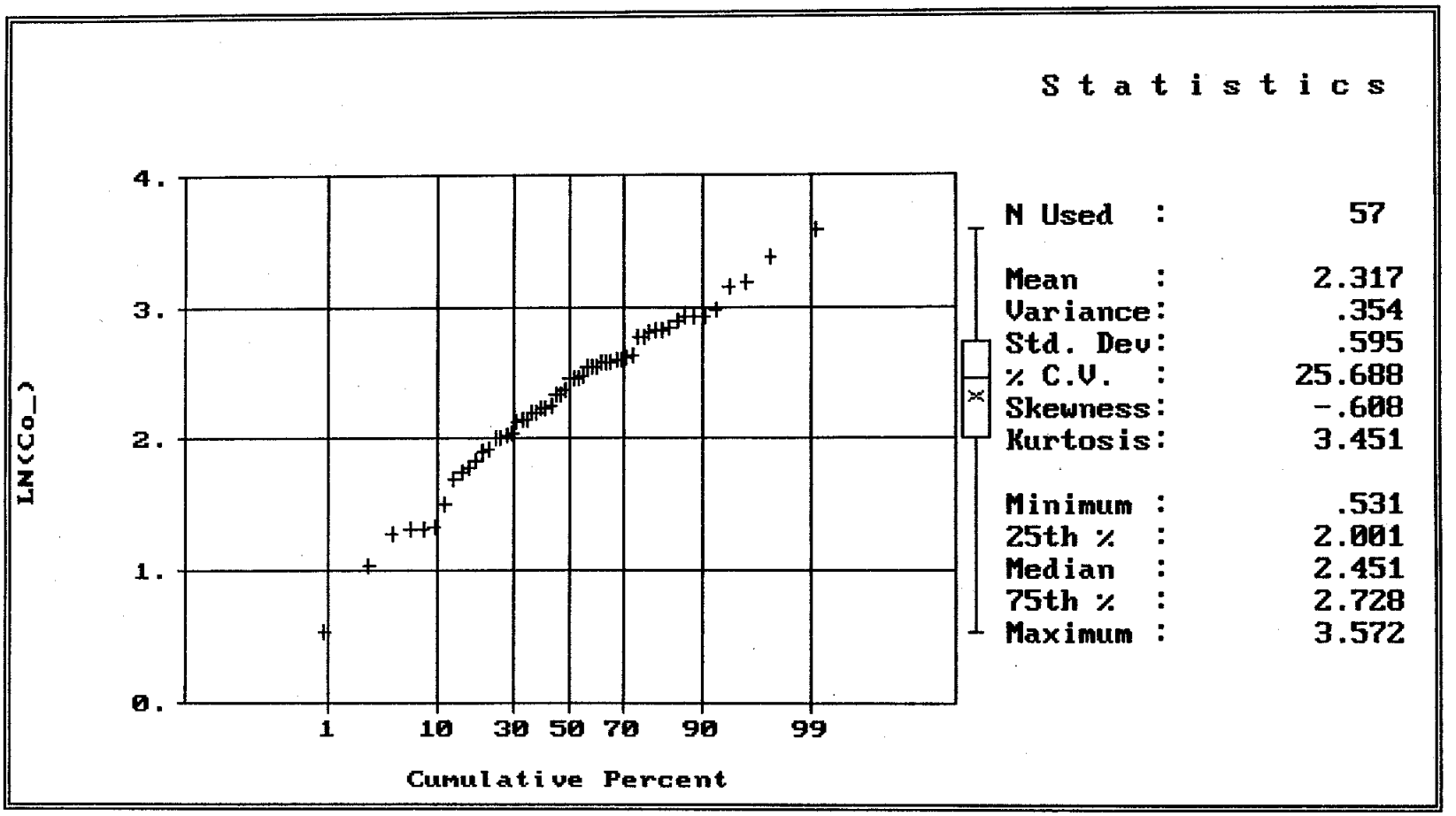
Note: The data set distribution is nonparametric.

FIGURE 8
PROBABILITY PLOT OF CADMIUM CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



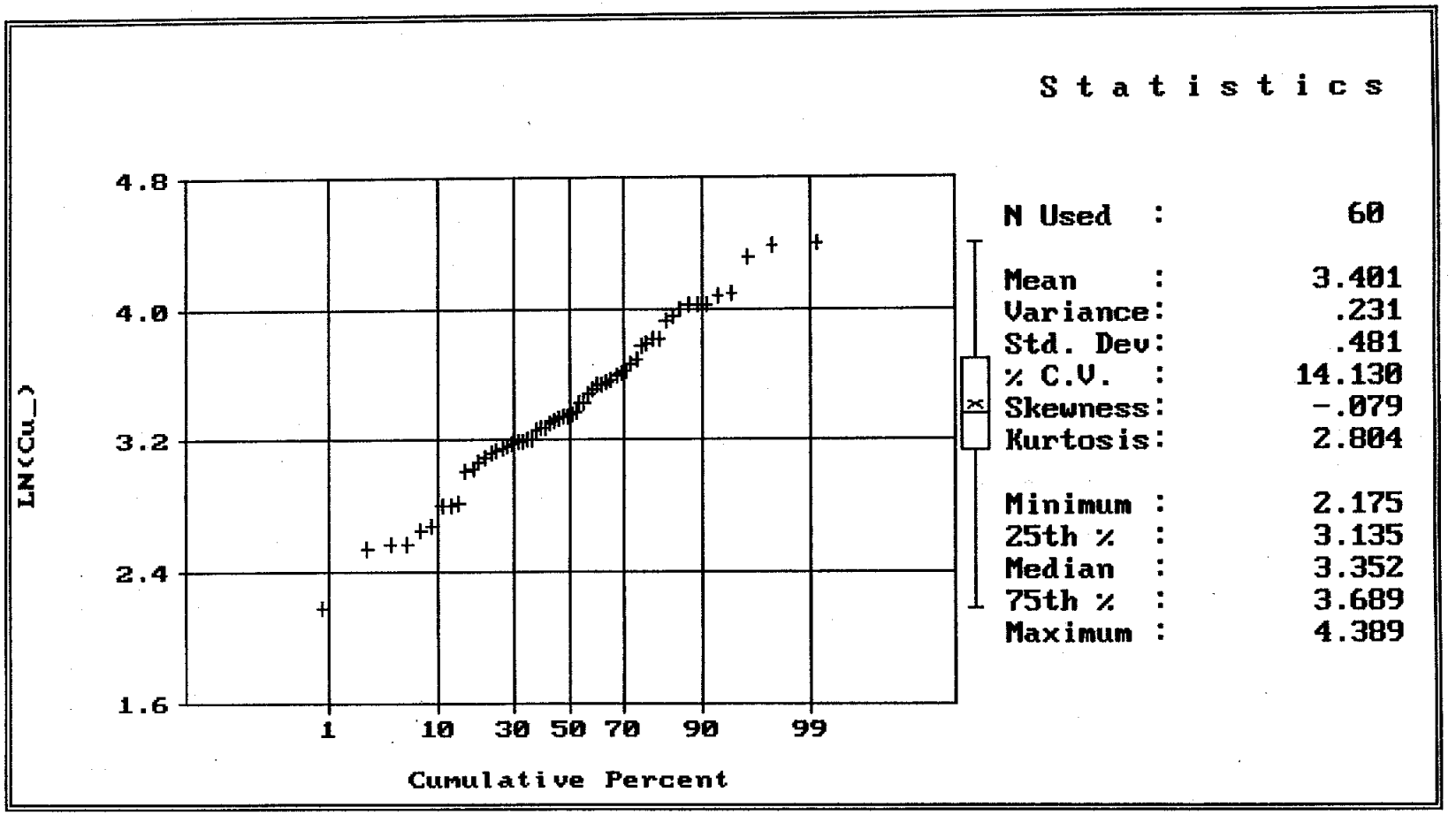
Note: The data set distribution is lognormal.

FIGURE 9
PROBABILITY PLOT OF CHROMIUM CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



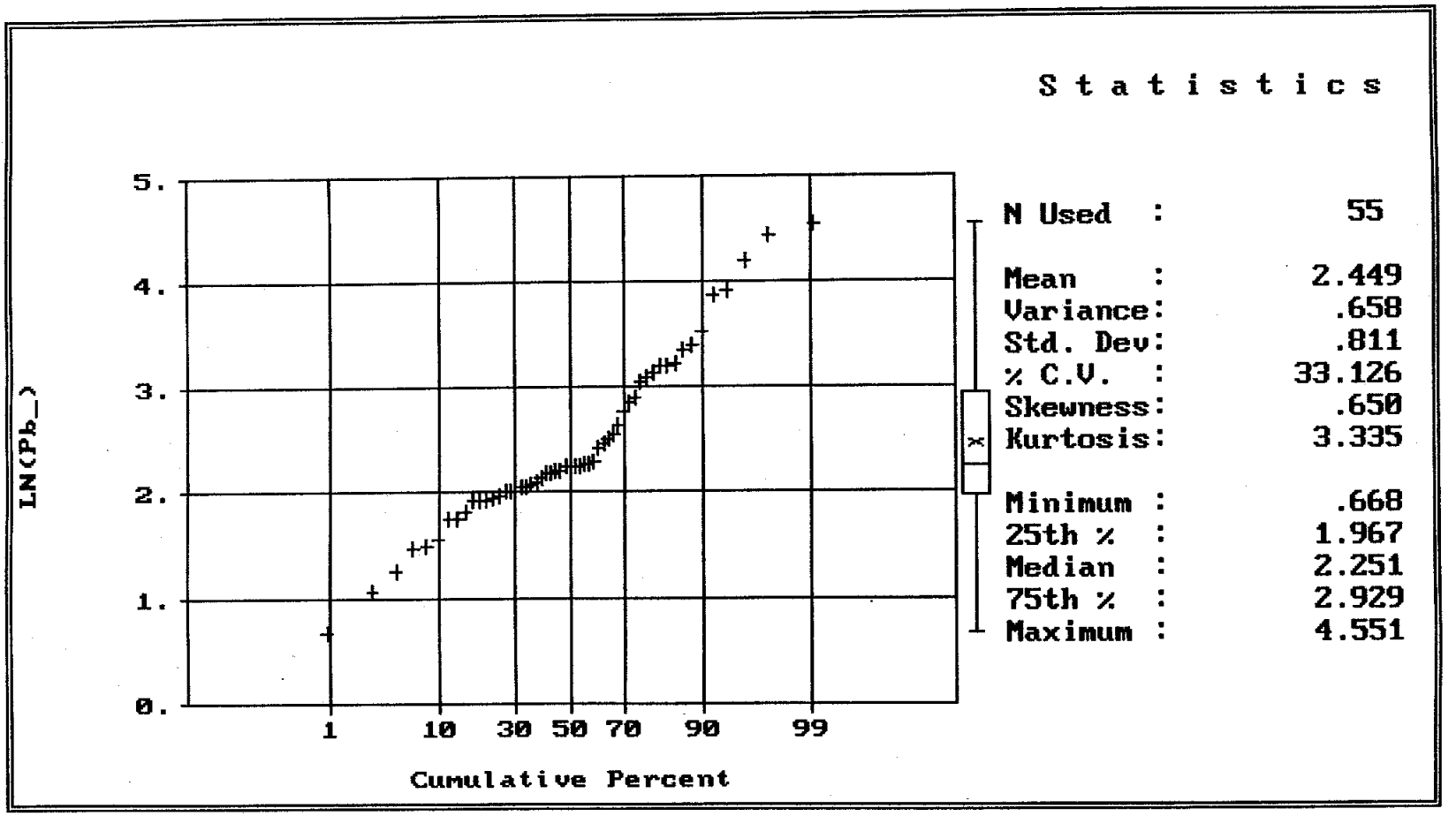
Note: The data set distribution is lognormal.

FIGURE 10
PROBABILITY PLOT OF COBALT CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



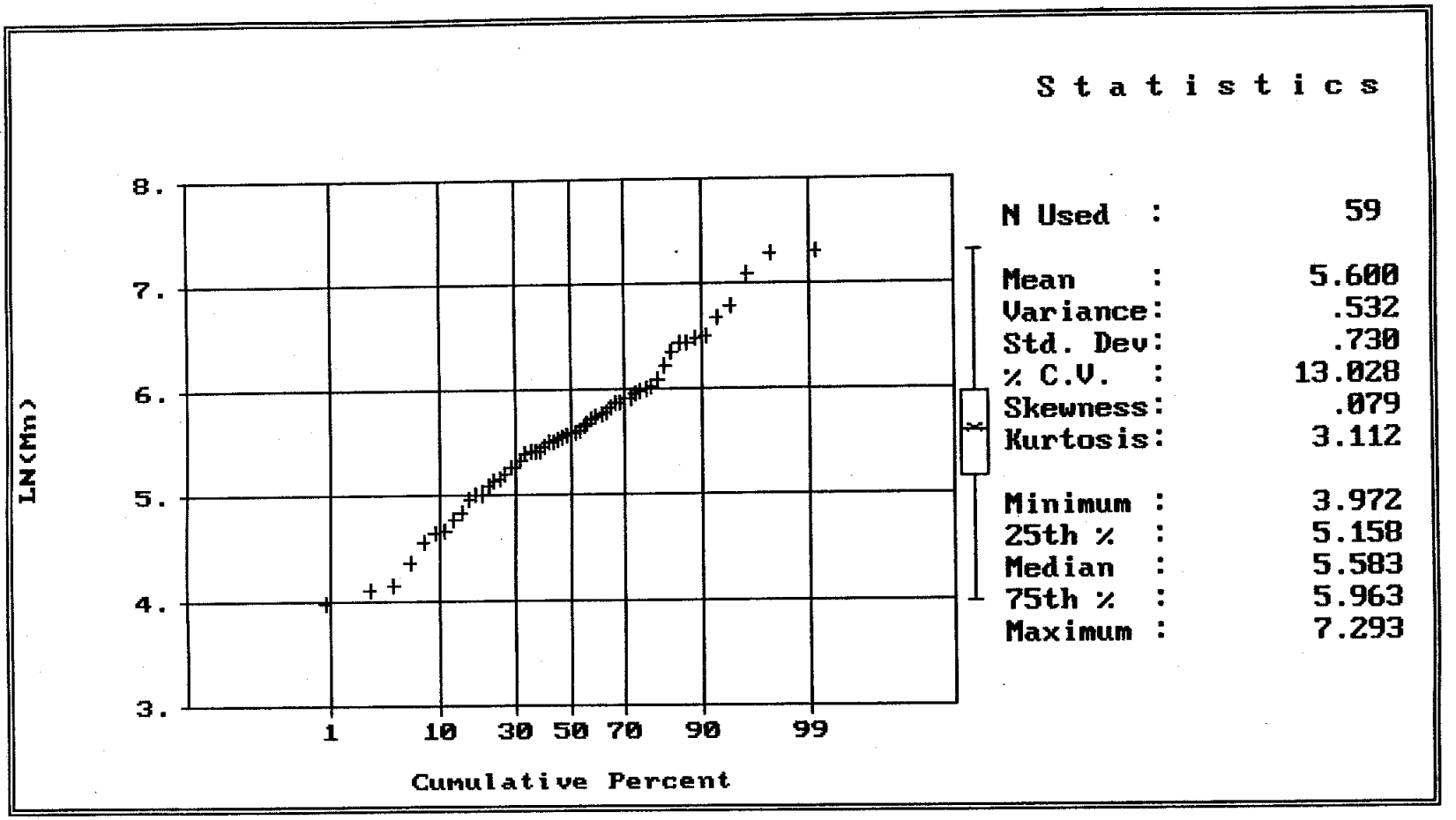
Note: The data set distribution is lognormal.

FIGURE 11
PROBABILITY PLOT OF COPPER CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



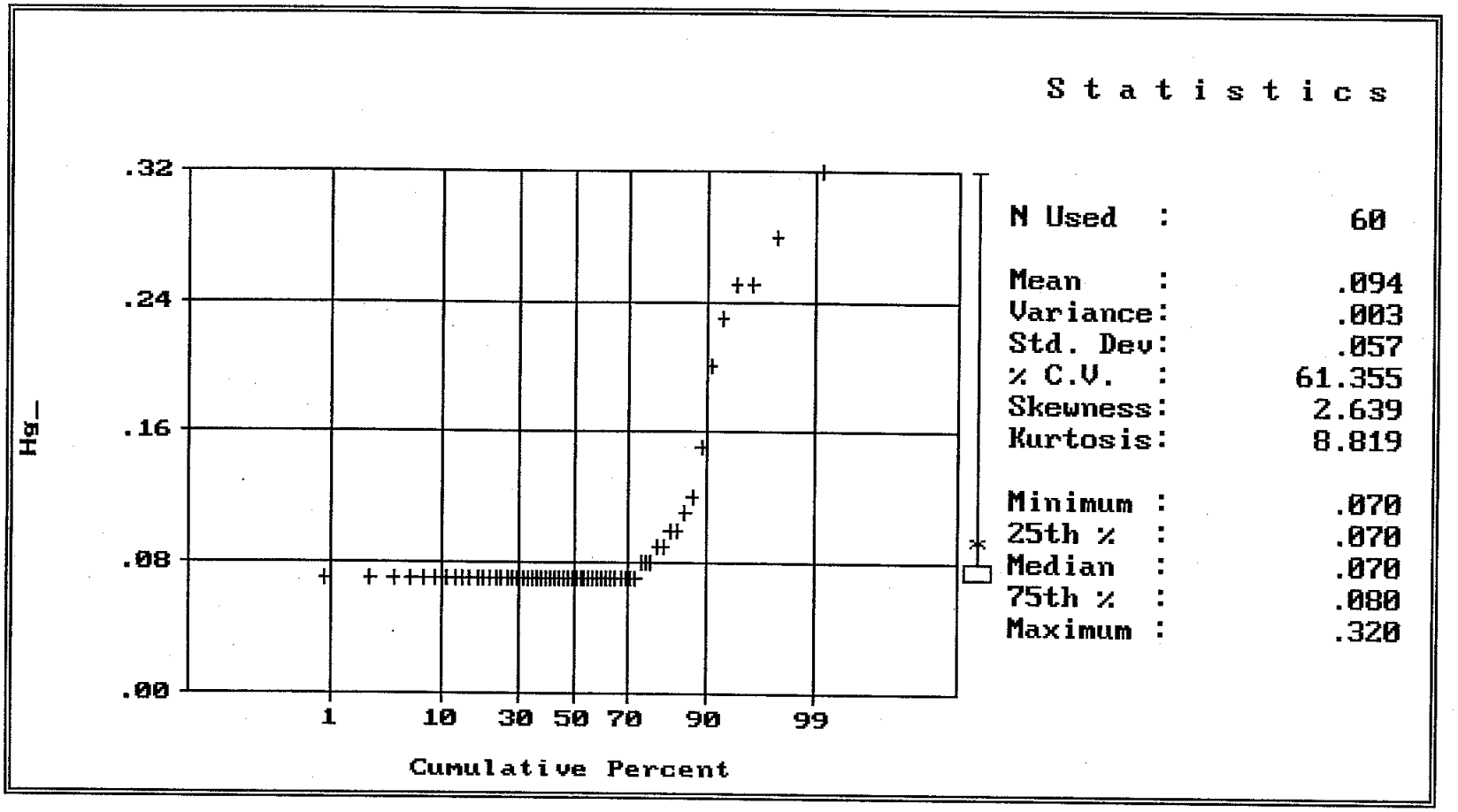
Note: The data set distribution is lognormal.

FIGURE 12
PROBABILITY PLOT OF LEAD CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



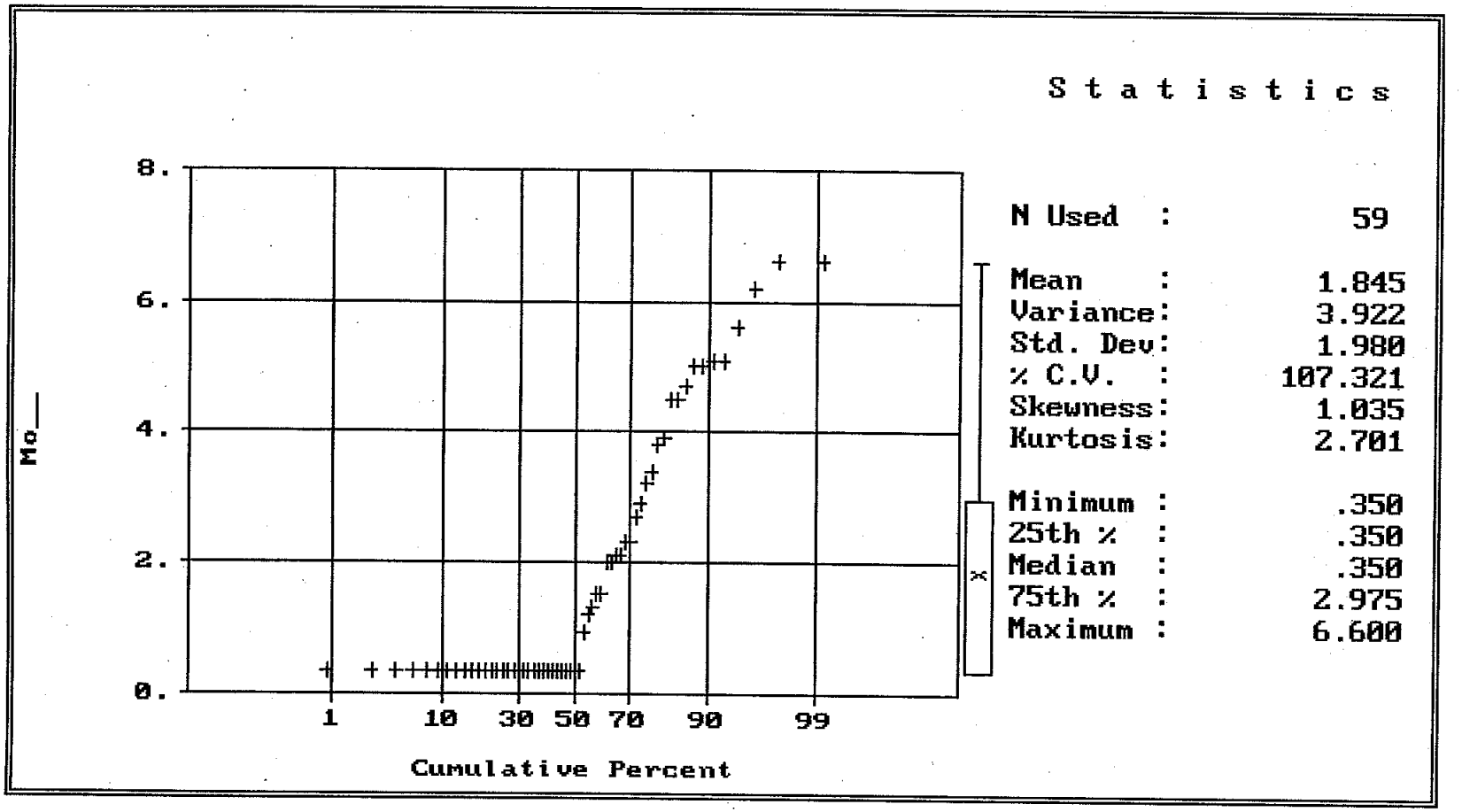
Note: The data set distribution is lognormal.

FIGURE 13
PROBABILITY PLOT OF MANGANESE CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



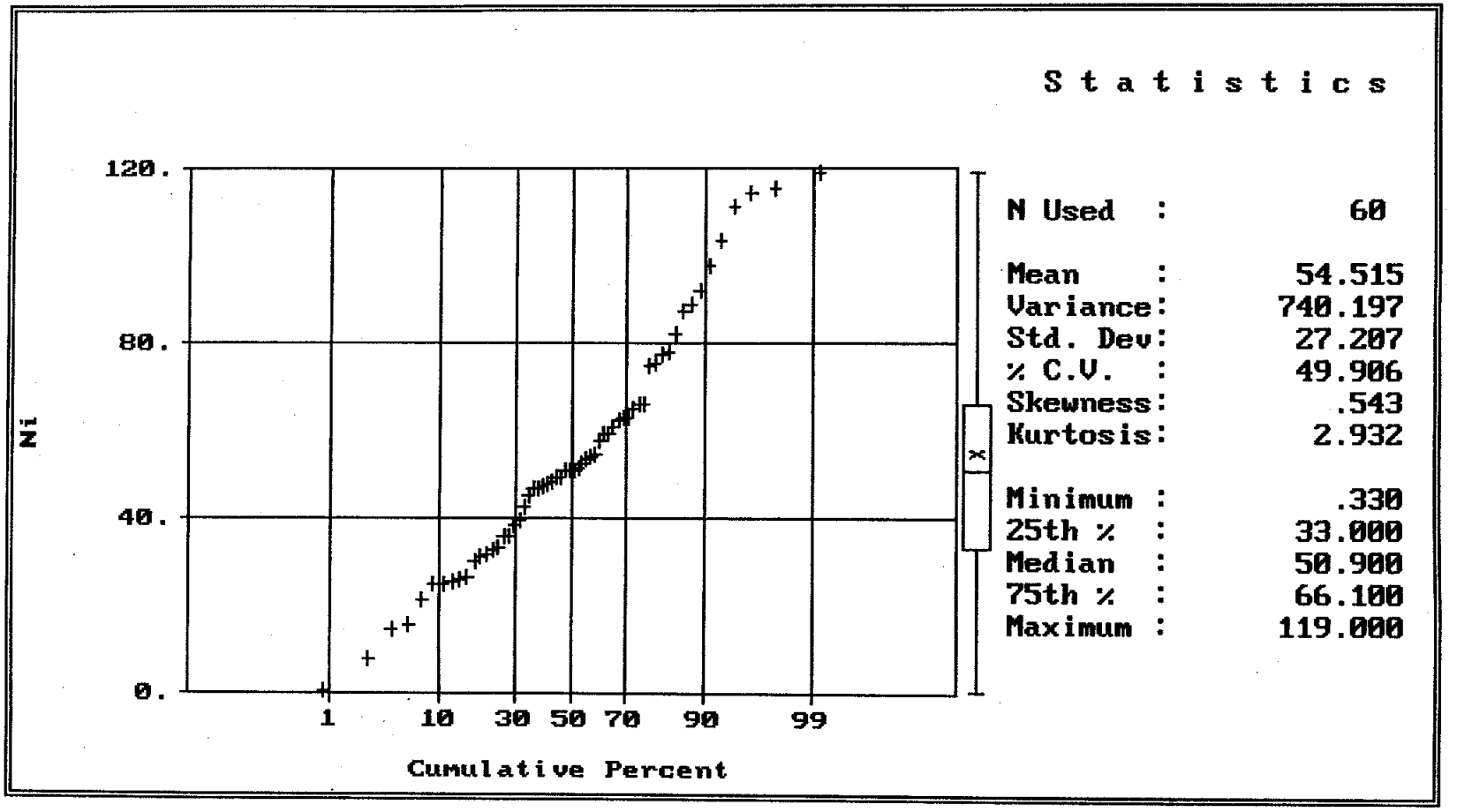
Note: The data set distribution is nonparametric.

FIGURE 14
PROBABILITY PLOT OF MERCURY CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



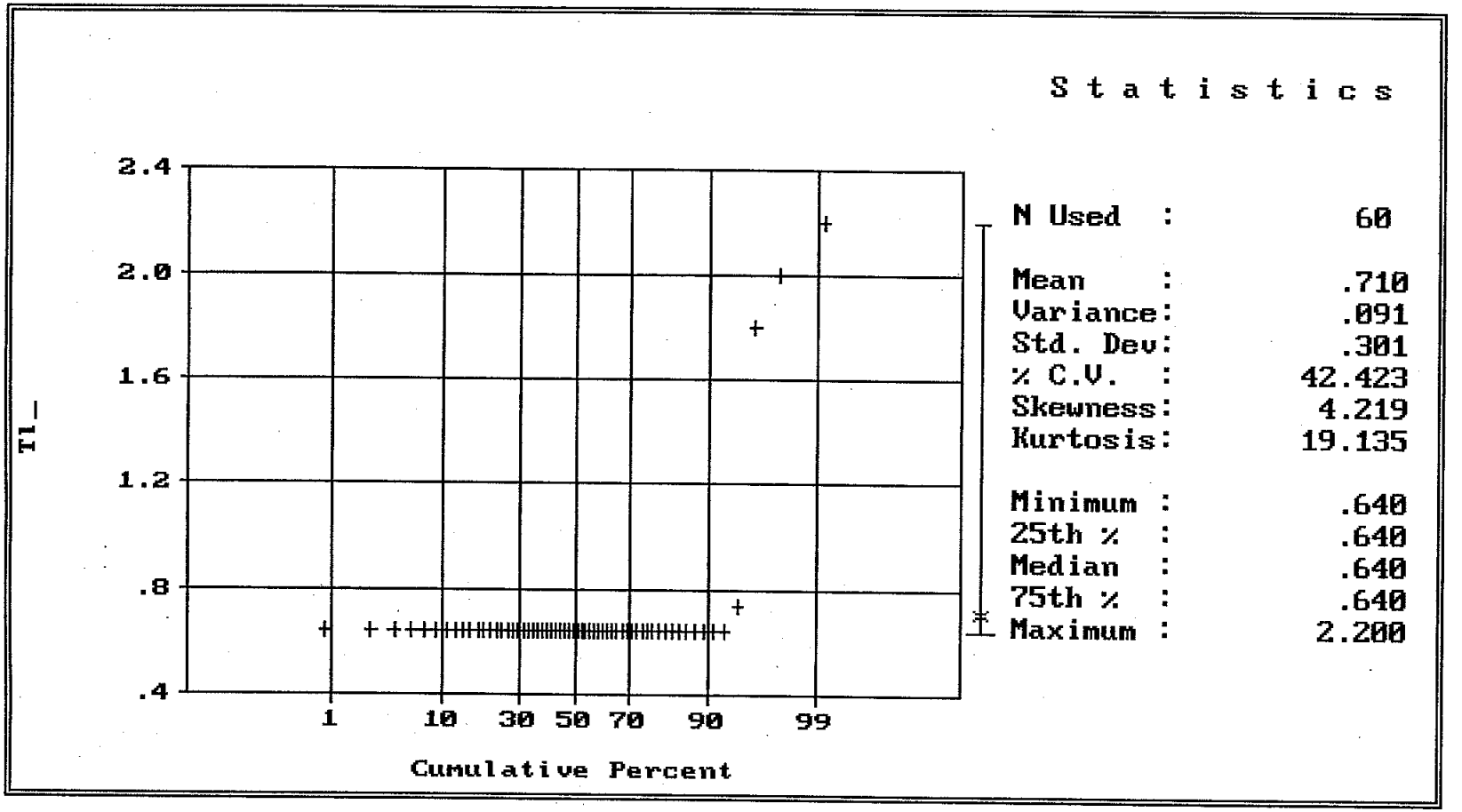
Note: The data set distribution is nonparametric.

FIGURE 15
PROBABILITY PLOT OF MOLYBDENUM CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



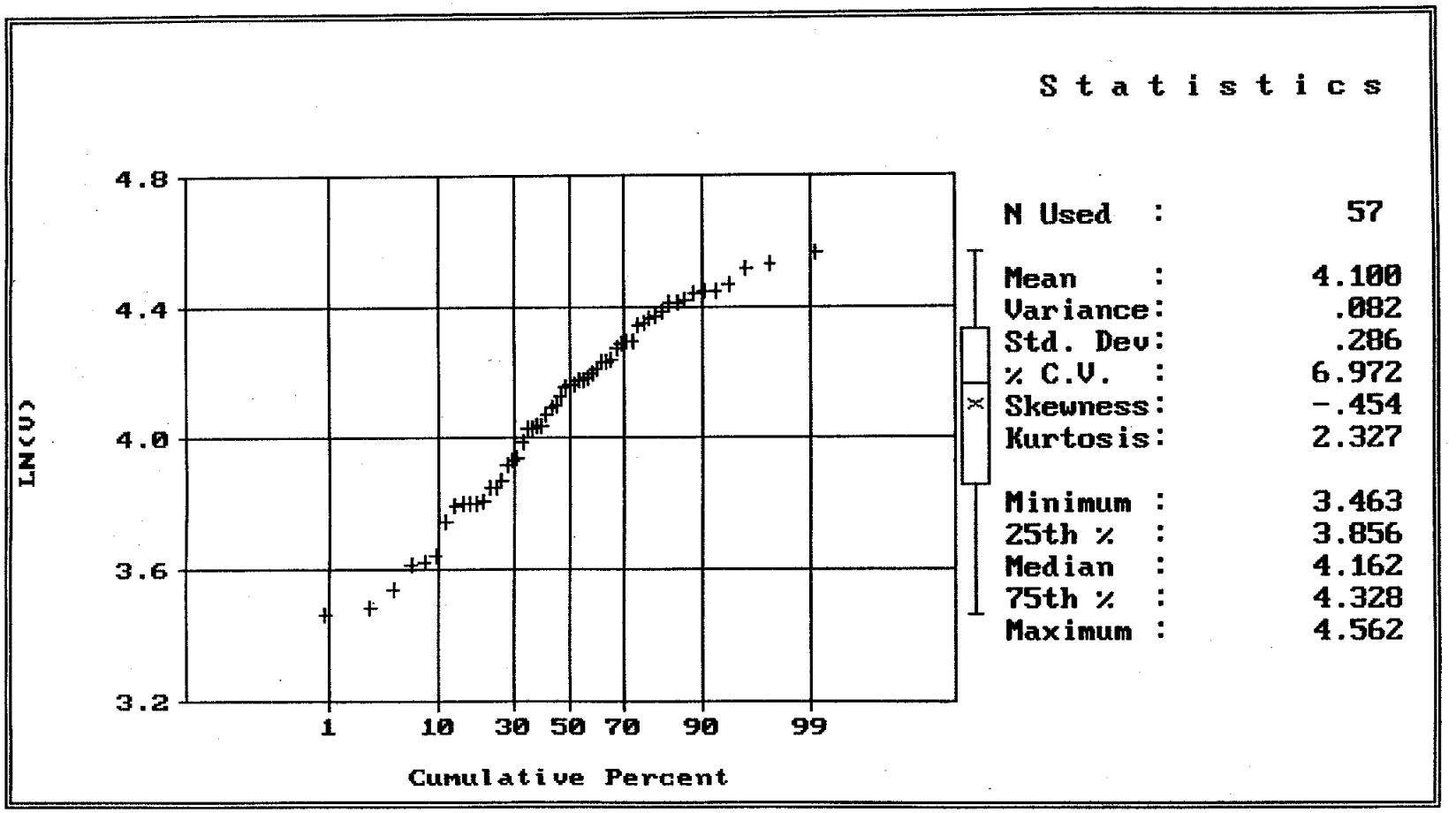
Note: The data set distribution is normal.

FIGURE 16
PROBABILITY PLOT OF NICKEL CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



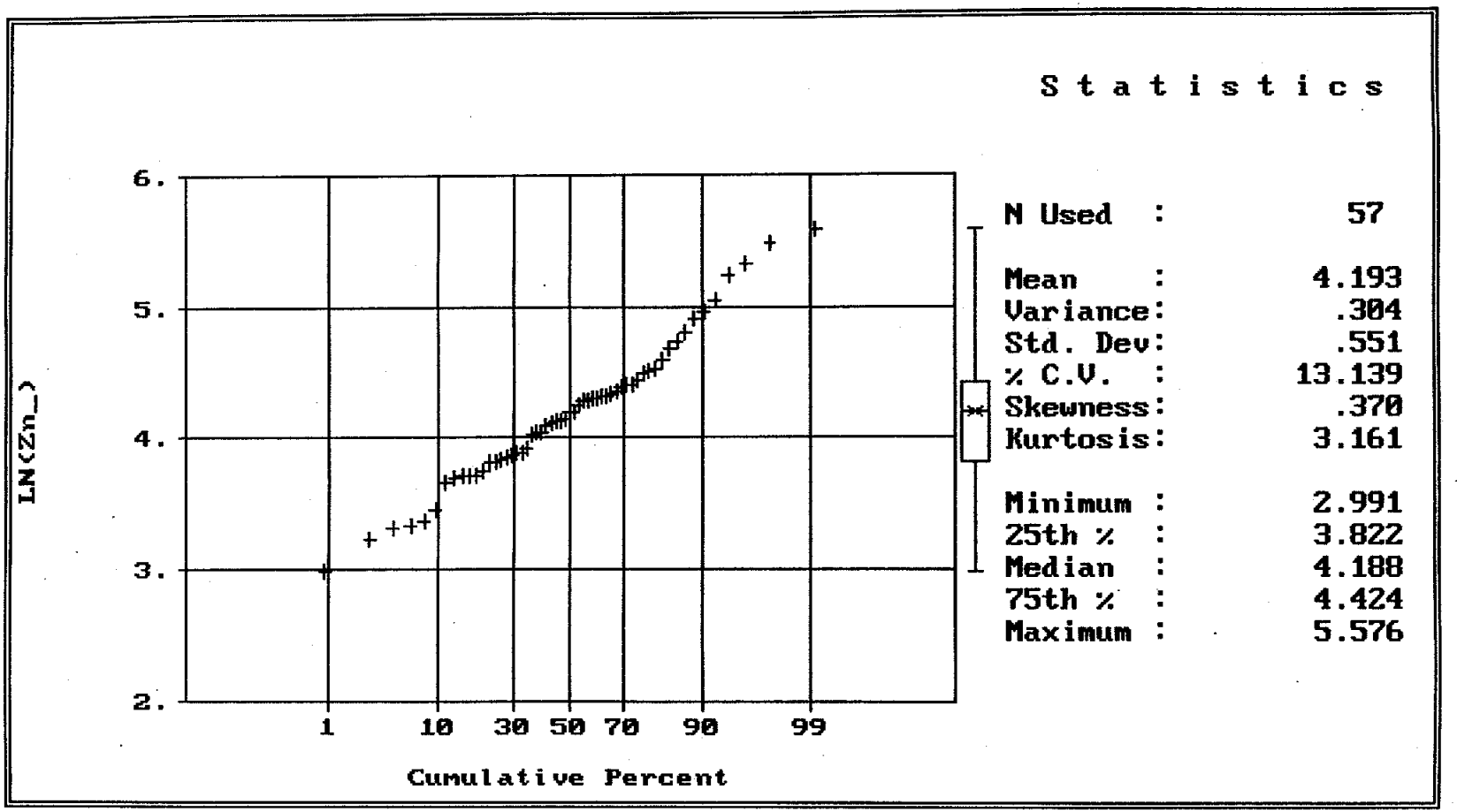
Note: The data set distribution is nonparametric.

FIGURE 17
PROBABILITY PLOT OF THALLIUM CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



Note: The data set distribution is lognormal.

FIGURE 18
PROBABILITY PLOT OF VANADIUM CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD



Note: The data set distribution is lognormal.

FIGURE 19
PROBABILITY PLOT OF ZINC CONCENTRATIONS
IN SOILS OF THE TIDAL AREA SITES
NAVAL WEAPONS STATION CONCORD

TABLE

TABLE 1
AMBIENT METALS CONCENTRATIONS IN SUBSURFACE SOILS OF THE TIDAL AREA SITES
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Number of Detections/ Samples Analyzed	Values Excluded		Ambient Data Set Size[a]	Ambient Data Set Distribution	Soil Metal Concentration Statistics for Ambient Data Sets (mg/kg)							U.S. EPA PRG[g] (mg/kg)
											Ambient Limit		
		Too Low	Too High			Minimum Detected[b]	Maximum Detected[c]	Mean[d]	Standard Deviation	Coefficient of Variance	95th Percentile[e]	99th Percentile[e]	
Aluminum	61/61	0	0	61	Normal	82.2	27,300.0	15,184.5	6,615.6	0.44	**27,000**	**27,300**	76,000
Antimony	13/50	2	2	46	Nonparam.	0.6	2.2	0.6	N/A	N/A	**1.9**	**2.2**	31
Arsenic	51/61	2	2	57	Nonparam.	2.3	26.6	7.1	N/A	N/A	**26***	**27***	0.39
Barium	61/61	1	1	59	Lognormal	18.5	529.0	111.6	109.8	0.19	**420**	**530**	5,400
Beryllium	6/61	0	0	61	Nonparam.	0.11	0.18	0.11	N/A	N/A	**0.13**	**0.18**	150
Cadmium	6/61	0	0	61	Nonparam.	0.09	1.9	0.09	N/A	N/A	**0.55**	**1.9**	37
Chromium	57/61	2	2	57	Lognormal	11.2	82.1	48.2	29.1	0.15	**81**	**82.1**	210[h]
Cobalt	59/61	2	2	57	Lognormal	1.7	35.6	12.7	8.1	0.26	**24**	**36**	900
Copper	56/61	1	0	60	Lognormal	8.8	80.6	33.7	17.2	0.14	**73**	**81**	3,100
Lead	58/61	3	3	55	Lognormal	1.9	94.7	16.1	15.5	0.33	**70**	**95**	150[i]/400
Manganese	61/61	1	1	59	Lognormal	53.1	1,470.0	352.8	295.7	0.13	**1,200**	**1,500**	1,800
Mercury	20/60	0	0	60	Nonparam.	0.07	0.32	0.07	N/A	N/A	**0.25**	**0.32**	23
Molybdenum	31/61	0	2	59	Nonparam.	0.35	6.6	0.35	N/A	N/A	**6.2**	**6.6**	390
Nickel	61/61	0	1	60	Normal	0.33	119.0	54.5	27.2	0.50	**110**	**120**	1,600
Selenium	2/61	0	0	61	Not tested	2.8	4.8	DL	N/A	N/A	**DL[f]**	**DL[f]**	390
Silver	0/61	0	0	61	Not tested	N/A	N/A	DL	N/A	N/A	**DL[f]**	**DL[f]**	390

TABLE 1 (Continued)
AMBIENT METALS CONCENTRATIONS IN SUBSURFACE SOILS OF THE TIDAL AREA SITES
TIDAL AREA, NAVAL WEAPONS STATION SBD CONCORD

Metal	Number of Detections/ Samples Analyzed	Values Excluded		Ambient Data Set Size[a]	Ambient Data Set Distribution	Soil Metal Concentration Statistics for Ambient Data Sets (mg/kg)							U.S. EPA PRG[g] (mg/kg)
											Ambient Limit		
		Too Low	Too High			Minimum Detected[b]	Maximum Detected[c]	Mean[d]	Standard Deviation	Coefficient of Variance	95th Percentile[e]	99th Percentile[e]	
Thallium	6/61	0	1	60	Nonparam.	0.64	2.2	0.64	N/A	N/A	**1.8**	**2.2**	5.2
Vanadium	61/61	2	2	57	Lognormal	31.9	95.8	62.9	18.4	0.07	**91**	**96**	550
Zinc	56/61	1	3	57	Lognormal	27.5	264.0	77.1	45.9	0.13	**210**	**264**	23,000

Notes:

a The ambient data set consists of both detected and not detected results after exclusion of anomalously low and high values. For metals with high detection frequencies, substitute values of one-half the sample quantitation limit (SQL) are used for all analytical results reported as not detected. For metals with low detection frequencies, not detected values are equal to the lowest detected values. At the request of the Department of Toxic Substances Control (DTSC), the lowest detected value was also substituted for all arsenic analytical results reported as not detected.

b The minimum detected concentration in ambient data set after exclusion of anomalously low values

c The maximum detected concentration in ambient data set after exclusion of anomalously high values

d The value presented is the arithmetic mean, calculated using distribution-dependent formulae.

e The 95th and 99th percentiles of the distribution were calculated using nonparametric formula.

f The ambient limit was set at the detection limit.

g U.S. Environmental Protection Agency (EPA) Region 9 preliminary remediation goals (PRG) for residential use, unless otherwise noted (EPA 2002).

h The PRG for total chromium assumes a one to six ratio of chromium VI/chromium III

i Cal-Modified PRGs (EPA 2002)

* The ambient limit exceeds the PRG.

DL Detection limit

mg/kg Milligrams per kilogram

N/A Not available

APPENDIX J

TIDAL INFLUENCE SURVEY DATA

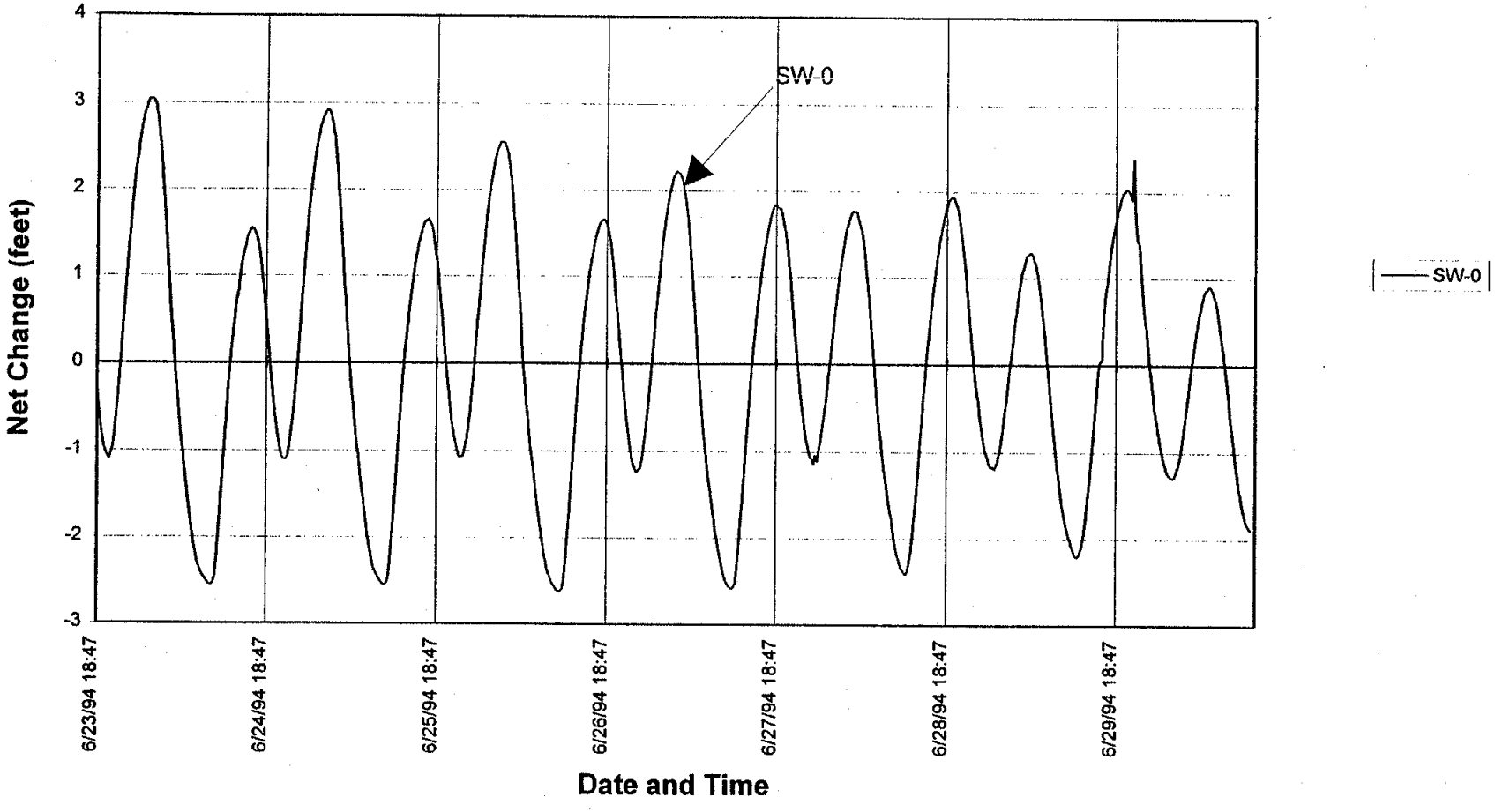
LOCATION OF WATER LEVEL MEASURING POINTS FOR THE TIDAL INFLUENCE SURVEY AT NWS CONCORD

Location	Surface Water Monitoring Site	Groundwater Monitoring Site
Suisun Bay	SW-0	NA
Otter Sluice	SW-1	NA
	SW-2	NA
	SW-5	NA
	SW-7	NA
	SW-8	NA
Tidal Area	NA	TLW-2
R Area Disposal	SW-3	RDW-2 RDW-3 RDW-4 RDW-5
Froid and Taylor Roads	SW-4	FTW-3
Wood Hogger	SW-6	NA
	NA	WHW-2
	NA	WHW-3

Notes:

NA Not applicable

SW-0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Net Change (feet)
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3
2
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0
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-2
-3
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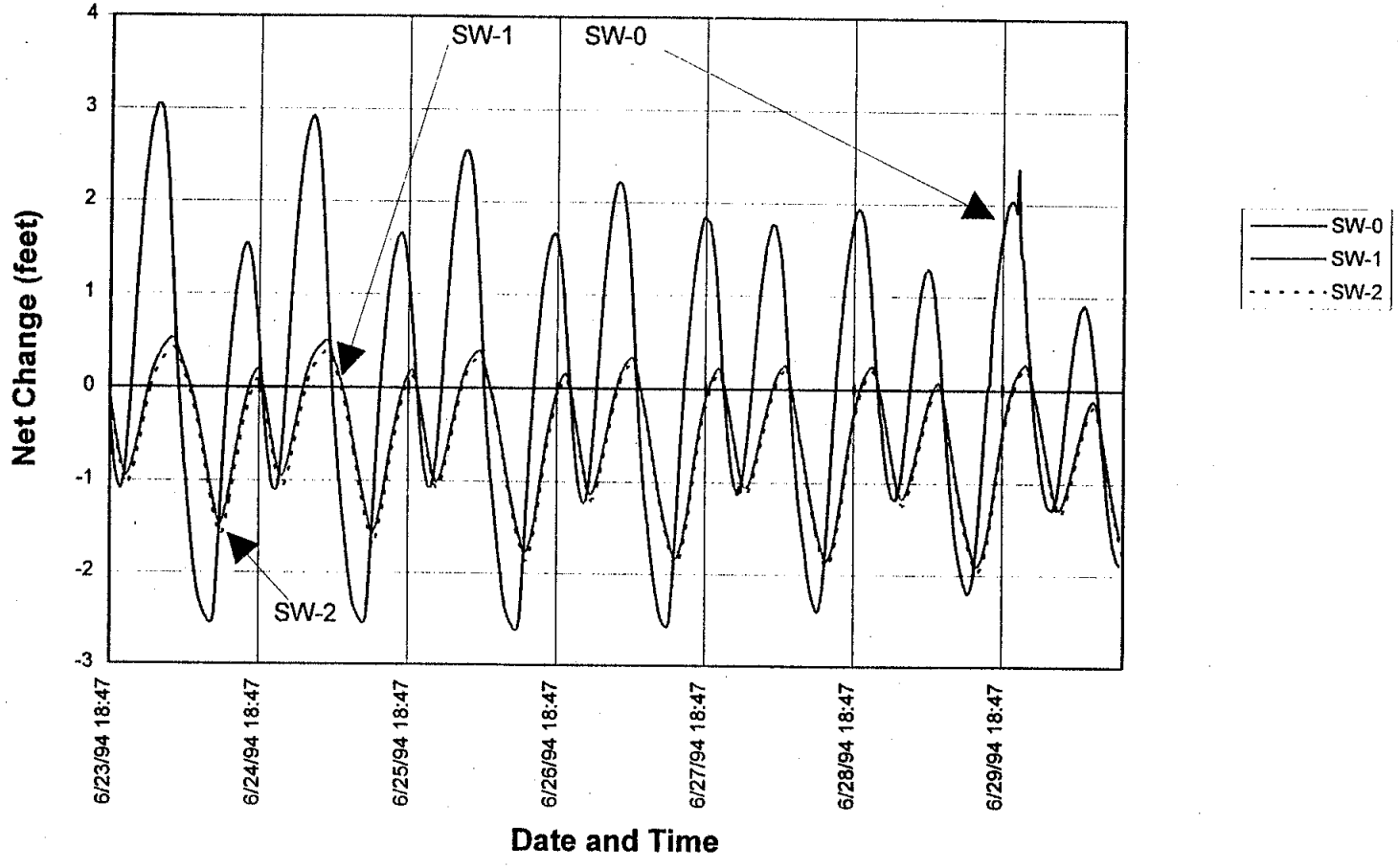
Date and Time
SW-0

SW-0, SW-1, SW-2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SW-0
SW-2
Net Change (feet)
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-1
-2
-3
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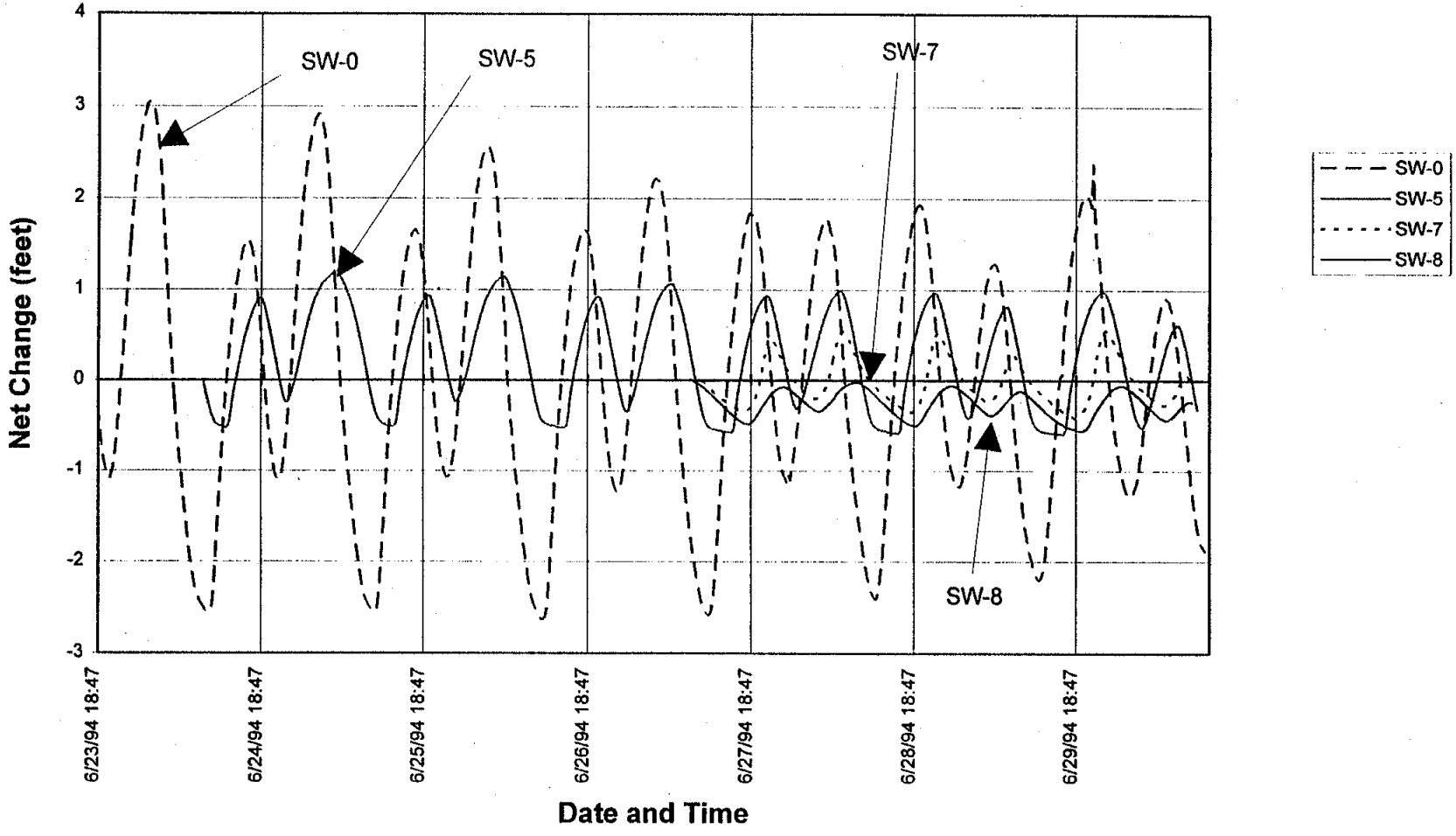
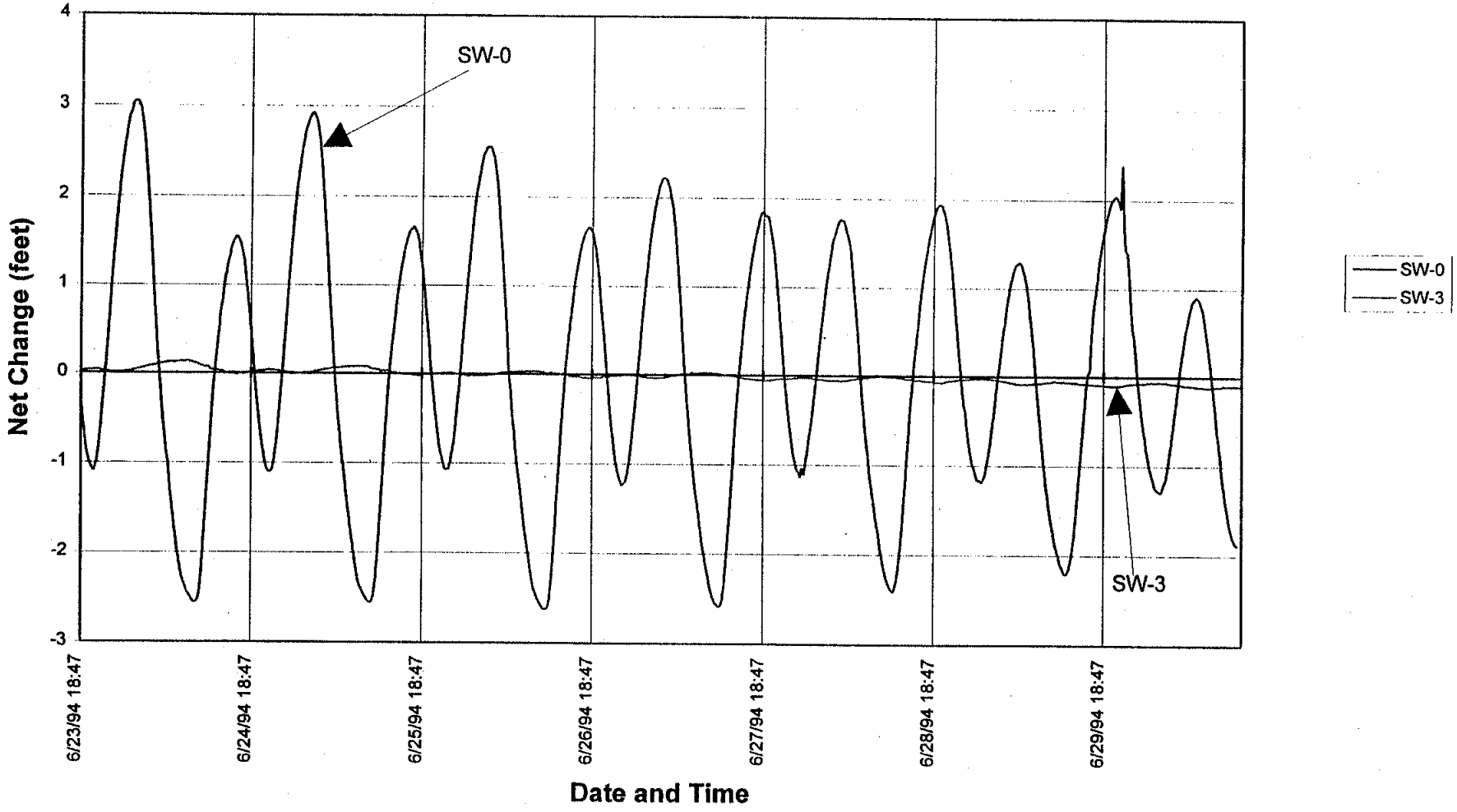
6/25/94 18:47
6/26/94 18:47
6/27/94 18:47
6/28/94 18:47
6/29/94 18:47
Date and Time
SW-0
SW-1
SW-2

SW-0, SW-5, SW-7, SW-8



SW-0, SW-3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SW-3
Net Change (feet)
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3
2
1
0
-1
-2
-3
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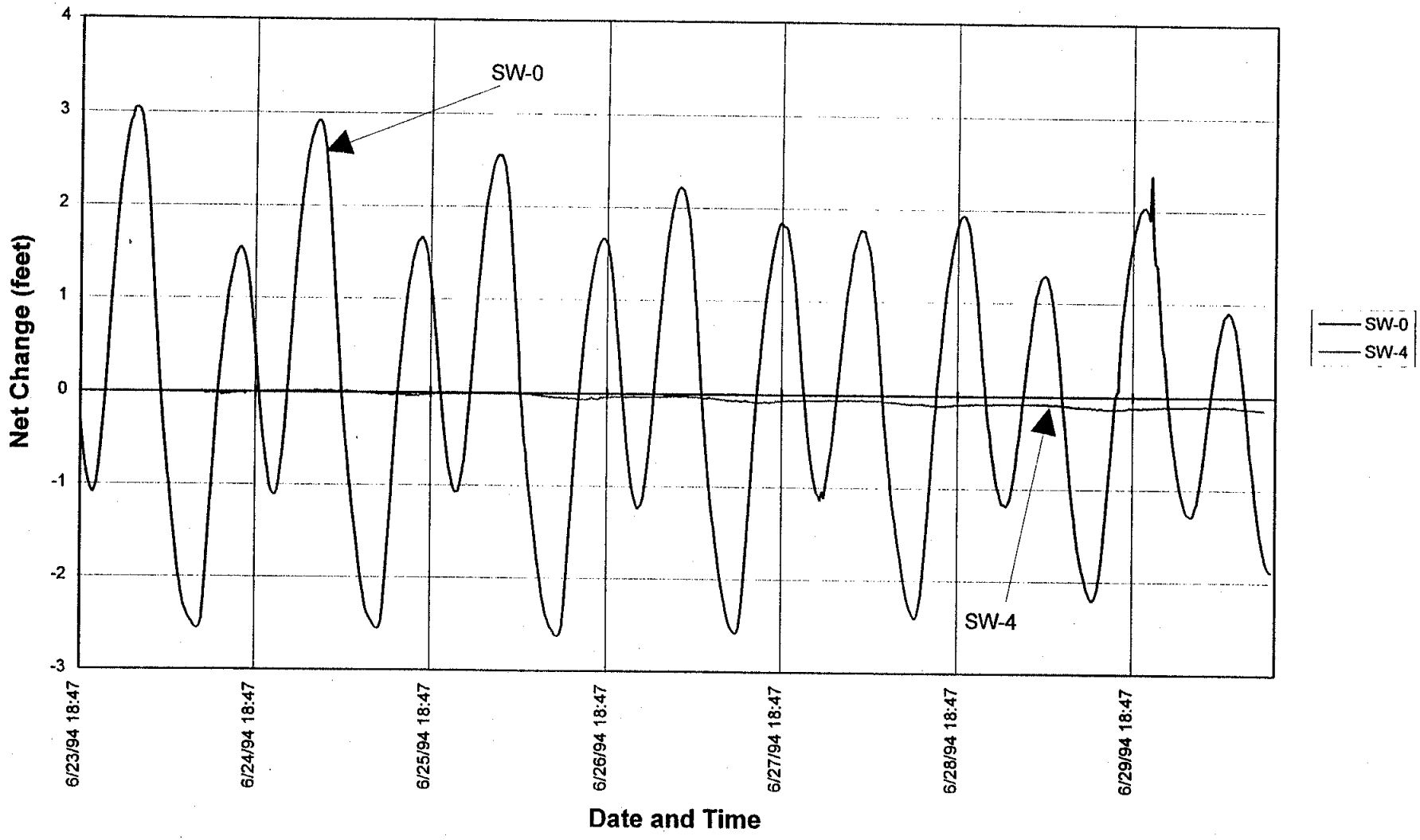
6/25/94 18:47
6/26/94 18:47
6/27/94 18:47
6/28/94 18:47
6/29/94 18:47
Date and Time
SW-0
SW-3

SW-0, SW-4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-1
-2
-3
Net Change (feet)
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SW-4
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6/25/94 18:47
6/26/94 18:47
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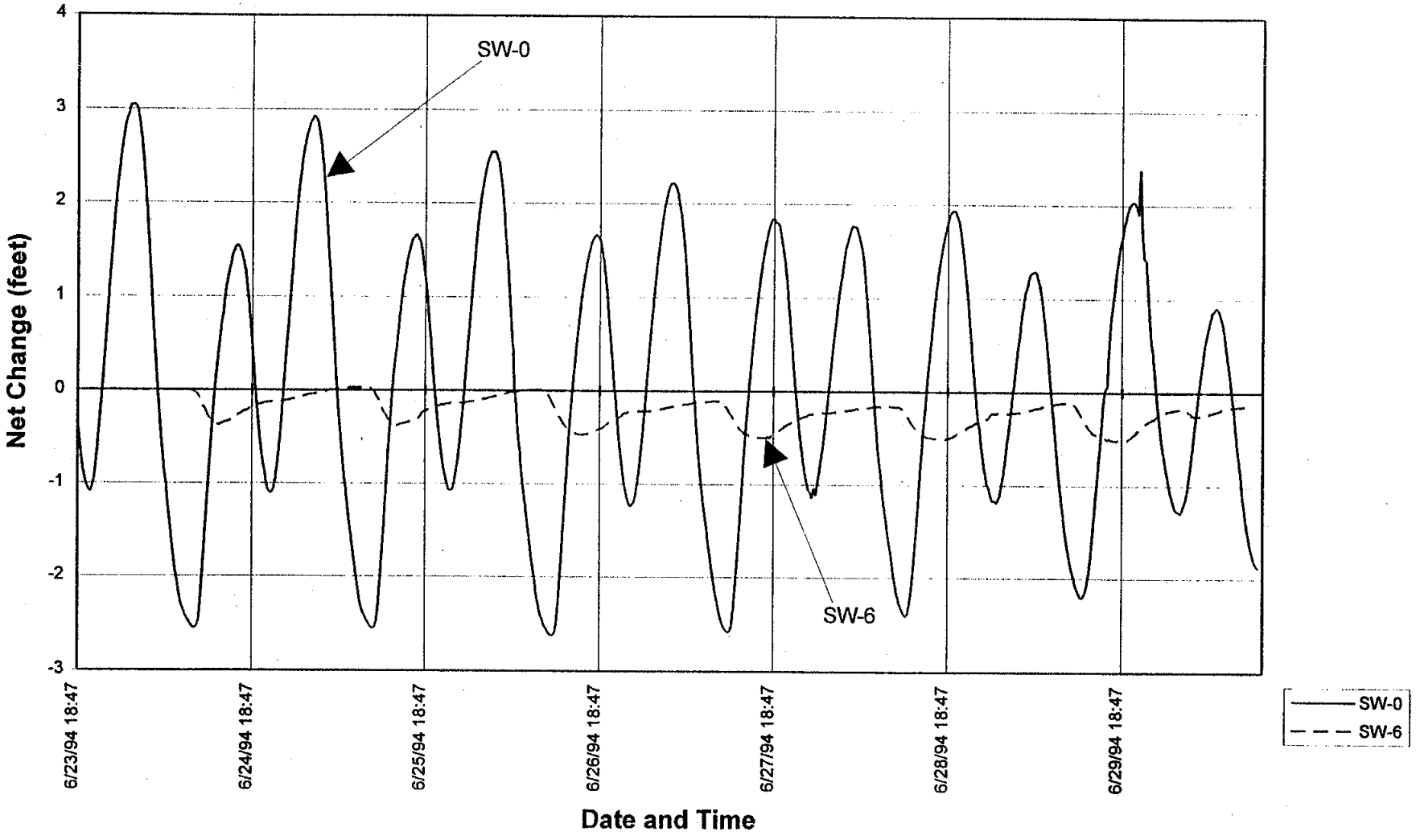
6/28/94 18:47
6/29/94 18:47
Date and Time
SW-0
SW-4

SW-0, SW-6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SW-6
Net Change (feet)
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-2
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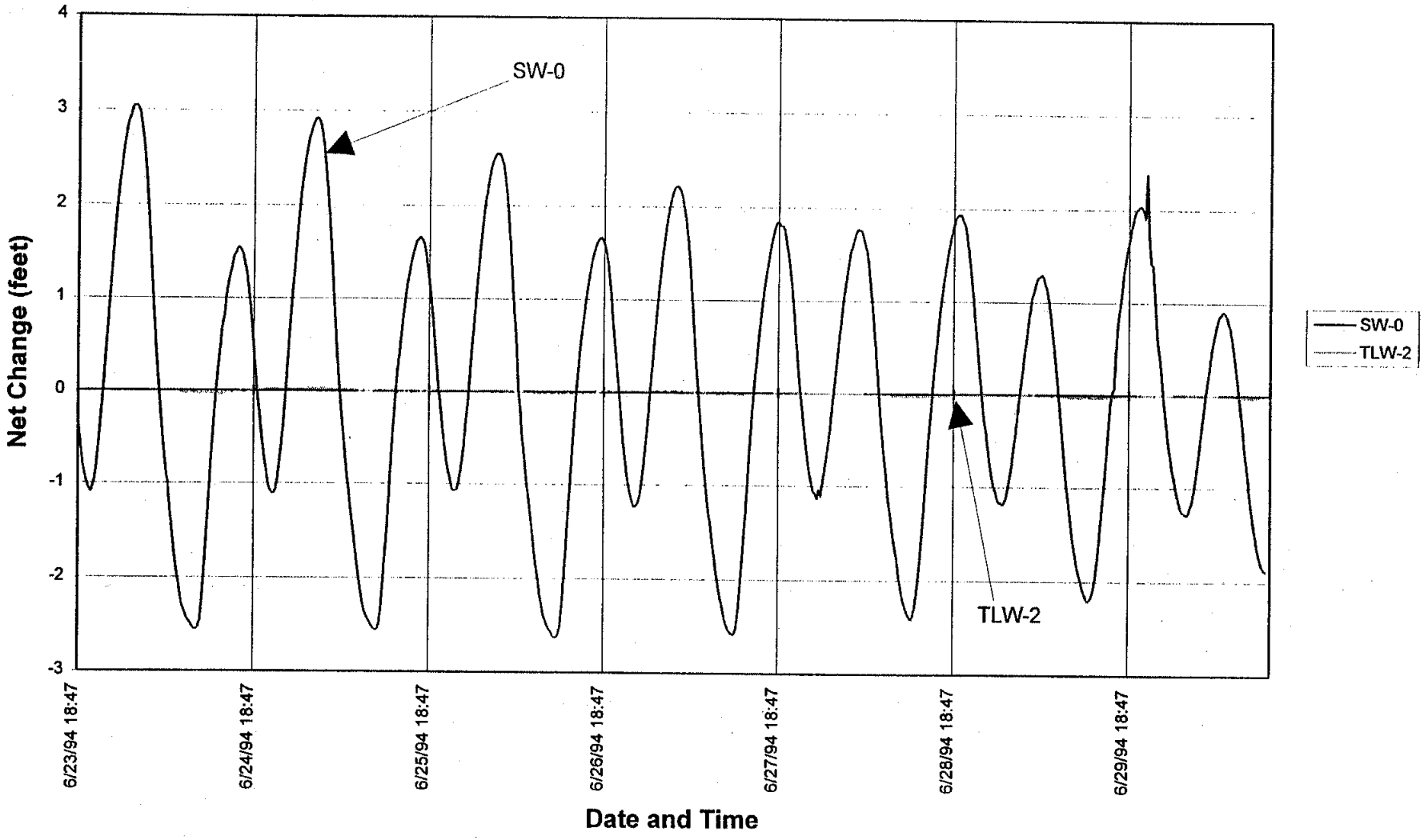
6/25/94 18:47
6/26/94 18:47
6/27/94 18:47
6/28/94 18:47
6/29/94 18:47
Date and Time
SW-0
SW-6

SW-0, TLW-2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-1
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-3
Net Change (feet)
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TLW-2
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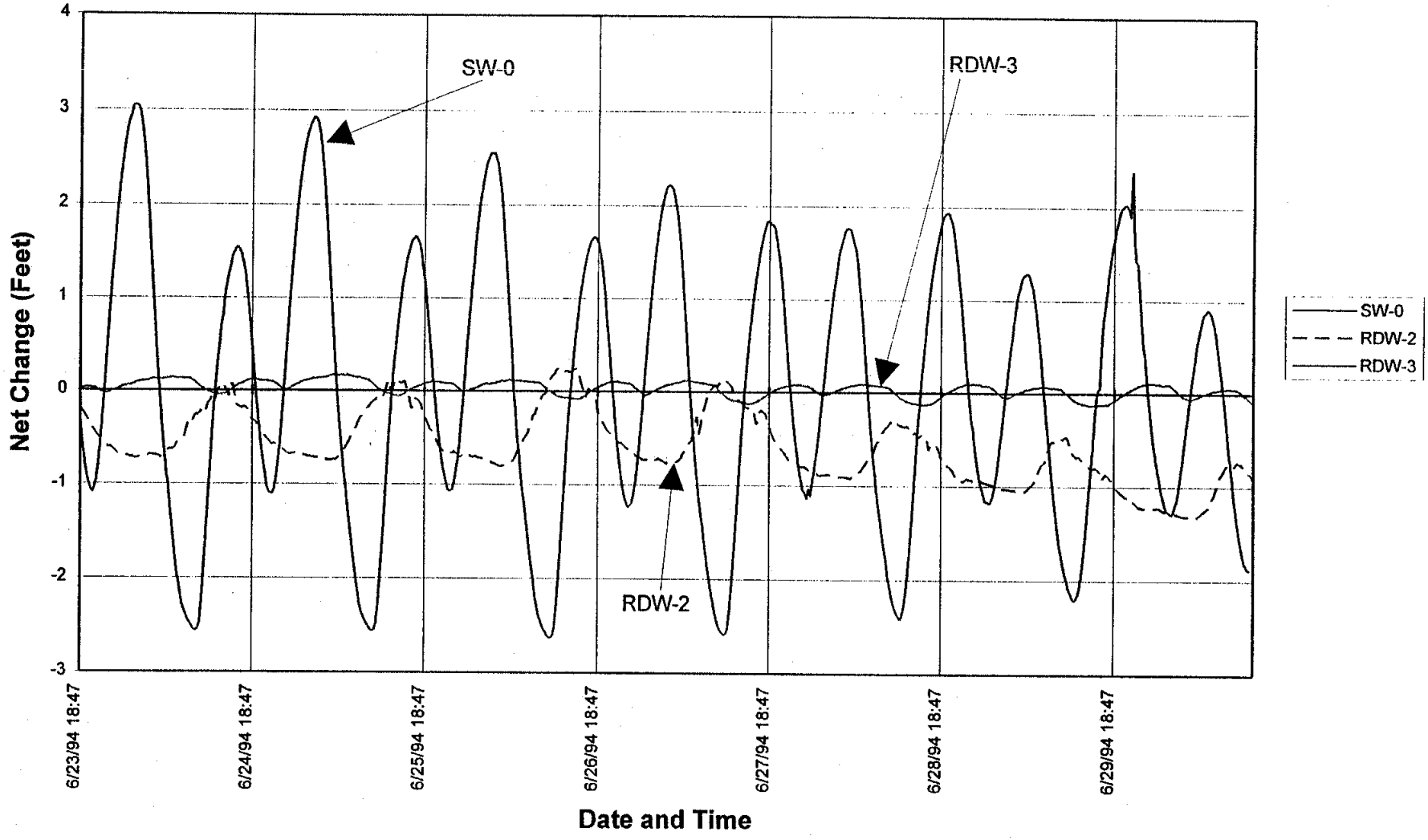
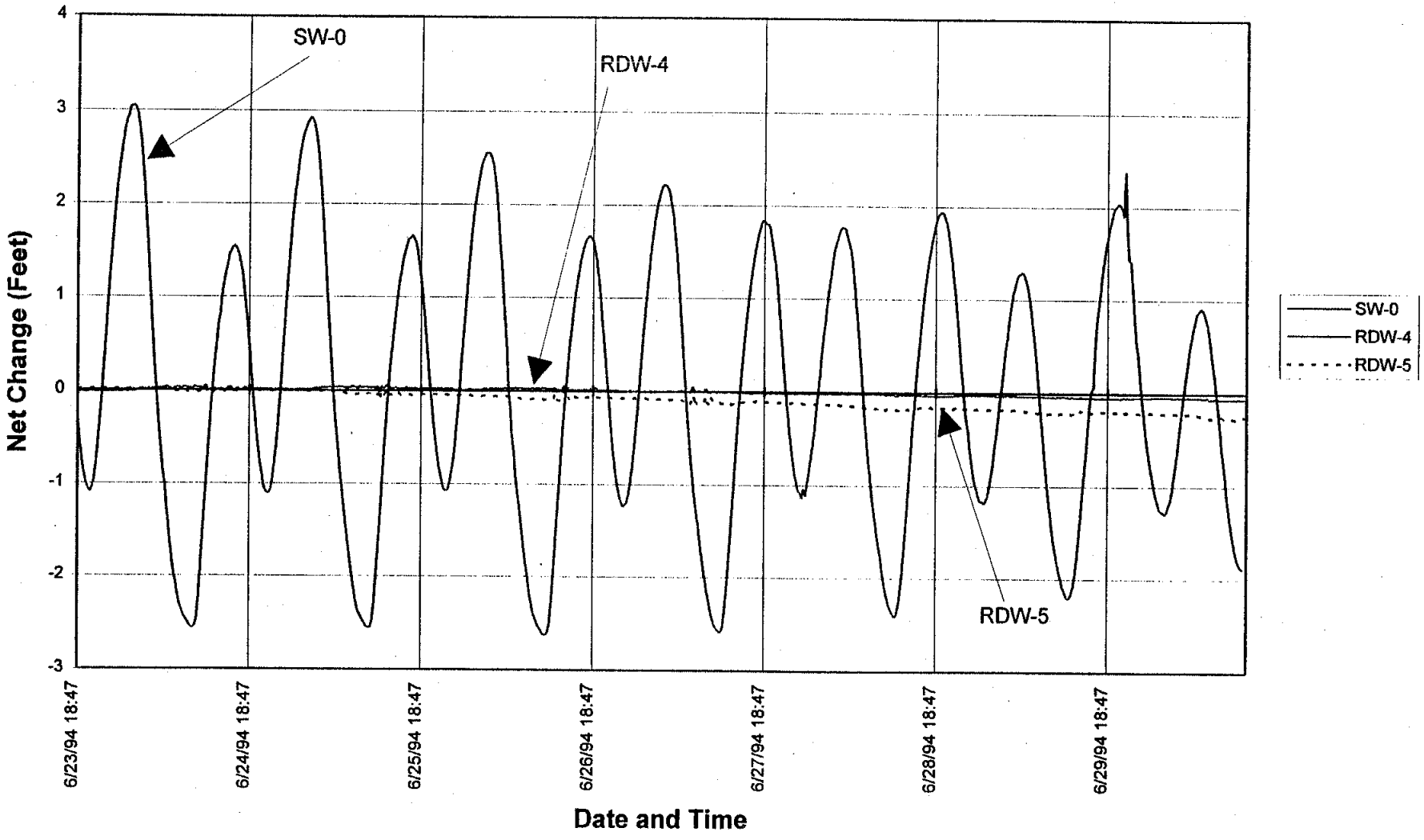
6/25/94 18:47
6/26/94 18:47
6/27/94 18:47
6/28/94 18:47
6/29/94 18:47
Date and Time
SW-0
TLW-2

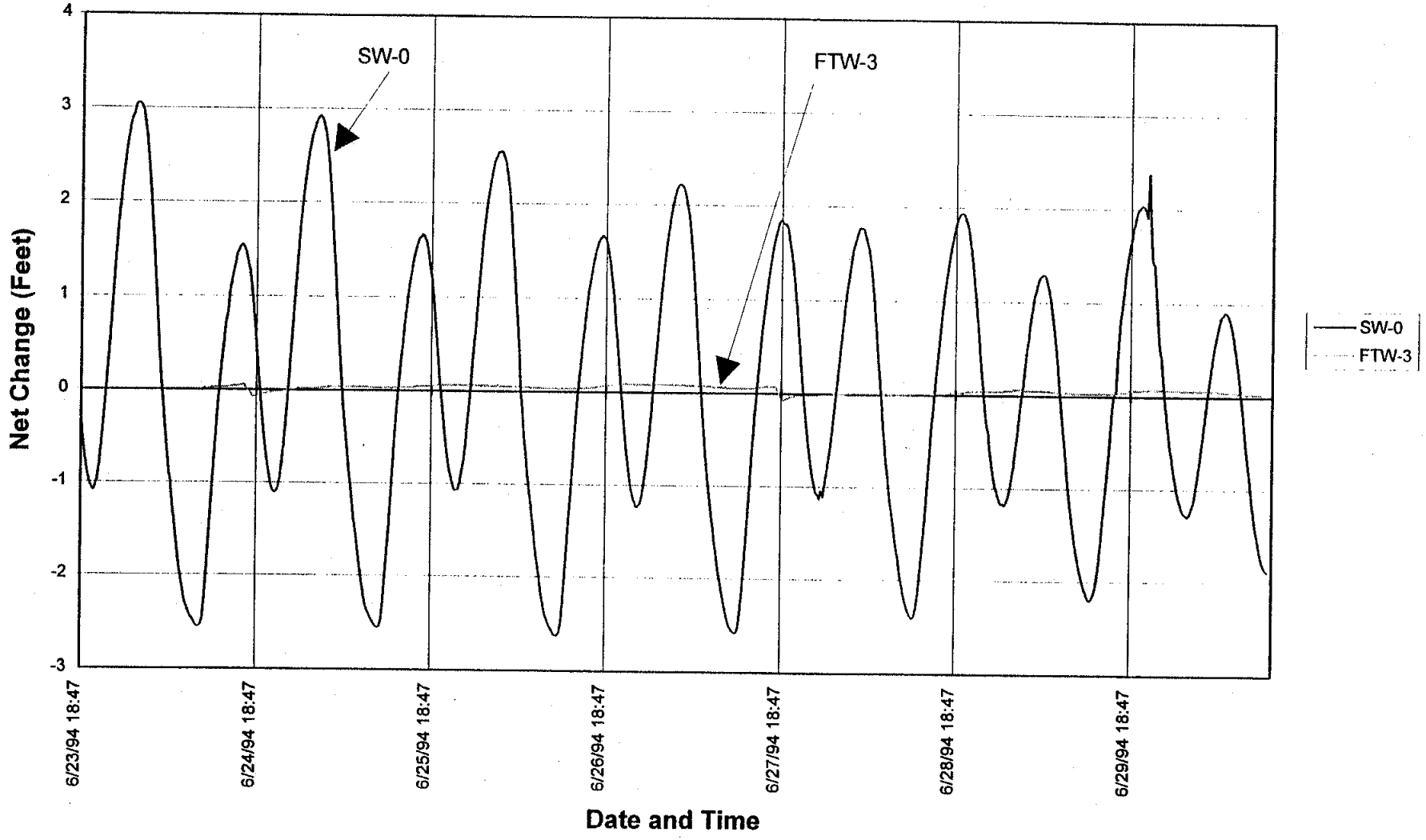
SW-0, RDW-2, RDW-3



SW-0, RDW-4, RDW-5



SW-0, FTW-3


SW-0
FTW-3
Net Change (Feet)
4
3
2
1
0
-1
-2
-3
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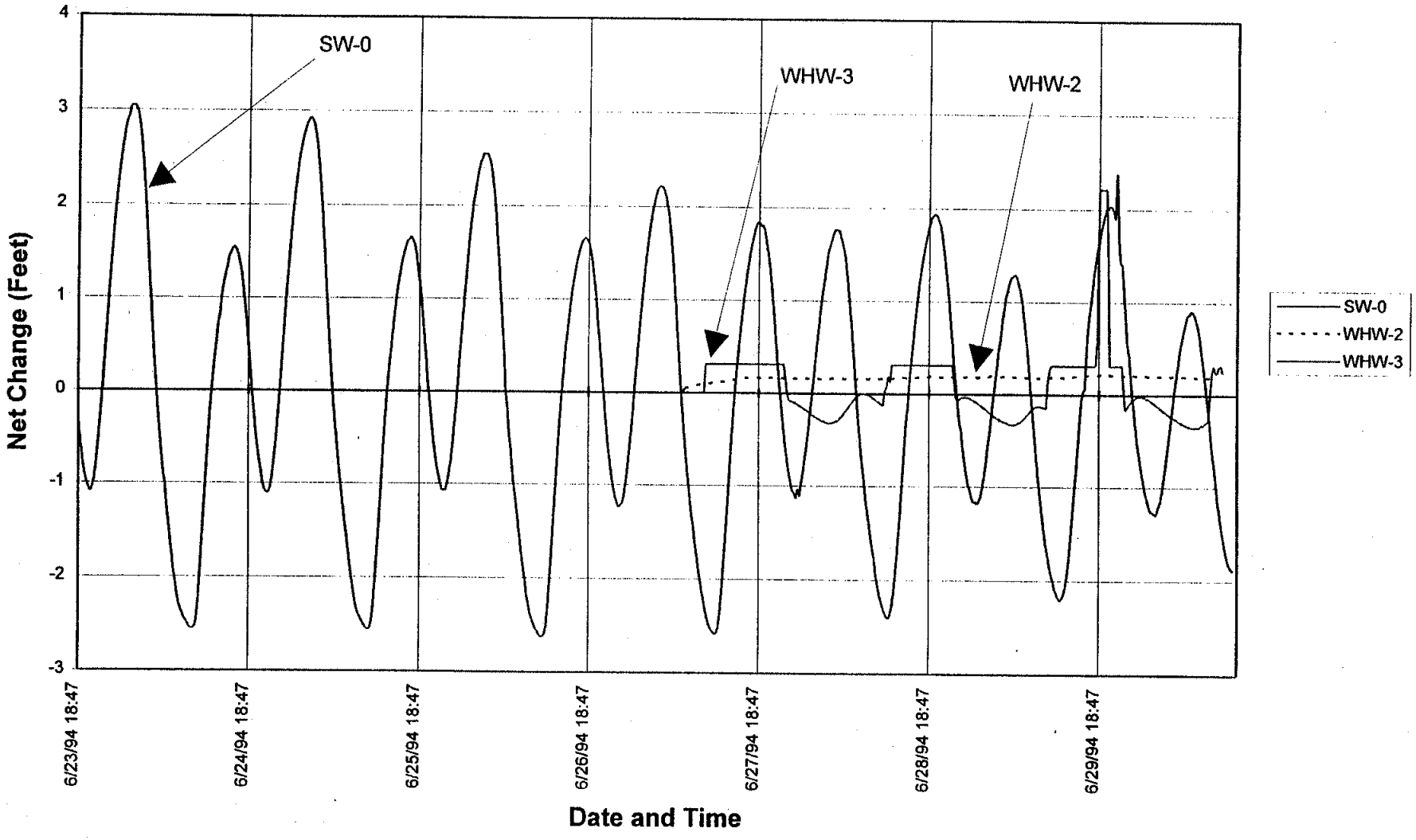
6/25/94 18:47
6/26/94 18:47
6/27/94 18:47
6/28/94 18:47
6/29/94 18:47
Date and Time
SW-0
FTW-3

SW-0, WHW-2, WHW-3



APPENDIX K

HUMAN HEALTH RISK ASSESSMENT TABLES

APPENDIX K

This appendix contains the human health risk assessment calculations for each of the Tidal Area sites, as presented in Section 6.0 of the report. The tables in this appendix are organized as follows.

R Area Disposal Site

Risk calculations for the R Area Disposal Site are shown in Tables K-1-1 through K-1-20.

Tables K-1-1 through K-1-3 show the reasonable maximum exposure (RME) risk calculations for surface soil (0 to 0.5 feet below ground surface [ft bgs]) for the R Area Disposal Site. Risk calculations for all surface soil COPCs except PCBs are shown in Table K-1-1, while Tables K-1-2 and K-1-3 show the surface soil risk calculations for nondioxin-like PCBs and dioxin-like PCBs, respectively. Tables K-1-4 through K-1-6 show the risk calculations for subsurface soil (0 to 10 ft bgs) for the R Area Disposal Site. Table K-1-4 contains the subsurface soil risk calculations for all COPCs except PCBs, while Tables K-1-5 and K-1-6 show the subsurface soil risk calculations for nondioxin-like PCBs and dioxin-like PCBs, respectively. Risk calculations for both residential and industrial exposure to soil are presented in Tables K-1-1 through K-1-12.

Tables K-1-7 through K-1-9 and Tables K-1-10 through K-1-12 show the maximum exposure (ME) risk calculations for surface soil and subsurface soil for the R Area Disposal Site, respectively. These tables are organized similarly to Tables K-1-1 through K-1-3 and Tables K-1-4 through K-1-6.

Tables K-1-13 through K-1-16 present the residential surface water risk calculations for both the RME and ME scenarios. Tables K-1-17 and K-1-18 contain the industrial surface water risk calculations for the RME and ME scenarios.

Table K-1-19 summarizes the RME risk results for the R Area Disposal Site, for both current and future site configurations. As discussed in Section 6.1.1.2, potential exposures under the current site configuration are assumed to be to surface soil (0-0.5 ft bgs), while potential exposures under the future site configuration are assumed to be to subsurface soil (0 to 11 ft bgs). In Table K-1-19, the total RME surface soil risk results are based on the sum of the surface soil risk results shown in Table K-1-1 (non-PCB COPCs), Table K-1-2 (nondioxin-like PCBs), and Table K-1-3 (dioxin-like PCBs). Total RME subsurface soil risk results are based on the sum of the subsurface soil risk results shown in Tables K-1-4 through K-1-6 for non-PCB COPCs, nondioxin-like PCBs, and dioxin-like PCBs, respectively.

The total RME surface water risk results shown in Table K-1-19 for the residential exposure scenario are based on the cancer risk calculated for a residential child receptor (Table K-1-13) plus a residential adult receptor (K-1-15). The surface water noncancer HI for the residential scenario is based on the noncancer HI for a residential child receptor (Table K-1-14). The RME surface water risk results shown in Table K-1-19 for the industrial receptor are based on the surface water risks calculated in Tables K-1-17 and K-1-18. Risks from potential exposure to COPCs in surface water are assumed to be the same under current and future site configurations.

A summary of the ME risk results for the R Area Disposal Site is presented in Table K-1-20. The ME risk summary shown is likewise based on a summary of the risk results presented in the ME risk calculation tables (Tables K-1-7 through K-1-12 for soil exposures; Tables K-1-13 through K-1-18 for surface water exposures).

Froid and Taylor Roads

Risk calculations for the R Area Disposal Site are shown in Tables K-2-1 through K-2-20. The structure of the risk calculations shown in Tables K-2-1 through K-2-18 is identical to the structure of the risk calculation tables described above for the R Area Disposal Site. Tables K-2-19 and K-2-20 summarize the RME and ME risk results for Froid and Taylor Roads, respectively. The total risks presented in the risk summary tables are calculated using the same method described above for the R Area Disposal Site.

Wood Hogger

Risk calculations for the R Area Disposal Site are shown in Tables K-3-1 through K-3-20.

The structure of the risk calculations shown in Tables K-3-1 through K-3-18 is identical to the structure of the risk calculation tables described above for the R Area Disposal Site. Tables K-3-19 and K-3-20 summarize the RME and ME risk results for Froid and Taylor Roads, respectively. The total risks presented in the risk summary tables are calculated using the same method described above for the R Area Disposal Site.

Otter Sluice

Risk calculations for the R Area Disposal Site are shown in Tables K-4-1 through K-4-14. Potential risks evaluated for Otter Sluice were limited to surface soil and surface water exposures. Risk results for surface soil exposures are detailed in Tables K-4-1 through K-4-3 for the RME scenario and Tables K-4-4 through K-4-6 for the ME scenario. Surface water risk results are presented in Tables K-4-7 through K-4-12. Tables K-4-13 and K-4-14 summarize the RME and ME risk results for Otter Sluice, respectively. The total risks presented in the risk summary tables are calculated suing the same methods described above for the R Area Disposal Site.

TABLES

R Area

K-1-1 Risk Results for the Preliminary Remediation Goal Assessment of Soil at the R Area Disposal Site, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-1-2 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at the R Area Disposal Site, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-1-3 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at the R Area Disposal Site, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-1-4 Risk Results for the Preliminary Remediation Goal Assessment of Soil at the R Area Disposal Site, 0 to 6 Foot Below Ground Surface, Reasonable Maximum Exposure

K-1-5 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at the R Area Disposal Site, 0 to 6 Foot Below Ground Surface, Reasonable Maximum Exposure

K-1-6 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at the R Area Disposal Site, 0 to 6 Foot Below Ground Surface, Reasonable Maximum Exposure

K-1-7 Risk Results for the Preliminary Remediation Goal Assessment of Soil at the R Area Disposal Site, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-1-8 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at the R Area Disposal Site, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-1-9 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at the R Area Disposal Site, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-1-10 Risk Results for the Preliminary Remediation Goal Assessment of Soil at the R Area Disposal Site, 0 to 6 Foot Below Ground Surface, Maximum Exposure

K-1-11 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at the R Area Disposal Site, 0 to 6 Foot Below Ground Surface, Maximum Exposure

K-1-12 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at the R Area Disposal Site, 0 to 6 Foot Below Ground Surface, Maximum Exposure

K-1-13 Cancer Risks Associated with Dermal Exposure to Surface Water at the R Area Disposal Site, Child Resident

K-1-14 Hazard Quotients Associated with Dermal Exposure to Surface Water at the R Area Disposal Site, Child Resident

K-1-15 Cancer Risks Associated with Dermal Exposure to Surface Water at the R Area Disposal Site, Adult Resident

K-1-16 Hazard Quotients Associated with Dermal Exposure to Surface Water at the R Area Disposal Site, Adult Resident

K-1-17 Cancer Risks Associated with Dermal Exposure to Surface Water at the R Area Disposal Site, Industrial Worker

K-1-18 Hazard Quotients Associated with Dermal Exposure to Surface Water at the R Area Disposal Site, Industrial Worker

K-1-19 Risk Summary for R Area Disposal Site, Reasonable Maximum Exposure

K-1-20 Risk Summary for R Area Disposal Site, Maximum Exposure

Froid and Taylor Roads

K-2-1 Risk Results for the Preliminary Remediation Goal Assessment of Soil at Froid and Taylor Roads, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-2-2 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at Froid and Taylor Roads, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-2-3 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at Froid and Taylor Roads, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-2-4 Risk Results for the Preliminary Remediation Goal Assessment of Soil at Froid and Taylor Roads, 0 to 3 Foot Below Ground Surface, Reasonable Maximum Exposure

K-2-5 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at Froid and Taylor Roads, 0 to 3 Foot Below Ground Surface, Reasonable Maximum Exposure

K-2-6 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at Froid and Taylor Roads, 0 to 3 Foot Below Ground Surface, Reasonable Maximum Exposure

K-2-7 Risk Results for the Preliminary Remediation Goal Assessment of Soil at Froid and Taylor Roads, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-2-8 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at Froid and Taylor Roads, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-2-9 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at Froid and Taylor Roads, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-2-10 Risk Results for the Preliminary Remediation Goal Assessment of Soil at Froid and Taylor Roads, 0 to 3 Foot Below Ground Surface, Maximum Exposure

K-2-11 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at Froid and Taylor Roads, 0 to 3 Foot Below Ground Surface, Maximum Exposure

K-2-12 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at Froid and Taylor Roads, 0 to 3 Foot Below Ground Surface, Maximum Exposure

K-2-13 Cancer Risks Associated with Dermal Exposure to Surface Water at Froid and Taylor Roads, Child Resident

K-2-14 Hazard Quotients Associated with Dermal Exposure to Surface Water at Froid and Taylor Roads, Child Resident

K-2-15 Cancer Risks Associated with Dermal Exposure to Surface Water at Froid and Taylor Roads, Adult Resident

K-2-16 Hazard Quotients Associated with Dermal Exposure to Surface Water at Froid and Taylor Roads, Adult Resident

K-2-17 Cancer Risks Associated with Dermal Exposure to Surface Water at Froid and Taylor Roads, Industrial Worker

K-2-18 Hazard Quotients Associated with Dermal Exposure to Surface Water at Froid and Taylor Roads, Industrial Worker

K-2-19 Risk Summary for Froid and Taylor Roads, Reasonable Maximum Exposure

K-2-20 Risk Summary for Froid and Taylor Roads, Maximum Exposure

Wood Hogger

K-3-1 Risk Results for the Preliminary Remediation Goal Assessment of Soil at the Wood Hogger Site, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-3-2 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at the Wood Hogger Site, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-3-3 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at the Wood Hogger Site, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-3-4 Risk Results for the Preliminary Remediation Goal Assessment of Soil at the Wood Hogger Site, 0 to 11 Foot Below Ground Surface, Reasonable Maximum Exposure

K-3-5 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at the Wood Hogger Site, 0 to 11 Foot Below Ground Surface, Reasonable Maximum Exposure

K-3-6 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at the Wood Hogger Site, 0 to 11 Foot Below Ground Surface, Reasonable Maximum Exposure

K-3-7 Risk Results for the Preliminary Remediation Goal Assessment of Soil at the Wood Hogger Site, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-3-8 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at the Wood Hogger Site, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-3-9 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at the Wood Hogger Site, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-3-10 Risk Results for the Preliminary Remediation Goal Assessment of Soil at the Wood Hogger Site, 0 to 11 Foot Below Ground Surface, Maximum Exposure

K-3-11 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Soil at the Wood Hogger Site, 0 to 11 Foot Below Ground Surface, Maximum Exposure

K-3-12 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Soil at the Wood Hogger Site, 0 to 11 Foot Below Ground Surface, Maximum Exposure

K-3-13 Cancer Risks Associated with Dermal Exposure to Surface Water at the Wood Hogger Site, Child Resident

K-3-14 Hazard Quotients Associated with Dermal Exposure to Surface Water at the Wood Hogger Site, Child Resident

K-3-15 Cancer Risks Associated with Dermal Exposure to Surface Water at the Wood Hogger Site, Adult Resident

K-3-16 Hazard Quotients Associated with Dermal Exposure to Surface Water at the Wood Hogger Site, Adult Resident

K-3-17 Cancer Risks Associated with Dermal Exposure to Surface Water at the Wood Hogger Site, Industrial Worker

K-3-18 Hazard Quotients Associated with Dermal Exposure to Surface Water at the Wood Hogger Site, Industrial Worker

K-3-19 Risk Summary for Wood Hogger Site, Reasonable Maximum Exposure

K-3-20 Risk Summary for Wood Hogger Site, Maximum Exposure

Otter Sluice

K-4-1 Risk Results for the Preliminary Remediation Goal Assessment of Sediment at Otter Sluice, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-4-2 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Sediment at Otter Sluice, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-4-3 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Sediment at Otter Sluice, 0 to 0.5 Foot Below Ground Surface, Reasonable Maximum Exposure

K-4-4 Risk Results for the Preliminary Remediation Goal Assessment of Sediment at Otter Sluice, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-4-5 Risk Results Using A Mixtures Approach for Polychlorinated Biphenyls in Sediment at Otter Sluice, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-4-6 Risk Results for Polychlorinated Biphenyls with Dioxin-like Activity in Sediment at Otter Sluice, 0 to 0.5 Foot Below Ground Surface, Maximum Exposure

K-4-7 Cancer Risks Associated with Dermal Exposure to Surface Water at Otter Sluice, Child Resident

K-4-8 Hazard Quotients Associated with Dermal Exposure to Surface Water at Otter Sluice, Child Resident

K-4-9 Cancer Risks Associated with Dermal Exposure to Surface Water at Otter Sluice, Adult Resident

K-4-10 Hazard Quotients Associated with Dermal Exposure to Surface Water at Otter Sluice, Adult Resident

K-4-11 Cancer Risks Associated with Dermal Exposure to Surface Water at Otter Sluice, Industrial Worker

K-4-12 Hazard Quotients Associated with Dermal Exposure to Surface Water at Otter Sluice, Industrial Worker

K-4-13 Risk Summary for Otter Sluice, Reasonable Maximum Exposure

K-4-14 Risk Summary for Otter Sluice, Maximum Exposure

TABLE K-1-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	1.93E+04	--	2.54E-01	--	2.10E-02
Antimony	1.40E+00	--	4.49E-02	--	3.43E-03
Arsenic	1.36E+01	3.49E-05	6.29E-01	8.56E-06	5.32E-02
Barium	1.69E+02	--	3.14E-02	--	2.53E-03
Beryllium	9.72E-02	9.23E-11	6.30E-04	4.34E-11	5.01E-05
Chromium	6.19E+01	2.94E-07	--	1.38E-07	--
Cobalt	1.69E+01	1.87E-08	1.22E-02	8.77E-09	1.26E-03
Copper	4.92E+01	--	1.57E-02	--	1.20E-03
Lead	7.77E+01	--	--	--	--
Manganese	5.64E+02	--	3.20E-01	--	2.90E-02
Mercury	2.45E-01	--	1.04E-02	--	7.99E-04
Nickel	7.57E+01	--	4.84E-02	--	3.71E-03
Silver	1.31E-01	--	3.35E-04	--	2.56E-05
Vanadium	7.04E+01	--	1.29E-01	--	9.84E-03
Zinc	1.64E+02	--	7.00E-03	--	5.36E-04
Semivolatile Organic Compounds					
1-Methylphenanthrene	3.70E-02	--	1.69E-06	--	1.55E-07
2,4-Dimethylphenol	2.40E-02	--	1.96E-05	--	1.95E-06
2,6-Dimethylnaphthalene	1.03E-01	--	1.85E-03	--	5.51E-04
2-Methylnaphthalene	4.20E-02	--	7.51E-04	--	2.24E-04
4-Methylphenol	1.15E-01	--	3.78E-04	--	3.75E-05
Acenaphthene	3.00E-02	--	8.15E-06	--	1.03E-06
Anthracene	1.00E-01	--	4.57E-06	--	4.20E-07
Benzo(a)anthracene	1.02E-01	1.64E-07	4.64E-06	4.82E-08	4.27E-07
Benzo(a)pyrene	1.02E-01	1.64E-06	4.39E-05	4.82E-07	3.49E-06
Benzo(b)fluoranthene	1.14E-01	1.83E-07	4.96E-05	5.39E-08	5.17E-06
Benzo(e)pyrene	1.03E-01	--	4.46E-05	--	3.55E-06
Benzo(g,h,i)perylene	1.10E-01	--	4.73E-05	--	3.76E-06

TABLE K-1-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Benzo(k)fluoranthene	1.03E-01	2.71E-07	4.47E-05	8.00E-08	4.66E-06
Benzoic Acid	2.51E-01	--	1.03E-06	--	1.02E-07
Bis(2-ethylhexyl)phthalate	1.22E-01	3.51E-09	9.99E-05	9.91E-10	9.91E-06
Carbazole	4.00E-02	1.64E-09	--	4.64E-10	--
Chrysene	1.17E-01	3.10E-08	--	9.14E-09	--
Dibenz(a,h)anthracene	9.40E-02	1.51E-06	4.29E-06	4.46E-07	3.94E-07
Dibenzothiophene	2.30E-02	--	7.92E-05	--	7.36E-06
Diethylphthalate	1.15E-01	--	2.35E-06	--	2.33E-07
Fluoranthene	1.33E-01	--	5.79E-05	--	6.03E-06
Fluorene	2.50E-02	--	9.10E-06	--	9.51E-07
Indeno(1,2,3-cd)pyrene	1.06E-01	1.70E-07	4.57E-05	5.01E-08	3.63E-06
Isophorone	3.80E-02	7.42E-11	3.11E-06	2.09E-11	3.09E-07
Naphthalene	1.13E-01	--	2.03E-03	--	6.03E-04
Perylene	1.07E-01	--	4.62E-05	--	3.68E-06
Phenanthrene	1.20E-01	--	5.49E-06	--	5.05E-07
Pyrene	1.17E-01	--	5.04E-05	--	4.00E-06
Pesticides					
2,4'-DDD	1.31E-03	5.38E-10	--	1.32E-10	--
2,4'-DDE	2.10E-04	1.22E-10	--	2.99E-11	--
2,4'-DDT	6.60E-04	3.84E-10	1.83E-05	9.40E-11	1.55E-06
4,4'-DDD	4.08E-03	1.67E-09	--	4.10E-10	--
4,4'-DDE	2.39E-03	1.39E-09	--	3.40E-10	--
4,4'-DDT	3.70E-03	2.15E-09	1.03E-04	5.27E-10	8.68E-06
Aldrin	1.80E-04	6.29E-09	9.82E-05	1.78E-09	9.75E-06
Alpha-chlordane	6.90E-04	4.25E-10	1.96E-05	1.07E-10	1.71E-06
Dieldrin	3.20E-04	1.05E-08	1.05E-04	2.97E-09	1.04E-05
Gamma-BHC (Lindane)	1.70E-04	3.89E-10	8.06E-06	9.76E-11	7.01E-07
Heptachlor	1.40E-04	1.30E-09	4.58E-06	3.65E-10	4.55E-07
Heptachlor epoxide	1.60E-04	2.99E-09	2.01E-04	8.45E-10	2.00E-05
Hexachlorobenzene	2.50E-04	8.22E-10	5.11E-06	2.32E-10	5.08E-07

TABLE K-1-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Mirex	1.80E-04	6.66E-10	1.47E-05	1.88E-10	1.46E-06
Trans-nonachlor	7.00E-04	4.31E-10	1.99E-05	1.08E-10	1.73E-06
	Total	**3.92E-05**	**1.51**	**9.88E-06**	**0.13**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. Risk estimates are presented in Tables K-1-2 and K-1-3.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

Hazard Index Segregation - Resident	
Target Organ	**Hazard Index**
Central Nervous System	5.8E-01
Liver	1.2E-03
Kidney	1.4E-04
Respiratory	1.3E-02
Blood	6.4E-02
Skin	6.3E-01
Gastrointestinal	1.6E-02
Reproductive	0.0E+00
Non-specific	1.8E-01
Body Weight	5.0E-02
Cardiovascular	6.6E-01

TABLE K-1-2
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	3.00E-04	1.35E-09	2.67E-04	4.03E-10	2.82E-05
PCB-105 (2,3,3',4,4')	2.40E-04	*	2.14E-04	*	2.26E-05
PCB-118 (2,3',4,4',5)	3.60E-04	*	3.20E-04	*	3.39E-05
PCB-126 (3,3',4,4',5)	3.20E-04	*	2.85E-04	*	3.01E-05
PCB-128 (2,2',3,3',4,4')	1.50E-04	6.76E-10	1.33E-04	2.02E-10	1.41E-05
PCB-138 (2,2',3,4,4',5')	5.30E-04	2.39E-09	4.72E-04	7.13E-10	4.99E-05
PCB-153 (2,2',4,4',5,5')	3.80E-04	1.71E-09	3.38E-04	5.11E-10	3.58E-05
PCB-170 (2,2',3,3',4,4',5)	1.50E-04	6.76E-10	1.33E-04	2.02E-10	1.41E-05
PCB-18 (2,2',5)	1.40E-04	6.31E-10	1.25E-04	1.88E-10	1.32E-05
PCB-180 (2,2',3,4,4',5,5')	2.80E-04	1.26E-09	2.49E-04	3.77E-10	2.64E-05
PCB-187 (2,2',3,4',5,5',6)	2.00E-04	9.01E-10	1.78E-04	2.69E-10	1.88E-05
PCB-195 (2,2',3,3',4,4',5,6)	1.20E-04	5.41E-10	1.07E-04	1.61E-10	1.13E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	1.80E-04	8.11E-10	1.60E-04	2.42E-10	1.69E-05
PCB-209 (2,2',3,3',4,4',5,5',6)	1.20E-04	5.41E-10	1.07E-04	1.61E-10	1.13E-05
PCB-28 (2,4,4')	1.30E-04	5.86E-10	1.16E-04	1.75E-10	1.22E-05
PCB-44 (2,2',3,5')	1.20E-04	5.41E-10	1.07E-04	1.61E-10	1.13E-05
PCB-52 (2,2',5,5')	2.20E-04	9.92E-10	1.96E-04	2.96E-10	2.07E-05
PCB-66 (2,3',4,4')	2.00E-04	9.01E-10	1.78E-04	2.69E-10	1.88E-05
PCB-77 (3,3',4,4')	2.50E-04	*	2.22E-04	*	2.35E-05
PCB-8 (2,4')	5.00E-04	2.25E-09	4.45E-04	6.72E-10	4.71E-05
	Total	**1.68E-08**	**0.0044**	**5.00E-09**	**0.0005**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-1-3).

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-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-1-3
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	3.00E-04	--	--	--	--	--
PCB-105 (2,3,3',4,4')	2.40E-04	0.0001	6.16E-09	--	1.51E-09	--
PCB-118 (2,3',4,4',5)	3.60E-04	0.0001	9.23E-09	--	2.26E-09	--
PCB-126 (3,3',4,4',5)	3.20E-04	0.1	8.21E-06	--	2.01E-06	--
PCB-128 (2,2',3,3',4,4')	1.50E-04	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	5.30E-04	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	3.80E-04	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	1.50E-04	--	--	--	--	--
PCB-18 (2,2',5)	1.40E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	2.80E-04	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	2.00E-04	--	--	--	--	--
PCB-195 (2,2',3,3',4,4',5,6)	1.20E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	1.80E-04	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	1.20E-04	--	--	--	--	--
PCB-28 (2,4,4')	1.30E-04	--	--	--	--	--
PCB-44 (2,2',3,5')	1.20E-04	--	--	--	--	--
PCB-52 (2,2',5,5')	2.20E-04	--	--	--	--	--
PCB-66 (2,3',4,4')	2.00E-04	--	--	--	--	--
PCB-77 (3,3',4,4')	2.50E-04	0.0001	6.41E-09	--	1.57E-09	--
PCB-8 (2,4')	5.00E-04	--	--	--	--	--
		Total	**8.23E-06**	**--**	**2.02E-06**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-1-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	1.91E+04	--	2.51E-01	--	2.08E-02
Antimony	1.28E+00	--	4.08E-02	--	3.12E-03
Arsenic	1.39E+01	3.57E-05	6.43E-01	8.75E-06	5.44E-02
Barium	1.60E+02	--	2.98E-02	--	2.41E-03
Chromium	6.14E+01	2.91E-07	--	1.37E-07	--
Cobalt	1.71E+01	1.90E-08	1.24E-02	8.92E-09	1.29E-03
Copper	4.74E+01	--	1.51E-02	--	1.16E-03
Lead	7.77E+01	--	--	--	--
Manganese	5.73E+02	--	3.25E-01	--	2.94E-02
Mercury	2.16E-01	--	9.20E-03	--	7.04E-04
Nickel	7.45E+01	--	4.76E-02	--	3.64E-03
Silver	1.32E-01	--	3.38E-04	--	2.58E-05
Vanadium	6.99E+01	--	1.28E-01	--	9.77E-03
Zinc	1.55E+02	--	6.62E-03	--	5.07E-04
Volatile Organic Compounds					
2-Butanone	2.64E-02	--	3.61E-06	--	9.76E-07
Carbon Disulfide	1.27E-02	--	3.57E-05	--	1.06E-05
Chloromethane	1.28E-02	1.04E-08	--	4.83E-09	--
Semivolatile Organic Compounds					
1-Methylphenanthrene	3.70E-02	--	1.69E-06	--	1.55E-07
2,4-Dimethylphenol	2.40E-02	--	1.96E-05	--	1.95E-06
2,6-Dimethylnaphthalene	1.03E-01	--	1.85E-03	--	5.51E-04
2-Methylnaphthalene	4.20E-02	--	7.51E-04	--	2.24E-04
4-Methylphenol	2.16E-01	--	7.06E-04	--	7.01E-05
Acenaphthene	2.26E-01	--	6.13E-05	--	7.72E-06
Anthracene	2.27E-01	--	1.04E-05	--	9.53E-07
Benzo(a)anthracene	2.28E-01	3.68E-07	1.04E-05	1.08E-07	9.59E-07
Benzo(a)pyrene	2.21E-01	3.56E-06	9.55E-05	1.05E-06	7.59E-06
Benzo(b)fluoranthene	2.46E-01	3.95E-07	1.07E-04	1.16E-07	1.12E-05
Benzo(e)pyrene	1.03E-01	--	4.46E-05	--	3.55E-06
Benzo(g,h,i)perylene	2.17E-01	--	9.36E-05	--	7.44E-06

TABLE K-1-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Benzo(k)fluoranthene	2.15E-01	5.69E-07	9.38E-05	1.68E-07	9.78E-06
Benzoic Acid	2.51E-01	--	1.03E-06	--	1.02E-07
Bis(2-ethylhexyl)phthalate	1.80E-01	5.18E-09	1.47E-04	1.46E-09	1.46E-05
Carbazole	1.98E-01	8.13E-09	--	2.29E-09	--
Chrysene	2.49E-01	6.60E-08	--	1.94E-08	--
Dibenz(a,h)anthracene	9.40E-02	1.51E-06	4.29E-06	4.46E-07	3.94E-07
Dibenzofuran	1.87E-01	--	6.43E-04	--	5.97E-05
Dibenzothiophene	2.30E-02	--	7.92E-05	--	7.36E-06
Diethylphthalate	1.60E-01	--	3.27E-06	--	3.25E-07
Fluoranthene	2.94E-01	--	1.28E-04	--	1.34E-05
Fluorene	1.87E-01	--	6.82E-05	--	7.13E-06
Indeno(1,2,3-cd)pyrene	2.14E-01	3.44E-07	9.24E-05	1.01E-07	7.35E-06
Isophorone	3.80E-02	7.42E-11	3.11E-06	2.09E-11	3.09E-07
Naphthalene	2.21E-01	--	3.96E-03	--	1.18E-03
Perylene	1.07E-01	--	4.62E-05	--	3.68E-06
Phenanthrene	2.77E-01	--	1.27E-05	--	1.16E-06
Phenol	1.91E-01	--	5.21E-06	--	5.17E-07
Pyrene	2.70E-01	--	1.16E-04	--	9.26E-06
Pesticides					
2,4'-DDD	1.31E-03	5.38E-10	--	1.32E-10	--
2,4'-DDE	2.10E-04	1.22E-10	--	2.99E-11	--
2,4'-DDT	6.60E-04	3.84E-10	1.83E-05	9.40E-11	1.55E-06
4,4'-DDD	5.96E-03	2.45E-09	--	5.99E-10	--
4,4'-DDE	3.55E-03	2.06E-09	--	5.05E-10	--
4,4'-DDT	5.14E-03	2.99E-09	1.42E-04	7.32E-10	1.21E-05
Aldrin	7.50E-04	2.62E-08	4.09E-04	7.40E-09	4.06E-05
alpha-chlordane	1.41E-03	8.68E-10	4.01E-05	2.18E-10	3.49E-06
Dieldrin	1.87E-03	6.15E-08	6.12E-04	1.74E-08	6.08E-05
gamma-BHC (Lindane)	7.50E-04	1.72E-09	3.55E-05	4.31E-10	3.09E-06
Heptachlor	4.30E-04	3.98E-09	1.41E-05	1.12E-09	1.40E-06
Heptachlor Epoxide	7.30E-04	1.37E-08	9.19E-04	3.85E-09	9.12E-05
Hexachlorobenzene	2.50E-04	8.22E-10	5.11E-06	2.32E-10	5.08E-07

TABLE K-1-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Mirex	1.80E-04	6.66E-10	1.47E-05	1.88E-10	1.46E-06
Trans-nonachlor	7.00E-04	4.31E-10	1.99E-05	1.08E-10	1.73E-06
	Total	**4.30E-05**	**1.52**	**1.09E-05**	**0.13**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-1-5 and K-1-6.

-- Not available or not evaluated

BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

Hazard Index Segregation - Resident	
Target Organ	**Hazard Index**
Central Nervous System	5.9E-01
Liver	3.5E-03
Kidney	3.0E-04
Respiratory	1.3E-02
Blood	6.0E-02
Skin	6.4E-01
Gastrointestinal	1.5E-02
Reproductive	4.5E-05
Non-specific	1.8E-01
Body Weight	5.2E-02
Cardiovascular	6.7E-01

TABLE K-1-5
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	3.00E-04	1.35E-09	2.67E-04	4.03E-10	2.82E-05
PCB-105 (2,3,3',4,4')	2.40E-04	*	2.14E-04	*	2.26E-05
PCB-118 (2,3',4,4',5)	3.60E-04	*	3.20E-04	*	3.39E-05
PCB-126 (3,3',4,4',5)	3.20E-04	*	2.85E-04	*	3.01E-05
PCB-128 (2,2',3,3',4,4')	1.50E-04	6.76E-10	1.33E-04	2.02E-10	1.41E-05
PCB-138 (2,2',3,4,4',5')	5.30E-04	2.39E-09	4.72E-04	7.13E-10	4.99E-05
PCB-153 (2,2',4,4',5,5')	3.80E-04	1.71E-09	3.38E-04	5.11E-10	3.58E-05
PCB-170 (2,2',3,3',4,4',5)	1.50E-04	6.76E-10	1.33E-04	2.02E-10	1.41E-05
PCB-18 (2,2',5)	1.40E-04	6.31E-10	1.25E-04	1.88E-10	1.32E-05
PCB-180 (2,2',3,4,4',5,5')	2.80E-04	1.26E-09	2.49E-04	3.77E-10	2.64E-05
PCB-187 (2,2',3,4',5,5',6)	2.00E-04	9.01E-10	1.78E-04	2.69E-10	1.88E-05
PCB-195 (2,2',3,3',4,4',5,6)	1.20E-04	5.41E-10	1.07E-04	1.61E-10	1.13E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	1.80E-04	8.11E-10	1.60E-04	2.42E-10	1.69E-05
PCB-209 (2,2',3,3',4,4',5,5',6)	1.20E-04	5.41E-10	1.07E-04	1.61E-10	1.13E-05
PCB-28 (2,4,4')	1.30E-04	5.86E-10	1.16E-04	1.75E-10	1.22E-05
PCB-44 (2,2',3,5')	1.20E-04	5.41E-10	1.07E-04	1.61E-10	1.13E-05
PCB-52 (2,2',5,5')	2.20E-04	9.92E-10	1.96E-04	2.96E-10	2.07E-05
PCB-66 (2,3',4,4')	2.00E-04	9.01E-10	1.78E-04	2.69E-10	1.88E-05
PCB-77 (3,3',4,4')	2.50E-04	*	2.22E-04	*	2.35E-05
PCB-8 (2,4')	5.00E-04	2.25E-09	4.45E-04	6.72E-10	4.71E-05
	Total	**1.68E-08**	**0.0044**	**5.00E-09**	**0.0005**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-1-6).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-1-6
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	3.00E-04	--	--	--	--	--
PCB-105 (2,3,3',4,4')	2.40E-04	0.0001	6.16E-09	--	1.51E-09	--
PCB-118 (2,3',4,4',5)	3.60E-04	0.0001	9.23E-09	--	2.26E-09	--
PCB-126 (3,3',4,4',5)	3.20E-04	0.1	8.21E-06	--	2.01E-06	--
PCB-128 (2,2',3,3',4,4')	1.50E-04	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	5.30E-04	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	3.80E-04	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	1.50E-04	--	--	--	--	--
PCB-18 (2,2',5)	1.40E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	2.80E-04	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	2.00E-04	--	--	--	--	--
PCB-195 (2,2',3,3',4,4',5,6)	1.20E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	1.80E-04	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	1.20E-04	--	--	--	--	--
PCB-28 (2,4,4')	1.30E-04	--	--	--	--	--
PCB-44 (2,2',3,5')	1.20E-04	--	--	--	--	--
PCB-52 (2,2',5,5')	2.20E-04	--	--	--	--	--
PCB-66 (2,3',4,4')	2.00E-04	--	--	--	--	--
PCB-77 (3,3',4,4')	2.50E-04	0.0001	6.41E-09	--	1.57E-09	--
PCB-8 (2,4')	5.00E-04	--	--	--	--	--
		Total	**8.23E-06**	**--**	**2.02E-06**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-1-7
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	3.37E+04	--	4.43E-01	--	3.66E-02
Antimony	7.10E+00	--	2.27E-01	--	1.74E-02
Arsenic	4.72E+01	1.21E-04	2.18E+00	2.97E-05	1.84E-01
Barium	7.71E+03	--	1.43E+00	--	1.16E-01
Beryllium	5.70E-01	5.41E-10	3.69E-03	2.54E-10	2.94E-04
Chromium	3.19E+02	1.51E-06	--	7.12E-07	--
Cobalt	3.15E+01	3.49E-08	2.28E-02	1.64E-08	2.36E-03
Copper	2.72E+02	--	8.69E-02	--	6.65E-03
Lead	3.00E+02	--	--	--	--
Manganese	2.09E+03	--	1.19E+00	--	1.07E-01
Mercury	9.20E-01	--	3.92E-02	--	3.00E-03
Nickel	1.46E+02	--	9.33E-02	--	7.14E-03
Silver	7.20E-01	--	1.84E-03	--	1.41E-04
Vanadium	1.30E+02	--	2.37E-01	--	1.82E-02
Zinc	9.59E+02	--	4.09E-02	--	3.13E-03
Semivolatile Organic Compounds					
1-Methylphenanthrene	3.70E-02	--	1.69E-06	--	1.55E-07
2,4-Dimethylphenol	2.40E-02	--	1.96E-05	--	1.95E-06
2,6-Dimethylnaphthalene	1.30E-01	--	2.32E-03	--	6.93E-04
2-Methylnaphthalene	4.20E-02	--	7.51E-04	--	2.24E-04
4-Methylphenol	7.40E-01	--	2.42E-03	--	2.40E-04
Acenaphthene	3.00E-02	--	8.15E-06	--	1.03E-06
Anthracene	1.00E-01	--	4.57E-06	--	4.20E-07
Benzo(a)anthracene	4.40E-01	7.08E-07	2.01E-05	2.09E-07	1.85E-06
Benzo(a)pyrene	3.20E-01	5.15E-06	1.38E-04	1.52E-06	1.10E-05
Benzo(b)fluoranthene	3.90E-01	6.28E-07	1.70E-04	1.85E-07	1.77E-05
Benzo(e)pyrene	2.30E-01	--	9.93E-05	--	7.90E-06
Benzo(g,h,i)perylene	2.20E-01	--	9.50E-05	--	7.55E-06
Benzo(k)fluoranthene	3.20E-01	8.46E-07	1.40E-04	2.49E-07	1.45E-05

TABLE K-1-7
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Benzoic Acid	9.20E-01	--	3.76E-06	--	3.74E-07
Bis(2-ethylhexyl)phthalate	1.80E-01	5.18E-09	1.47E-04	1.46E-09	1.46E-05
Carbazole	4.00E-02	1.64E-09	--	4.64E-10	--
Chrysene	4.40E-01	1.16E-07	--	3.43E-08	--
Dibenz(a,h)anthracene	9.40E-02	1.51E-06	4.29E-06	4.46E-07	3.94E-07
Dibenzothiophene	2.30E-02	--	7.92E-05	--	7.36E-06
Diethylphthalate	1.60E-01	--	3.27E-06	--	3.25E-07
Fluoranthene	1.10E+00	--	4.80E-04	--	5.00E-05
Fluorene	2.50E-02	--	9.10E-06	--	9.51E-07
Indeno(1,2,3-cd)pyrene	1.90E-01	3.06E-07	8.20E-05	9.01E-08	6.52E-06
Isophorone	3.80E-02	7.42E-11	3.11E-06	2.09E-11	3.09E-07
Naphthalene	2.10E-01	--	3.76E-03	--	1.12E-03
Perylene	1.10E-01	--	4.75E-05	--	3.78E-06
Phenanthrene	6.60E-01	--	3.01E-05	--	2.77E-06
Pyrene	6.80E-01	--	2.94E-04	--	2.33E-05
Pesticides					
2,4'-DDD	6.50E-03	2.67E-09	--	6.53E-10	--
2,4'-DDE	1.20E-03	6.98E-10	--	1.71E-10	--
2,4'-DDT	5.00E-03	2.91E-09	1.39E-04	7.12E-10	1.17E-05
4,4'-DDD	2.60E-02	1.07E-08	--	2.61E-09	--
4,4'-DDE	8.70E-03	5.06E-09	--	1.24E-09	--
4,4'-DDT	2.80E-02	1.63E-08	7.76E-04	3.99E-09	6.57E-05
Aldrin	7.50E-04	2.62E-08	4.09E-04	7.40E-09	4.06E-05
alpha-chlordane	2.50E-03	1.54E-09	7.11E-05	3.87E-10	6.19E-06
Dieldrin	2.00E-03	6.58E-08	6.55E-04	1.86E-08	6.50E-05
gamma-BHC (Lindane)	8.90E-04	2.04E-09	4.22E-05	5.11E-10	3.67E-06
Heptachlor	4.30E-04	3.98E-09	1.41E-05	1.12E-09	1.40E-06
Heptachlor epoxide	9.50E-04	1.78E-08	1.20E-03	5.02E-09	1.19E-04
Hexachlorobenzene	1.60E-03	5.26E-09	3.27E-05	1.49E-09	3.25E-06

TABLE K-1-7
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Mirex	1.30E-03	4.81E-09	1.06E-04	1.36E-09	1.06E-05
Trans-nonachlor	2.40E-03	1.48E-09	6.82E-05	3.71E-10	5.94E-06
	Total	**1.32E-04**	**6.01**	**3.32E-05**	**0.51**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-1-8 and K-1-9.

-- Not available or not evaluated

BHC Benzenehexachloride

DDD Dichlorodiphenyldichloroethane

DDE Dichlorodiphenyldichloroethene

DDT Dichlorodiphenyltrichloroethane

EPC Exposure point concentration

mg/kg Miligrams per kilogram

Hazard Index Segregation - Resident	
Target Organ	**Hazard Index**
Central Nervous System	1.7E+00
Liver	6.9E-03
Kidney	5.1E-04
Respiratory	2.5E-02
Blood	2.9E-01
Skin	2.2E+00
Gastrointestinal	8.7E-02
Reproductive	0.0E+00
Non-specific	4.8E-01
Body Weight	9.7E-02
Cardiovascular	3.6E+00

TABLE K-1-8
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	1.00E-03	4.51E-09	8.90E-04	1.34E-09	9.41E-05
PCB-105 (2,3,3',4,4')	1.20E-03	*	1.07E-03	*	1.13E-04
PCB-118 (2,3',4,4',5)	1.30E-03	*	1.16E-03	*	1.22E-04
PCB-126 (3,3',4,4',5)	3.70E-03	*	3.29E-03	*	3.48E-04
PCB-128 (2,2',3,3',4,4')	5.80E-04	2.61E-09	5.16E-04	7.80E-10	5.46E-05
PCB-138 (2,2',3,4,4',5')	1.70E-03	7.66E-09	1.51E-03	2.29E-09	1.60E-04
PCB-153 (2,2',4,4',5,5')	1.80E-03	8.11E-09	1.60E-03	2.42E-09	1.69E-04
PCB-170 (2,2',3,3',4,4',5)	9.00E-04	4.06E-09	8.01E-04	1.21E-09	8.47E-05
PCB-18 (2,2',5)	3.90E-04	1.76E-09	3.47E-04	5.24E-10	3.67E-05
PCB-180 (2,2',3,4,4',5,5')	1.90E-03	8.56E-09	1.69E-03	2.56E-09	1.79E-04
PCB-187 (2,2',3,4',5,5',6)	7.70E-04	3.47E-09	6.85E-04	1.04E-09	7.25E-05
PCB-195 (2,2',3,3',4,4',5,6)	3.90E-04	1.76E-09	3.47E-04	5.24E-10	3.67E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	1.10E-03	4.96E-09	9.79E-04	1.48E-09	1.04E-04
PCB-209 (2,2',3,3',4,4',5,5',6)	3.80E-04	1.71E-09	3.38E-04	5.11E-10	3.58E-05
PCB-28 (2,4,4')	4.80E-04	2.16E-09	4.27E-04	6.46E-10	4.52E-05
PCB-44 (2,2',3,5')	2.80E-04	1.26E-09	2.49E-04	3.77E-10	2.64E-05
PCB-52 (2,2',5,5')	1.40E-03	6.31E-09	1.25E-03	1.88E-09	1.32E-04
PCB-66 (2,3',4,4')	1.00E-03	4.51E-09	8.90E-04	1.34E-09	9.41E-05
PCB-77 (3,3',4,4')	1.30E-03	*	1.16E-03	*	1.22E-04
PCB-8 (2,4')	3.70E-03	1.67E-08	3.29E-03	4.98E-09	3.48E-04
	Total	**8.01E-08**	**0.022**	**2.39E-08**	**0.002**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-1-9).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-1-9
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	1.00E-03	--	--	--	--	--
PCB-105 (2,3,3',4,4')	1.20E-03	0.0001	3.08E-08	--	7.54E-09	--
PCB-118 (2,3',4,4',5)	1.30E-03	0.0001	3.33E-08	--	8.16E-09	--
PCB-126 (3,3',4,4',5)	3.70E-03	0.1	9.49E-05	--	2.32E-05	--
PCB-128 (2,2',3,3',4,4')	5.80E-04	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	1.70E-03	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	1.80E-03	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	9.00E-04	--	--	--	--	--
PCB-18 (2,2',5)	3.90E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	1.90E-03	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	7.70E-04	--	--	--	--	--
PCB-195 (2,2',3,3',4,4',5,6)	3.90E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	1.10E-03	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	3.80E-04	--	--	--	--	--
PCB-28 (2,4,4')	4.80E-04	--	--	--	--	--
PCB-44 (2,2',3,5')	2.80E-04	--	--	--	--	--
PCB-52 (2,2',5,5')	1.40E-03	--	--	--	--	--
PCB-66 (2,3',4,4')	1.00E-03	--	--	--	--	--
PCB-77 (3,3',4,4')	1.30E-03	0.0001	3.33E-08	--	8.16E-09	--
PCB-8 (2,4')	3.70E-03	--	--	--	--	--
		Total	**9.50E-05**	**--**	**2.33E-05**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-1-10
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	3.37E+04	--	4.43E-01	--	3.66E-02
Antimony	7.10E+00	--	2.27E-01	--	1.74E-02
Arsenic	4.72E+01	1.21E-04	2.18E+00	2.97E-05	1.84E-01
Barium	7.71E+03	--	1.43E+00	--	1.16E-01
Cadmium	8.30E-01	5.91E-10	2.24E-02	2.78E-10	1.84E-03
Chromium	3.19E+02	1.51E-06	--	7.12E-07	--
Cobalt	1.08E+02	1.20E-07	7.82E-02	5.62E-08	8.10E-03
Copper	2.72E+02	--	8.69E-02	--	6.65E-03
Lead	1.16E+03	--	--	--	--
Manganese	6.30E+03	--	3.57E+00	--	3.24E-01
Mercury	9.20E-01	--	3.92E-02	--	3.00E-03
Nickel	2.42E+02	--	1.55E-01	--	1.18E-02
Silver	7.20E-01	--	1.84E-03	--	1.41E-04
Vanadium	1.30E+02	--	2.37E-01	--	1.82E-02
Zinc	9.59E+02	--	4.09E-02	--	3.13E-03
Volatile Organic Compounds					
2-Butanone	7.30E-02	--	9.97E-06	--	2.69E-06
Carbon Disulfide	1.60E-01	--	4.50E-04	--	1.33E-04
Chloromethane	1.40E-02	1.14E-08	--	5.29E-09	--
Semivolatile Organic Compounds					
1-Methylphenanthrene	3.70E-02	--	1.69E-06	--	1.55E-07
2,4-Dimethylphenol	2.40E-02	--	1.96E-05	--	1.95E-06
2,6-Dimethylnaphthalene	1.30E-01	--	2.32E-03	--	6.93E-04
2-Methylnaphthalene	4.20E-02	--	7.51E-04	--	2.24E-04
4-Methylphenol	7.40E-01	--	2.42E-03	--	2.40E-04
Acenaphthene	6.60E-01	--	1.79E-04	--	2.26E-05
Anthracene	1.20E+00	--	5.48E-05	--	5.04E-06
Benzo(a)anthracene	2.00E+00	3.22E-06	9.13E-05	9.48E-07	8.39E-06
Benzo(a)pyrene	1.50E+00	2.41E-05	6.48E-04	7.11E-06	5.15E-05
Benzo(b)fluoranthene	2.30E+00	3.70E-06	1.00E-03	1.09E-06	1.05E-04
Benzo(e)pyrene	2.30E-01	--	9.93E-05	--	7.90E-06

TABLE K-1-10
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Benzo(g,h,i)perylene	5.20E-01	--	2.25E-04	--	1.79E-05
Benzo(k)fluoranthene	8.20E-01	2.17E-06	3.58E-04	6.39E-07	3.73E-05
Benzoic Acid	9.20E-01	--	3.76E-06	--	3.74E-07
Bis(2-ethylhexyl)phthalate	1.80E-01	5.18E-09	1.47E-04	1.46E-09	1.46E-05
Carbazole	1.10E+00	4.52E-08	--	1.28E-08	--
Chrysene	1.80E+00	4.76E-07	--	1.40E-07	--
Dibenz(a,h)anthracene	9.40E-02	1.51E-06	4.29E-06	4.46E-07	3.94E-07
Dibenzofuran	5.00E-01	--	1.72E-03	--	1.60E-04
Dibenzothiophene	2.30E-02	--	7.92E-05	--	7.36E-06
Diethylphthalate	1.60E-01	--	3.27E-06	--	3.25E-07
Fluoranthene	5.00E+00	--	2.18E-03	--	2.27E-04
Fluorene	6.00E-01	--	2.18E-04	--	2.28E-05
Indeno(1,2,3-cd)pyrene	5.30E-01	8.53E-07	2.29E-04	2.51E-07	1.82E-05
Isophorone	3.80E-02	7.42E-11	3.11E-06	2.09E-11	3.09E-07
Naphthalene	3.00E-01	--	5.37E-03	--	1.60E-03
Perylene	1.10E-01	--	4.75E-05	--	3.78E-06
Phenanthrene	5.90E+00	--	2.69E-04	--	2.48E-05
Phenol	6.00E-01	--	1.64E-05	--	1.62E-06
Pyrene	4.30E+00	--	1.86E-03	--	1.48E-04
Pesticides					
2,4'-DDD	6.50E-03	2.67E-09	--	6.53E-10	--
2,4'-DDE	1.20E-03	6.98E-10	--	1.71E-10	--
2,4'-DDT	5.00E-03	2.91E-09	1.39E-04	7.12E-10	1.17E-05
4,4'-DDD	2.60E-02	1.07E-08	--	2.61E-09	--
4,4'-DDE	8.70E-03	5.06E-09	--	1.24E-09	--
4,4'-DDT	2.80E-02	1.63E-08	7.76E-04	3.99E-09	6.57E-05
Aldrin	7.50E-04	2.62E-08	4.09E-04	7.40E-09	4.06E-05
alpha-chlordane	2.50E-03	1.54E-09	7.11E-05	3.87E-10	6.19E-06
Dieldrin	2.00E-03	6.58E-08	6.55E-04	1.86E-08	6.50E-05
gamma-BHC (Lindane)	8.90E-04	2.04E-09	4.22E-05	5.11E-10	3.67E-06
Heptachlor	4.30E-04	3.98E-09	1.41E-05	1.12E-09	1.40E-06
Heptachlor Epoxide	9.50E-04	1.78E-08	1.20E-03	5.02E-09	1.19E-04

TABLE K-1-10
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Hexachlorobenzene	1.60E-03	5.26E-09	3.27E-05	1.49E-09	3.25E-06
Mirex	1.30E-03	4.81E-09	1.06E-04	1.36E-09	1.06E-05
Trans-nonachlor	2.40E-03	1.48E-09	6.82E-05	3.71E-10	5.94E-06
	Total	**1.59E-04**	**8.54**	**4.11E-05**	**0.73**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. Risk estimates are presented in Tables K-1-11 and K-1-12.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

Hazard Index Segregation - Resident	
Target Organ	**Hazard Index**
Central Nervous System	4.0E+00
Liver	7.5E-03
Kidney	3.3E-04
Respiratory	7.5E-04
Blood	4.7E-01
Skin	2.3E+00
Gastrointestinal	7.8E-02
Reproductive	2.8E-04
Non-specific	2.4E-01
Body Weight	3.9E-02
Cardiovascular	3.6E+00

TABLE K-1-11
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	1.00E-03	4.51E-09	8.90E-04	1.34E-09	9.41E-05
PCB-105 (2,3,3',4,4')	1.20E-03	*	1.07E-03	*	1.13E-04
PCB-118 (2,3',4,4',5)	1.30E-03	*	1.16E-03	*	1.22E-04
PCB-126 (3,3',4,4',5)	3.70E-03	*	3.29E-03	*	3.48E-04
PCB-128 (2,2',3,3',4,4')	5.80E-04	2.61E-09	5.16E-04	7.80E-10	5.46E-05
PCB-138 (2,2',3,4,4',5')	1.70E-03	7.66E-09	1.51E-03	2.29E-09	1.60E-04
PCB-153 (2,2',4,4',5,5')	1.80E-03	8.11E-09	1.60E-03	2.42E-09	1.69E-04
PCB-170 (2,2',3,3',4,4',5)	9.00E-04	4.06E-09	8.01E-04	1.21E-09	8.47E-05
PCB-18 (2,2',5)	3.90E-04	1.76E-09	3.47E-04	5.24E-10	3.67E-05
PCB-180 (2,2',3,4,4',5,5')	1.90E-03	8.56E-09	1.69E-03	2.56E-09	1.79E-04
PCB-187 (2,2',3,4',5,5',6)	7.70E-04	3.47E-09	6.85E-04	1.04E-09	7.25E-05
PCB-195 (2,2',3,3',4,4',5,6)	3.90E-04	1.76E-09	3.47E-04	5.24E-10	3.67E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	1.10E-03	4.96E-09	9.79E-04	1.48E-09	1.04E-04
PCB-209 (2,2',3,3',4,4',5,5',6)	3.80E-04	1.71E-09	3.38E-04	5.11E-10	3.58E-05
PCB-28 (2,4,4')	4.80E-04	2.16E-09	4.27E-04	6.46E-10	4.52E-05
PCB-44 (2,2',3,5')	2.80E-04	1.26E-09	2.49E-04	3.77E-10	2.64E-05
PCB-52 (2,2',5,5')	1.40E-03	6.31E-09	1.25E-03	1.88E-09	1.32E-04
PCB-66 (2,3',4,4')	1.00E-03	4.51E-09	8.90E-04	1.34E-09	9.41E-05
PCB-77 (3,3',4,4')	1.30E-03	*	1.16E-03	*	1.22E-04
PCB-8 (2,4')	3.70E-03	1.67E-08	3.29E-03	4.98E-09	3.48E-04
	Total	**8.01E-08**	**0.02**	**2.39E-08**	**0.002**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-1-12).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-1-12
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT THE R AREA DISPOSAL SITE
0 TO 6 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	1.00E-03	--	--	--	--	--
PCB-105 (2,3,3',4,4')	1.20E-03	0.0001	3.08E-08	--	7.54E-09	--
PCB-118 (2,3',4,4',5)	1.30E-03	0.0001	3.33E-08	--	8.16E-09	--
PCB-126 (3,3',4,4',5)	3.70E-03	0.1	9.49E-05	--	2.32E-05	--
PCB-128 (2,2',3,3',4,4')	5.80E-04	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	1.70E-03	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	1.80E-03	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	9.00E-04	--	--	--	--	--
PCB-18 (2,2',5)	3.90E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	1.90E-03	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	7.70E-04	--	--	--	--	--
PCB-195 (2,2',3,3',4,4',5,6)	3.90E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	1.10E-03	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	3.80E-04	--	--	--	--	--
PCB-28 (2,4,4')	4.80E-04	--	--	--	--	--
PCB-44 (2,2',3,5')	2.80E-04	--	--	--	--	--
PCB-52 (2,2',5,5')	1.40E-03	--	--	--	--	--
PCB-66 (2,3',4,4')	1.00E-03	--	--	--	--	--
PCB-77 (3,3',4,4')	1.30E-03	0.0001	3.33E-08	--	8.16E-09	--
PCB-8 (2,4')	3.70E-03	--	--	--	--	--
		Total	**9.50E-05**	**--**	**2.33E-05**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-1-13
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	2.82E+00	3.77E+01	1.00E-03	b	--	1.33E-05	--	1.78E-04	--
Antimony	1.29E-03	3.50E-03	1.00E-03	b	--	6.09E-09	--	1.65E-08	--
Arsenic	5.21E-03	2.39E-02	1.00E-03	c	1.50E+00	2.46E-08	3.69E-08	1.13E-07	1.69E-07
Barium	8.10E-02	3.16E-01	1.00E-03	b	--	3.82E-07	--	1.49E-06	--
Cadmium	2.00E-04	8.30E-03	1.00E-03	c	3.80E-01	9.44E-10	3.59E-10	3.92E-08	1.49E-08
Calcium	2.34E+02	5.55E+02	1.00E-03	--	--	1.11E-03	--	2.62E-03	--
Chromium	1.57E-03	1.02E-01	1.00E-03	b	--	7.41E-09	--	4.82E-07	--
Cobalt	7.18E-02	1.29E-01	4.00E-04	b	--	1.36E-07	--	2.44E-07	--
Copper	1.35E-02	8.20E-02	1.00E-03	b	--	6.35E-08	--	3.87E-07	--
Iron	5.28E+01	2.39E+02	1.00E-03	b	--	2.49E-04	--	1.13E-03	--
Lead	9.50E-04	5.73E-02	1.00E-04	--	--	4.49E-10	--	2.71E-08	--
Magnesium	5.58E+02	1.54E+03	1.00E-03	--	--	2.63E-03	--	7.27E-03	--
Manganese	2.47E+00	1.13E+01	1.00E-03	b	--	1.17E-05	--	5.34E-05	--
Mercury	5.00E-05	6.60E-04	1.00E-03	b	--	2.36E-10	--	3.12E-09	--
Molybdenum	2.64E-03	1.98E-02	1.00E-03	b	--	1.25E-08	--	9.35E-08	--
Nickel	6.99E-02	2.11E-01	2.00E-04	b	--	6.60E-08	--	1.99E-07	--
Potassium	9.93E+01	3.09E+02	2.00E-03	--	--	9.38E-04	--	2.92E-03	--
Selenium	1.75E-03	4.10E-03	1.00E-03	b	--	8.26E-09	--	1.94E-08	--
Sodium	3.32E+03	9.36E+03	1.00E-03	--	--	1.57E-02	--	4.42E-02	--
Thallium	2.09E-03	8.10E-03	1.00E-03	b	--	9.87E-09	--	3.82E-08	--
Vanadium	1.77E-02	1.39E-01	1.00E-03	b	--	8.36E-08	--	6.56E-07	--
Zinc	9.02E-02	3.46E-01	6.00E-04	b	--	2.56E-07	--	9.80E-07	--
4,4'-DDT	3.00E-05	3.00E-05	2.70E-01	c	3.40E-01	3.82E-08	1.30E-08	3.82E-08	1.30E-08
Aldrin	3.00E-05	3.00E-05	1.40E-03	c	1.7E+01	1.98E-10	3.37E-09	1.98E-10	3.37E-09

TABLE K-1-13
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Alpha-BHC	3.00E-05	7.00E-05	1.10E-02	c	2.70E+00	1.56E-09	4.21E-09	3.64E-09	9.82E-09
Beta-BHC	3.00E-05	3.00E-05	1.10E-02	c	1.50E+00	1.56E-09	2.34E-09	1.56E-09	2.34E-09
Dieldrin	3.00E-05	3.00E-05	1.20E-02	c	1.60E+01	1.70E-09	2.72E-08	1.70E-09	2.72E-08
Endrin	3.00E-05	3.00E-05	1.20E-02	b	--	1.70E-09	--	1.70E-09	--
Gamma-BHC (Lindane)	1.00E-05	1.00E-05	1.10E-02	c	1.10E+00	5.19E-10	5.71E-10	5.19E-10	5.71E-10
Heptachlor	1.00E-05	1.00E-05	8.60E-03	c	4.10E+00	4.06E-10	1.66E-09	4.06E-10	1.66E-09
Heptachlor Epoxide	1.00E-05	4.00E-05	8.60E-03	c	5.50E+00	4.06E-10	2.23E-09	1.62E-09	8.93E-09
						Total	**9.18E-08**		**2.51E-07**

Notes:

a	RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b	IRIS (online database, EPA 2003)
c	Cal/EPA (2003a)
--	Not available or not calculated
CDIc	Chronic daily intake
cm/hr	Centimeter per hour
MAX	Maximum detected concentration
mg/kg-day	Milligram per kilogram per day
mg/L	Milligram per liter
RME	Reasonable maximum exposure

TABLE K-1-14
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	2.82E+00	3.77E+01	1.00E-03	d	1.00E+00	1.55E-04	1.55E-04	2.08E-03	2.08E-03
Antimony	1.29E-03	3.50E-03	1.00E-03	b	4.00E-04	7.11E-08	1.78E-04	1.93E-07	4.82E-04
Arsenic	5.21E-03	2.39E-02	1.00E-03	b	3.00E-04	2.87E-07	9.57E-04	1.32E-06	4.39E-03
Barium	8.10E-02	3.16E-01	1.00E-03	b	7.00E-02	4.46E-06	6.37E-05	1.74E-05	2.49E-04
Cadmium	2.00E-04	8.30E-03	1.00E-03	b	5.00E-04	1.10E-08	2.20E-05	4.57E-07	9.14E-04
Calcium	2.34E+02	5.55E+02	1.00E-03	--	--	1.29E-02	--	3.06E-02	--
Chromium	1.57E-03	1.02E-01	1.00E-03	b	1.50E+00	8.65E-08	5.77E-08	5.62E-06	3.75E-06
Cobalt	7.18E-02	1.29E-01	4.00E-04	d	2.00E-02	1.58E-06	7.91E-05	2.84E-06	1.42E-04
Copper	1.35E-02	8.20E-02	1.00E-03	e	4.00E-02	7.41E-07	1.85E-05	4.52E-06	1.13E-04
Iron	5.28E+01	2.39E+02	1.00E-03	d	3.00E-01	2.91E-03	9.69E-03	1.32E-02	4.39E-02
Lead	9.50E-04	5.73E-02	1.00E-04	c	8.50E-03	5.23E-09	6.16E-07	3.16E-07	3.71E-05
Magnesium	5.58E+02	1.54E+03	1.00E-03	--	--	3.07E-02	--	8.48E-02	--
Manganese	2.47E+00	1.13E+01	1.00E-03	b	2.40E-02	1.36E-04	5.67E-03	6.22E-04	2.59E-02
Mercury	5.00E-05	6.60E-04	1.00E-03	b	3.00E-04	2.75E-09	9.18E-06	3.64E-08	1.21E-04
Molybdenum	2.64E-03	1.98E-02	1.00E-03	b	5.00E-03	1.45E-07	2.91E-05	1.09E-06	2.18E-04
Nickel	6.99E-02	2.11E-01	2.00E-04	b	2.00E-02	7.70E-07	3.85E-05	2.32E-06	1.16E-04
Potassium	9.93E+01	3.09E+02	2.00E-03	--	--	1.09E-02	--	3.40E-02	--
Selenium	1.75E-03	4.10E-03	1.00E-03	b	5.00E-03	9.64E-08	1.93E-05	2.26E-07	4.52E-05
Sodium	3.32E+03	9.36E+03	1.00E-03	--	--	1.83E-01	--	5.16E-01	--
Thallium	2.09E-03	8.10E-03	1.00E-03	b	6.60E-05	1.15E-07	1.74E-03	4.46E-07	6.76E-03
Vanadium	1.77E-02	1.39E-01	1.00E-03	e	7.00E-03	9.76E-07	1.39E-04	7.66E-06	1.09E-03
Zinc	9.02E-02	3.46E-01	6.00E-04	b	3.00E-01	2.98E-06	9.94E-06	1.14E-05	3.81E-05
4,4'-DDT	3.00E-05	3.00E-05	2.70E-01	b	5.00E-04	4.46E-07	8.92E-04	4.46E-07	8.92E-04

TABLE K-1-14
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aldrin	3.00E-05	3.00E-05	1.40E-03	b	3.00E-05	2.31E-09	7.71E-05	2.31E-09	7.71E-05
Alpha-BHC	3.00E-05	7.00E-05	1.10E-02	d	5.00E-04	1.82E-08	3.64E-05	4.24E-08	8.48E-05
Beta-BHC	3.00E-05	3.00E-05	1.10E-02	d	2.00E-04	1.82E-08	9.09E-05	1.82E-08	9.09E-05
Dieldrin	3.00E-05	3.00E-05	1.20E-02	b	5.00E-05	1.98E-08	3.97E-04	1.98E-08	3.97E-04
Endrin	3.00E-05	3.00E-05	1.20E-02	b	3.00E-04	1.98E-08	6.61E-05	1.98E-08	6.61E-05
Gamma-BHC (Lindane)	1.00E-05	1.00E-05	1.10E-02	b	3.00E-04	6.06E-09	2.02E-05	6.06E-09	2.02E-05
Heptachlor	1.00E-05	1.00E-05	8.60E-03	b	5.00E-04	4.74E-09	9.47E-06	4.74E-09	9.47E-06
Heptachlor Epoxide	1.00E-05	4.00E-05	8.60E-03	b	1.30E-05	4.74E-09	3.64E-04	1.89E-08	1.46E-03
						Total	**0.021**		**0.090**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)
-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-1-15
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	2.82E+00	3.77E+01	1.00E-03	b	--	2.24E-05	--	3.00E-04	--
Antimony	1.29E-03	3.50E-03	1.00E-03	b	--	1.03E-08	--	2.78E-08	--
Arsenic	5.21E-03	2.39E-02	1.00E-03	c	1.50E+00	4.14E-08	6.22E-08	1.90E-07	2.85E-07
Barium	8.10E-02	3.16E-01	1.00E-03	b	--	6.44E-07	--	2.51E-06	--
Cadmium	2.00E-04	8.30E-03	1.00E-03	c	3.80E-01	1.59E-09	6.05E-10	6.60E-08	2.51E-08
Chromium	1.57E-03	1.02E-01	1.00E-03	b	--	1.25E-08	--	8.11E-07	--
Cobalt	7.18E-02	1.29E-01	4.00E-04	b	--	2.28E-07	--	4.10E-07	--
Copper	1.35E-02	8.20E-02	1.00E-03	b	--	1.07E-07	--	6.52E-07	--
Lead	9.50E-04	5.73E-02	1.00E-04	--	--	7.56E-10	--	4.56E-08	--
Manganese	2.47E+00	1.13E+01	1.00E-03	b	--	1.97E-05	--	8.99E-05	--
Mercury	5.00E-05	6.60E-04	1.00E-03	b	--	3.98E-10	--	5.25E-09	--
Molybdenum	2.64E-03	1.98E-02	1.00E-03	b	--	2.10E-08	--	1.58E-07	--
Nickel	6.99E-02	2.11E-01	2.00E-04	b	--	1.11E-07	--	3.36E-07	--
Selenium	1.75E-03	4.10E-03	1.00E-03	b	--	1.39E-08	--	3.26E-08	--
Sodium	3.32E+03	9.36E+03	1.00E-03	--	--	2.64E-02	--	7.45E-02	--
Thallium	2.09E-03	8.10E-03	1.00E-03	b	--	1.66E-08	--	6.44E-08	--
Vanadium	1.77E-02	1.39E-01	1.00E-03	b	--	1.41E-07	--	1.11E-06	--
Zinc	9.02E-02	3.46E-01	6.00E-04	b	--	4.31E-07	--	1.65E-06	--
4,4'-DDT	3.00E-05	3.00E-05	2.70E-01	c	3.40E-01	6.44E-08	2.19E-08	6.44E-08	2.19E-08
Aldrin	3.00E-05	3.00E-05	1.40E-03	c	1.7E+01	3.34E-10	5.68E-09	3.34E-10	5.68E-09
alpha-BHC	3.00E-05	7.00E-05	1.10E-02	c	2.70E+00	2.63E-09	7.09E-09	6.13E-09	1.65E-08
beta-BHC	3.00E-05	3.00E-05	1.10E-02	c	1.50E+00	2.63E-09	3.94E-09	2.63E-09	3.94E-09

TABLE K-1-15
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Dieldrin	3.00E-05	3.00E-05	1.20E-02	c	1.60E+01	2.86E-09	4.58E-08	2.86E-09	4.58E-08
Endrin	3.00E-05	3.00E-05	1.20E-02	b	--	2.86E-09	--	2.86E-09	--
Gamma-BHC (Lindane)	1.00E-05	1.00E-05	1.10E-02	c	1.10E+00	8.75E-10	9.63E-10	8.75E-10	9.63E-10
Heptachlor	1.00E-05	1.00E-05	8.60E-03	c	4.10E+00	6.84E-10	2.80E-09	6.84E-10	2.80E-09
Heptachlor Epoxide	1.00E-05	4.00E-05	8.60E-03	c	5.50E+00	6.84E-10	3.76E-09	2.74E-09	1.51E-08
						Total	**1.55E-07**		**4.23E-07**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-1-16
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	2.82E+00	3.77E+01	1.00E-03	d	1.00E+00	6.55E-05	6.55E-05	8.75E-04	8.75E-04
Antimony	1.29E-03	3.50E-03	1.00E-03	b	4.00E-04	2.99E-08	7.48E-05	8.12E-08	2.03E-04
Arsenic	5.21E-03	2.39E-02	1.00E-03	b	3.00E-04	1.21E-07	4.03E-04	5.55E-07	1.85E-03
Barium	8.10E-02	3.16E-01	1.00E-03	b	7.00E-02	1.88E-06	2.68E-05	7.33E-06	1.05E-04
Cadmium	2.00E-04	8.30E-03	1.00E-03	b	5.00E-04	4.64E-09	9.28E-06	1.93E-07	3.85E-04
Calcium	2.34E+02	5.55E+02	1.00E-03	--	--	5.43E-03	--	1.29E-02	--
Chromium	1.57E-03	1.02E-01	1.00E-03	b	1.50E+00	3.64E-08	2.43E-08	2.37E-06	1.58E-06
Cobalt	7.18E-02	1.29E-01	4.00E-04	d	2.00E-02	6.66E-07	3.33E-05	1.20E-06	5.99E-05
Copper	1.35E-02	8.20E-02	1.00E-03	e	4.00E-02	3.12E-07	7.80E-06	1.90E-06	4.76E-05
Iron	5.28E+01	2.39E+02	1.00E-03	d	3.00E-01	1.22E-03	4.08E-03	5.55E-03	1.85E-02
Lead	9.50E-04	5.73E-02	1.00E-04	c	8.50E-03	2.20E-09	2.59E-07	1.33E-07	1.56E-05
Magnesium	5.58E+02	1.54E+03	1.00E-03	--	--	1.29E-02	--	3.57E-02	--
Manganese	2.47E+00	1.13E+01	1.00E-03	b	2.40E-02	5.74E-05	2.39E-03	2.62E-04	1.09E-02
Mercury	5.00E-05	6.60E-04	1.00E-03	b	3.00E-04	1.16E-09	3.87E-06	1.53E-08	5.10E-05
Molybdenum	2.64E-03	1.98E-02	1.00E-03	b	5.00E-03	6.13E-08	1.23E-05	4.59E-07	9.19E-05
Nickel	6.99E-02	2.11E-01	2.00E-04	b	2.00E-02	3.24E-07	1.62E-05	9.79E-07	4.90E-05
Potassium	9.93E+01	3.09E+02	2.00E-03	--	--	4.61E-03	--	1.43E-02	--
Selenium	1.75E-03	4.10E-03	1.00E-03	b	5.00E-03	4.06E-08	8.12E-06	9.51E-08	1.90E-05
Sodium	3.32E+03	9.36E+03	1.00E-03	--	--	7.70E-02	--	2.17E-01	--
Thallium	2.09E-03	8.10E-03	1.00E-03	b	6.60E-05	4.85E-08	7.35E-04	1.88E-07	2.85E-03
Vanadium	1.77E-02	1.39E-01	1.00E-03	e	7.00E-03	4.11E-07	5.87E-05	3.23E-06	4.61E-04
Zinc	9.02E-02	3.46E-01	6.00E-04	b	3.00E-01	1.26E-06	4.19E-06	4.82E-06	1.61E-05
4,4'-DDT	3.00E-05	3.00E-05	2.70E-01	b	5.00E-04	1.88E-07	3.76E-04	1.88E-07	3.76E-04
Aldrin	3.00E-05	3.00E-05	1.40E-03	b	3.00E-05	9.74E-10	3.25E-05	9.74E-10	3.25E-05

TABLE K-1-16
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Alpha-BHC	3.00E-05	7.00E-05	1.10E-02	d	5.00E-04	7.66E-09	1.53E-05	1.79E-08	3.57E-05
Beta-BHC	3.00E-05	3.00E-05	1.10E-02	d	2.00E-04	7.66E-09	3.83E-05	7.66E-09	3.83E-05
Dieldrin	3.00E-05	3.00E-05	1.20E-02	b	5.00E-05	8.35E-09	1.67E-04	8.35E-09	1.67E-04
Endrin	3.00E-05	3.00E-05	1.20E-02	b	3.00E-04	8.35E-09	2.78E-05	8.35E-09	2.78E-05
Gamma-BHC (Lindane)	1.00E-05	1.00E-05	1.10E-02	b	3.00E-04	2.55E-09	8.51E-06	2.55E-09	8.51E-06
Heptachlor	1.00E-05	1.00E-05	8.60E-03	b	5.00E-04	2.00E-09	3.99E-06	2.00E-09	3.99E-06
Heptachlor Epoxide	1.00E-05	4.00E-05	8.60E-03	b	1.30E-05	2.00E-09	1.53E-04	7.98E-09	6.14E-04
						Total	**0.0088**		**0.038**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-1-17
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	2.82E+00	3.77E+01	1.00E-03	b	--	2.34E-05	--	3.12E-04	--
Antimony	1.29E-03	3.50E-03	1.00E-03	b	--	1.07E-08	--	2.90E-08	--
Arsenic	5.21E-03	2.39E-02	1.00E-03	c	1.50E+00	4.32E-08	6.48E-08	1.98E-07	2.97E-07
Barium	8.10E-02	3.16E-01	1.00E-03	b	--	6.71E-07	--	2.62E-06	--
Cadmium	2.00E-04	8.30E-03	1.00E-03	c	3.80E-01	1.66E-09	6.30E-10	6.88E-08	2.61E-08
Chromium	1.57E-03	1.02E-01	1.00E-03	b	--	1.30E-08	--	8.45E-07	--
Cobalt	7.18E-02	1.29E-01	4.00E-04	b	--	2.38E-07	--	4.28E-07	--
Copper	1.35E-02	8.20E-02	1.00E-03	b	--	1.11E-07	--	6.79E-07	--
Lead	9.50E-04	5.73E-02	1.00E-04	--	--	7.87E-10	--	4.75E-08	--
Manganese	2.47E+00	1.13E+01	1.00E-03	b	--	2.05E-05	--	9.36E-05	--
Mercury	5.00E-05	6.60E-04	1.00E-03	b	--	4.14E-10	--	5.47E-09	--
Molybdenum	2.64E-03	1.98E-02	1.00E-03	b	--	2.19E-08	--	1.64E-07	--
Nickel	6.99E-02	2.11E-01	2.00E-04	b	--	1.16E-07	--	3.50E-07	--
Selenium	1.75E-03	4.10E-03	1.00E-03	b	--	1.45E-08	--	3.40E-08	--
Sodium	3.32E+03	9.36E+03	1.00E-03	--	--	2.75E-02	--	7.76E-02	--
Thallium	2.09E-03	8.10E-03	1.00E-03	b	--	1.73E-08	--	6.71E-08	--
Vanadium	1.77E-02	1.39E-01	1.00E-03	b	--	1.47E-07	--	1.15E-06	--
Zinc	9.02E-02	3.46E-01	6.00E-04	b	--	4.49E-07	--	1.72E-06	--
4,4'-DDT	3.00E-05	3.00E-05	2.70E-01	c	3.40E-01	6.71E-08	2.28E-08	6.71E-08	2.28E-08
Aldrin	3.00E-05	3.00E-05	1.40E-03	c	1.7E+01	3.48E-10	5.92E-09	3.48E-10	5.92E-09
alpha-BHC	3.00E-05	7.00E-05	1.10E-02	c	2.70E+00	2.73E-09	7.38E-09	6.38E-09	1.72E-08
beta-BHC	3.00E-05	3.00E-05	1.10E-02	c	1.50E+00	2.73E-09	4.10E-09	2.73E-09	4.10E-09

TABLE K-1-17
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Dieldrin	3.00E-05	3.00E-05	1.20E-02	c	1.60E+01	2.98E-09	4.77E-08	2.98E-09	4.77E-08
Endrin	3.00E-05	3.00E-05	1.20E-02	b	--	2.98E-09	--	2.98E-09	--
Gamma-BHC (Lindane)	1.00E-05	1.00E-05	1.10E-02	c	1.10E+00	9.11E-10	1.00E-09	9.11E-10	1.00E-09
Heptachlor	1.00E-05	1.00E-05	8.60E-03	c	4.10E+00	7.13E-10	2.92E-09	7.13E-10	2.92E-09
Heptachlor Epoxide	1.00E-05	4.00E-05	8.60E-03	c	5.50E+00	7.13E-10	3.92E-09	2.85E-09	1.57E-08
						Total	**1.61E-07**		**4.41E-07**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-1-18
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	2.82E+00	3.77E+01	1.00E-03	d	1.00E+00	6.55E-05	6.55E-05	8.75E-04	8.75E-04
Antimony	1.29E-03	3.50E-03	1.00E-03	b	4.00E-04	2.99E-08	7.48E-05	8.12E-08	2.03E-04
Arsenic	5.21E-03	2.39E-02	1.00E-03	b	3.00E-04	1.21E-07	4.03E-04	5.55E-07	1.85E-03
Barium	8.10E-02	3.16E-01	1.00E-03	b	7.00E-02	1.88E-06	2.68E-05	7.33E-06	1.05E-04
Cadmium	2.00E-04	8.30E-03	1.00E-03	b	5.00E-04	4.64E-09	9.28E-06	1.93E-07	3.85E-04
Calcium	2.34E+02	5.55E+02	1.00E-03	--	--	5.43E-03	--	1.29E-02	--
Chromium	1.57E-03	1.02E-01	1.00E-03	b	1.50E+00	3.64E-08	2.43E-08	2.37E-06	1.58E-06
Cobalt	7.18E-02	1.29E-01	4.00E-04	d	2.00E-02	6.66E-07	3.33E-05	1.20E-06	5.99E-05
Copper	1.35E-02	8.20E-02	1.00E-03	e	4.00E-02	3.12E-07	7.80E-06	1.90E-06	4.76E-05
Iron	5.28E+01	2.39E+02	1.00E-03	d	3.00E-01	1.22E-03	4.08E-03	5.55E-03	1.85E-02
Lead	9.50E-04	5.73E-02	1.00E-04	c	8.50E-03	2.20E-09	2.59E-07	1.33E-07	1.56E-05
Magnesium	5.58E+02	1.54E+03	1.00E-03	--	--	1.29E-02	--	3.57E-02	--
Manganese	2.47E+00	1.13E+01	1.00E-03	b	2.40E-02	5.74E-05	2.39E-03	2.62E-04	1.09E-02
Mercury	5.00E-05	6.60E-04	1.00E-03	b	3.00E-04	1.16E-09	3.87E-06	1.53E-08	5.10E-05
Molybdenum	2.64E-03	1.98E-02	1.00E-03	b	5.00E-03	6.13E-08	1.23E-05	4.59E-07	9.19E-05
Nickel	6.99E-02	2.11E-01	2.00E-04	b	2.00E-02	3.24E-07	1.62E-05	9.79E-07	4.90E-05
Potassium	9.93E+01	3.09E+02	2.00E-03	--	--	4.61E-03	--	1.43E-02	--
Selenium	1.75E-03	4.10E-03	1.00E-03	b	5.00E-03	4.06E-08	8.12E-06	9.51E-08	1.90E-05
Sodium	3.32E+03	9.36E+03	1.00E-03	--	--	7.70E-02	--	2.17E-01	--
Thallium	2.09E-03	8.10E-03	1.00E-03	b	6.60E-05	4.85E-08	7.35E-04	1.88E-07	2.85E-03
Vanadium	1.77E-02	1.39E-01	1.00E-03	e	7.00E-03	4.11E-07	5.87E-05	3.23E-06	4.61E-04
Zinc	9.02E-02	3.46E-01	6.00E-04	b	3.00E-01	1.26E-06	4.19E-06	4.82E-06	1.61E-05
4,4'-DDT	3.00E-05	3.00E-05	2.70E-01	b	5.00E-04	1.88E-07	3.76E-04	1.88E-07	3.76E-04
Aldrin	3.00E-05	3.00E-05	1.40E-03	b	3.00E-05	9.74E-10	3.25E-05	9.74E-10	3.25E-05

TABLE K-1-18
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE R AREA DISPOSAL SITE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Alpha-BHC	3.00E-05	7.00E-05	1.10E-02	d	5.00E-04	7.66E-09	1.53E-05	1.79E-08	3.57E-05
Beta-BHC	3.00E-05	3.00E-05	1.10E-02	d	2.00E-04	7.66E-09	3.83E-05	7.66E-09	3.83E-05
Dieldrin	3.00E-05	3.00E-05	1.20E-02	b	5.00E-05	8.35E-09	1.67E-04	8.35E-09	1.67E-04
Endrin	3.00E-05	3.00E-05	1.20E-02	b	3.00E-04	8.35E-09	2.78E-05	8.35E-09	2.78E-05
Gamma-BHC (Lindane)	1.00E-05	1.00E-05	1.10E-02	b	3.00E-04	2.55E-09	8.51E-06	2.55E-09	8.51E-06
Heptachlor	1.00E-05	1.00E-05	8.60E-03	b	5.00E-04	2.00E-09	3.99E-06	2.00E-09	3.99E-06
Heptachlor Epoxide	1.00E-05	4.00E-05	8.60E-03	b	1.30E-05	2.00E-09	1.53E-04	7.98E-09	6.14E-04
						Total	**0.0088**		**0.038**

Notes:

a	RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b	IRIS (online database, EPA 2003)
c	Cal/EPA (2003a)
d	NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e	HEAST (EPA 1997b)
--	Not available or not calculated
CDIc	Chronic daily intake
cm/hr	Centimeter per hour
MAX	Maximum detected concentration
mg/kg-day	Milligram per kilogram per day
mg/L	Milligram per liter
RME	Reasonable maximum exposure

TABLE K-1-19
RISK SUMMARY FOR R AREA DISPOSAL SITE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Receptor	Medium		Cancer Risk[a]	HI[a]	Soil Lead Concentration (mg/kg)
Current Site Configuration					
Resident	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides	3.9E-05	1.5E+00	78
		Nondioxin-like PCBs	1.7E-08	4.4E-03	
		PCBs	8.2E-06	--	
	Surface water		2.5E-07	6.4E-02	
	Total		**4.8E-05**	**0.7 (1.5)**	
Commercial/ Industrial Worker	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides	9.9E-06	1.3E-01	
		Nondioxin-like PCBs	5.0E-09	4.6E-04	
		PCBs	2.0E-06	--	
	Surface water		1.6E-07	8.8E-03	
	Total		**1.2E-05**	**1.4E-01**	
Future Site Configuration					
Resident	Soil (0-6 ft)	Metals, VOCs, SVOCs, Pesticides	4.3E-05	1.5E+00	78
		Nondioxin-like PCBs	1.7E-08	4.4E-03	
		PCBs	8.2E-06	--	
	Surface water		2.5E-07	2.1E-02	
	Total		**5.1E-05**	**0.7 (1.5)**	
Commercial/ Industrial Worker	Soil (0-6 ft)	Metals, VOCs, SVOCs, Pesticides	1.1E-05	1.3E-01	
		Nondioxin-like PCBs	5.0E-09	4.6E-04	
		PCBs	2.0E-06	--	
	Surface water		1.6E-07	8.8E-03	
	Total		**1.3E-05**	**1.4E-01**	

Notes:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI and the value in parenthesis is the total HI.

ft Feet
HI Hazard index
mg/kg Milligrams per kilogram
PCBs Polychlorinated biphphenyls
SVOCs Semi-volatile organic compounds
VOCs Volatile organic compounds

TABLE K-1-20
RISK SUMMARY FOR R AREA DISPOSAL SITE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Receptor	Medium		Cancer Risk[a]	HI[a]	Soil Lead Concentration (mg/kg)
Current Site Configuration					
Resident	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides	1.3E-04	6.0E+00	78
		Nondioxin-like PCBs	8.0E-08	2.2E-02	
		PCBs	9.5E-05	--	
	Surface water		6.7E-07	9.0E-02	
	Total		**2.3E-04**	**3.6 (6.1)**	
Commercial/ Industrial Worker	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides	3.3E-05	5.1E-01	
		Nondioxin-like PCBs	2.4E-08	2.4E-03	
		PCBs	2.3E-05	--	
	Surface water		4.4E-07	3.8E-02	
	Total		**5.7E-05**	**5.5E-01**	
Future Site Configuration					
Resident	Soil (0-6 ft)	Metals, VOCs, SVOCs, Pesticides	1.6E-04	8.5E+00	78
		Nondioxin-like PCBs	8.0E-08	2.2E-02	
		PCBs	9.5E-05	--	
	Surface water		6.7E-07	9.0E-02	
	Total		**2.5E-04**	**4.0 (8.7)**	
Commercial/ Industrial Worker	Soil (0-6 ft)	Metals, VOCs, SVOCs, Pesticides	3.3E-05	5.1E-01	
		Nondioxin-like PCBs	2.4E-08	2.4E-03	
		PCBs	2.3E-05	--	
	Surface water		4.4E-07	3.8E-02	
	Total		**5.7E-05**	**5.5E-01**	

Notes:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI and the value in parenthesis is the total HI.

ft Feet
HI Hazard index
mg/kg Milligrams per kilogram
PCBs Polychlorinated biphphenyls
SVOCs Semi-volatile organic compounds
VOCs Volatile organic compounds

TABLE K-2-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT FROID AND TAYLOR ROADS
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Barium	1.83E+02	--	3.40E-02	--	2.75E-03
Cadmium	1.90E+00	1.35E-09	5.13E-02	6.36E-10	4.21E-03
Copper	6.29E+01	--	2.01E-02	--	1.54E-03
Lead	3.25E+02	--	--	--	--
Mercury	2.88E-01	--	1.23E-02	--	9.39E-04
Silver	4.47E-01	--	1.14E-03	--	8.75E-05
Zinc	2.24E+02	--	9.56E-03	--	7.32E-04
Semivolatile Organic Compounds					
1,1'-Biphenyl	9.00E-03	--	2.99E-06	--	3.86E-07
1-Methylnaphthalene	3.00E-02	--	5.37E-04	--	1.60E-04
2,4-Dimethylphenol	1.20E-02	--	9.82E-06	--	9.75E-07
2,6-Dimethylnaphthalene	4.10E-02	--	7.33E-04	--	2.18E-04
2-Methylnaphthalene	4.60E-02	--	8.23E-04	--	2.45E-04
4-Methylphenol	2.27E-01	--	7.43E-04	--	7.37E-05
Acenaphthylene	2.90E-02	--	7.88E-06	--	9.92E-07
Anthracene	3.70E-02	--	1.69E-06	--	1.55E-07
Benzo(a)anthracene	9.10E-02	1.46E-07	4.16E-06	4.31E-08	3.82E-07
Benzo(a)pyrene	1.30E-01	2.09E-06	5.61E-05	6.16E-07	4.46E-06
Benzo(b)fluoranthene	2.40E-01	3.86E-07	1.05E-04	1.14E-07	1.09E-05
Benzo(e)pyrene	1.98E-01	--	8.56E-05	--	6.81E-06
Benzo(g,h,i)perylene	2.10E-01	--	9.07E-05	--	7.21E-06
Benzo(k)fluoranthene	1.20E-01	3.17E-07	5.23E-05	9.35E-08	5.45E-06
Benzoic Acid	3.15E-01	--	1.29E-06	--	1.28E-07
Bis(2-ethylhexyl)phthalate	6.78E-01	1.95E-08	5.55E-04	5.51E-09	5.51E-05
Carbazole	2.40E-02	9.87E-10	--	2.78E-10	--
Chrysene	2.40E-01	6.35E-08	--	1.87E-08	--
Dibenzofuran	7.00E-03	--	2.41E-05	--	2.24E-06
Fluoranthene	1.90E-01	--	8.28E-05	--	8.64E-06
Fluorene	6.00E-03	--	2.18E-06	--	2.28E-07
Indeno(1,2,3-cd)pyrene	1.40E-01	2.25E-07	6.05E-05	6.64E-08	4.81E-06
Naphthalene	1.40E-02	--	2.50E-04	--	7.46E-05
Phenanthrene	4.90E-02	--	2.24E-06	--	2.06E-07

TABLE K-2-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT FROID AND TAYLOR ROADS
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Pyrene	2.00E-01	--	8.64E-05	--	6.87E-06
Pesticides					
2,4'-DDD	4.04E-03	1.66E-09	--	4.06E-10	--
2,4'-DDE	5.00E-04	2.91E-10	--	7.12E-11	--
2,4'-DDT	1.04E-03	6.05E-10	2.88E-05	1.48E-10	2.44E-06
4,4'-DDD	7.62E-03	3.13E-09	--	7.66E-10	--
4,4'-DDE	1.50E-02	8.72E-09	--	2.14E-09	--
4,4'-DDT	4.14E-03	2.41E-09	1.15E-04	5.89E-10	9.71E-06
Aldrin	2.00E-04	6.99E-09	1.09E-04	1.97E-09	1.08E-05
Alpha-BHC	7.00E-04	7.76E-09	1.99E-05	1.95E-09	1.73E-06
Alpha-chlordane	1.10E-02	6.75E-09	3.12E-04	1.69E-09	2.71E-05
Dieldrin	3.50E-04	1.15E-08	1.15E-04	3.25E-09	1.14E-05
Gamma-BHC (Lindane)	2.00E-04	4.57E-10	9.48E-06	1.15E-10	8.25E-07
Gamma-chlordane	1.20E-02	7.39E-09	3.41E-04	1.86E-09	2.97E-05
Hexachlorobenzene	3.00E-04	9.87E-10	6.14E-06	2.78E-10	6.09E-07
Technical Chlordane	1.90E-01	1.17E-07	5.40E-03	2.94E-08	4.70E-04
Trans-nonachlor	4.00E-03	2.46E-09	1.14E-04	6.18E-10	9.90E-06
	Total	**3.43E-06**	**0.14**	**1.00E-06**	**0.01**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-2-2 and K-2-3.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

TABLE K-2-2
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT FROID AND TAYLOR ROADS
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	2.00E-04	9.01E-10	1.78E-04	2.69E-10	1.88E-05
PCB-105 (2,3,3',4,4')	1.90E-04	*	1.69E-04	*	1.79E-05
PCB-118 (2,3',4,4',5)	2.80E-04	*	2.49E-04	*	2.64E-05
PCB-126 (3,3',4,4',5)	1.00E-04	*	8.90E-05	*	9.41E-06
PCB-128 (2,2',3,3',4,4')	5.80E-04	2.61E-09	5.16E-04	7.80E-10	5.46E-05
PCB-138 (2,2',3,4,4',5')	1.13E-03	5.09E-09	1.01E-03	1.52E-09	1.06E-04
PCB-153 (2,2',4,4',5,5')	4.70E-04	2.12E-09	4.18E-04	6.32E-10	4.42E-05
PCB-180 (2,2',3,4,4',5,5')	2.30E-04	1.04E-09	2.05E-04	3.09E-10	2.17E-05
PCB-187 (2,2',3,4',5,5',6)	2.10E-04	9.47E-10	1.87E-04	2.82E-10	1.98E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	9.00E-04	4.06E-09	8.01E-04	1.21E-09	8.47E-05
PCB-209 (2,2',3,3',4,4',5,5',6)	3.10E-04	1.40E-09	2.76E-04	4.17E-10	2.92E-05
PCB-77 (3,3',4,4')	1.80E-04	*	1.60E-04	*	1.69E-05
	Total	**1.82E-08**	**0.0043**	**5.42E-09**	**0.0004**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-2-3).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-2-3
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT THE R AREA DISPOSAL SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	2.00E-04	--	--	--	--	--
PCB-105 (2,3,3',4,4')	1.90E-04	0.0001	4.87E-09	--	1.19E-09	--
PCB-118 (2,3',4,4',5)	2.80E-04	0.0001	7.18E-09	--	1.76E-09	--
PCB-126 (3,3',4,4',5)	1.00E-04	0.1	2.57E-06	--	6.28E-07	--
PCB-128 (2,2',3,3',4,4')	5.80E-04	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	1.13E-03	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	4.70E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	2.30E-04	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	2.10E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	9.00E-04	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	3.10E-04	--	--	--	--	--
PCB-77 (3,3',4,4')	1.80E-04	0.0001	4.62E-09	--	1.13E-09	--
		Total	**2.58E-06**	**--**	**6.32E-07**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-2-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT FROID AND TAYLOR ROADS
0 TO 3 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Cadmium	1.07E+00	7.65E-10	2.90E-02	3.60E-10	2.38E-03
Lead	2.32E+02	--	--	--	--
Mercury	2.51E-01	--	1.07E-02	--	8.19E-04
Silver	3.03E-01	--	7.74E-04	--	5.93E-05
Zinc	1.64E+02	--	6.97E-03	--	5.34E-04
Volatile Organic Compounds					
4-Methyl-2-pentanone	2.70E-02	--	3.43E-05	--	9.52E-06
Semivolatile Organic Compounds					
1,1'-Biphenyl	9.00E-03	--	2.99E-06	--	3.86E-07
1-Methylnaphthalene	3.00E-02	--	5.37E-04	--	1.60E-04
2,4-Dimethylphenol	1.20E-02	--	9.82E-06	--	9.75E-07
2,6-Dimethylnaphthalene	4.10E-02	--	7.33E-04	--	2.18E-04
2-Methylnaphthalene	4.60E-02	--	8.23E-04	--	2.45E-04
4-Methylphenol	3.00E-01	--	9.82E-04	--	9.75E-05
Acenaphthylene	2.90E-02	--	7.88E-06	--	9.92E-07
Anthracene	3.70E-02	--	1.69E-06	--	1.55E-07
Benzo(a)anthracene	9.10E-02	1.46E-07	4.16E-06	4.31E-08	3.82E-07
Benzo(a)pyrene	1.30E-01	2.09E-06	5.61E-05	6.16E-07	4.46E-06
Benzo(b)fluoranthene	2.40E-01	3.86E-07	1.05E-04	1.14E-07	1.09E-05
Benzo(e)pyrene	1.98E-01	--	8.56E-05	--	6.81E-06
Benzo(g,h,i)perylene	2.10E-01	--	9.07E-05	--	7.21E-06
Benzo(k)fluoranthene	1.20E-01	3.17E-07	5.23E-05	9.35E-08	5.45E-06
Benzoic Acid	3.15E-01	--	1.29E-06	--	1.28E-07
Bis(2-ethylhexyl)phthalate	5.76E-01	1.66E-08	4.71E-04	4.67E-09	4.67E-05
Carbazole	2.40E-02	9.87E-10	--	2.78E-10	--
Chrysene	2.40E-01	6.35E-08	--	1.87E-08	--
Dibenzofuran	7.00E-03	--	2.41E-05	--	2.24E-06
Fluoranthene	1.90E-01	--	8.28E-05	--	8.64E-06
Fluorene	6.00E-03	--	2.18E-06	--	2.28E-07
Indeno(1,2,3-cd)pyrene	1.40E-01	2.25E-07	6.05E-05	6.64E-08	4.81E-06
Naphthalene	1.40E-02	--	2.50E-04	--	7.46E-05
Phenanthrene	4.90E-02	--	2.24E-06	--	2.06E-07
Phenol	4.30E-01	--	1.17E-05	--	1.16E-06

TABLE K-2-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT FROID AND TAYLOR ROADS
0 TO 3 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Pyrene	2.00E-01	--	8.64E-05	--	6.87E-06
Pesticides					
2,4'-DDD	4.04E-03	1.66E-09	--	4.06E-10	--
2,4'-DDE	5.00E-04	2.91E-10	--	7.12E-11	--
2,4'-DDT	1.04E-03	6.05E-10	2.88E-05	1.48E-10	2.44E-06
4,4'-DDD	8.05E-03	3.30E-09	--	8.09E-10	--
4,4'-DDE	4.66E-03	2.71E-09	--	6.63E-10	--
4,4'-DDT	5.17E-03	3.01E-09	1.43E-04	7.36E-10	1.21E-05
Aldrin	4.00E-04	1.40E-08	2.18E-04	3.95E-09	2.17E-05
Alpha-BHC	7.00E-04	7.76E-09	1.99E-05	1.95E-09	1.73E-06
Alpha-chlordane	1.20E-02	7.37E-09	3.40E-04	1.85E-09	2.96E-05
Dieldrin	8.00E-04	2.63E-08	2.62E-04	7.43E-09	2.60E-05
Gamma-BHC (Lindane)	4.00E-04	9.15E-10	1.90E-05	2.30E-10	1.65E-06
Gamma-chlordane	1.45E-02	8.94E-09	4.13E-04	2.25E-09	3.59E-05
Hexachlorobenzene	3.00E-04	9.87E-10	6.14E-06	2.78E-10	6.09E-07
Technical Chlordane	1.90E-01	1.17E-07	5.40E-03	2.94E-08	4.70E-04
Trans-nonachlor	4.00E-03	2.46E-09	1.14E-04	6.18E-10	9.90E-06
	Total	**3.45E-06**	**0.059**	**1.01E-06**	**0.005**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-2-5 and K-2-6.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

TABLE K-2-5
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT FROID AND TAYLOR ROADS
0 TO 3 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	2.00E-04	9.01E-10	1.78E-04	2.69E-10	1.88E-05
PCB-105 (2,3,3',4,4')	1.90E-04	*	1.69E-04	*	1.79E-05
PCB-118 (2,3',4,4',5)	2.80E-04	*	2.49E-04	*	2.64E-05
PCB-126 (3,3',4,4',5)	1.00E-04	*	8.90E-05	*	9.41E-06
PCB-128 (2,2',3,3',4,4')	5.80E-04	2.61E-09	5.16E-04	7.80E-10	5.46E-05
PCB-138 (2,2',3,4,4',5')	1.13E-03	5.09E-09	1.01E-03	1.52E-09	1.06E-04
PCB-153 (2,2',4,4',5,5')	4.70E-04	2.12E-09	4.18E-04	6.32E-10	4.42E-05
PCB-180 (2,2',3,4,4',5,5')	2.30E-04	1.04E-09	2.05E-04	3.09E-10	2.17E-05
PCB-187 (2,2',3,4',5,5',6)	2.10E-04	9.47E-10	1.87E-04	2.82E-10	1.98E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	9.00E-04	4.06E-09	8.01E-04	1.21E-09	8.47E-05
PCB-209 (2,2',3,3',4,4',5,5',6)	3.10E-04	1.40E-09	2.76E-04	4.17E-10	2.92E-05
PCB-77 (3,3',4,4')	1.80E-04	*	1.60E-04	*	1.69E-05
	Total	**1.82E-08**	**0.0043**	**5.42E-09**	**0.0004**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-2-6).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-2-6
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT FROID AND TAYLOR ROADS
0 TO 3 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	2.00E-04	--	--	--	--	--
PCB-105 (2,3,3',4,4')	1.90E-04	0.0001	4.87E-09	--	1.19E-09	--
PCB-118 (2,3',4,4',5)	2.80E-04	0.0001	7.18E-09	--	1.76E-09	--
PCB-126 (3,3',4,4',5)	1.00E-04	0.1	2.57E-06	--	6.28E-07	--
PCB-128 (2,2',3,3',4,4')	5.80E-04	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	1.13E-03	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	4.70E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	2.30E-04	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	2.10E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	9.00E-04	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	3.10E-04	--	--	--	--	--
PCB-77 (3,3',4,4')	1.80E-04	0.0001	4.62E-09	--	1.13E-09	--
		Total	**2.58E-06**	**--**	**6.32E-07**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-2-7
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT FROID AND TAYLOR ROADS
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Barium	2.34E+02	--	4.35E-02	--	3.51E-03
Cadmium	1.90E+00	1.35E-09	5.13E-02	6.36E-10	4.21E-03
Copper	9.20E+01	--	2.94E-02	--	2.25E-03
Lead	5.15E+02	--	--	--	--
Mercury	4.90E-01	--	2.09E-02	--	1.60E-03
Silver	6.30E-01	--	1.61E-03	--	1.23E-04
Zinc	4.36E+02	--	1.86E-02	--	1.42E-03
Semivolatile Organic Compounds					
1,1'-Biphenyl	9.00E-03	--	2.99E-06	--	3.86E-07
1-Methylnaphthalene	3.00E-02	--	5.37E-04	--	1.60E-04
2,4-Dimethylphenol	1.20E-02	--	9.82E-06	--	9.75E-07
2,6-Dimethylnaphthalene	4.10E-02	--	7.33E-04	--	2.18E-04
2-Methylnaphthalene	4.60E-02	--	8.23E-04	--	2.45E-04
4-Methylphenol	3.00E-01	--	9.82E-04	--	9.75E-05
Acenaphthylene	2.90E-02	--	7.88E-06	--	9.92E-07
Anthracene	3.70E-02	--	1.69E-06	--	1.55E-07
Benzo(a)anthracene	9.10E-02	1.46E-07	4.16E-06	4.31E-08	3.82E-07
Benzo(a)pyrene	1.30E-01	2.09E-06	5.61E-05	6.16E-07	4.46E-06
Benzo(b)fluoranthene	2.40E-01	3.86E-07	1.05E-04	1.14E-07	1.09E-05
Benzo(e)pyrene	2.80E-01	--	1.21E-04	--	9.61E-06
Benzo(g,h,i)perylene	2.10E-01	--	9.07E-05	--	7.21E-06
Benzo(k)fluoranthene	1.20E-01	3.17E-07	5.23E-05	9.35E-08	5.45E-06
Benzoic Acid	5.30E-01	--	2.17E-06	--	2.15E-07
Bis(2-ethylhexyl)phthalate	2.50E+00	7.20E-08	2.05E-03	2.03E-08	2.03E-04
Carbazole	2.40E-02	9.87E-10	--	2.78E-10	--
Chrysene	2.40E-01	6.35E-08	--	1.87E-08	--
Dibenzofuran	7.00E-03	--	2.41E-05	--	2.24E-06
Fluoranthene	1.90E-01	--	8.28E-05	--	8.64E-06
Fluorene	6.00E-03	--	2.18E-06	--	2.28E-07
Indeno(1,2,3-cd)pyrene	1.40E-01	2.25E-07	6.05E-05	6.64E-08	4.81E-06
Naphthalene	1.40E-02	--	2.50E-04	--	7.46E-05
Phenanthrene	4.90E-02	--	2.24E-06	--	2.06E-07

TABLE K-2-7
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT FROID AND TAYLOR ROADS
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Pyrene	2.00E-01	--	8.64E-05	--	6.87E-06
Pesticides					
2,4'-DDD	7.00E-03	2.87E-09	--	7.03E-10	--
2,4'-DDE	6.00E-04	3.49E-10	--	8.54E-11	--
2,4'-DDT	3.00E-03	1.74E-09	8.32E-05	4.27E-10	7.03E-06
4,4'-DDD	1.40E-02	5.75E-09	--	1.41E-09	--
4,4'-DDE	1.50E-02	8.72E-09	--	2.14E-09	--
4,4'-DDT	1.90E-02	1.10E-08	5.27E-04	2.70E-09	4.45E-05
Aldrin	4.00E-04	1.40E-08	2.18E-04	3.95E-09	2.17E-05
Alpha-BHC	7.00E-04	7.76E-09	1.99E-05	1.95E-09	1.73E-06
Alpha-chlordane	1.10E-02	6.77E-09	3.13E-04	1.70E-09	2.72E-05
Dieldrin	8.00E-04	2.63E-08	2.62E-04	7.43E-09	2.60E-05
Gamma-BHC (Lindane)	4.00E-04	9.15E-10	1.90E-05	2.30E-10	1.65E-06
Gamma-chlordane	1.20E-02	7.39E-09	3.41E-04	1.86E-09	2.97E-05
Hexachlorobenzene	5.00E-04	1.64E-09	1.02E-05	4.64E-10	1.02E-06
Technical Chlordane	1.90E-01	1.17E-07	5.40E-03	2.94E-08	4.70E-04
Trans-nonachlor	4.00E-03	2.46E-09	1.14E-04	6.18E-10	9.90E-06
	Total	**3.52E-06**	**1.79E-01**	**1.03E-06**	**1.48E-02**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-2-8 and K-2-9.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

TABLE K-2-8
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT FROID AND TAYLOR ROADS
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	4.00E-04	1.80E-09	3.56E-04	5.38E-10	3.77E-05
PCB-105 (2,3,3',4,4')	3.00E-04	*	2.67E-04	*	2.82E-05
PCB-118 (2,3',4,4',5)	7.00E-04	*	6.23E-04	*	6.59E-05
PCB-126 (3,3',4,4',5)	1.00E-04	*	8.90E-05	*	9.41E-06
PCB-128 (2,2',3,3',4,4')	2.00E-03	9.01E-09	1.78E-03	2.69E-09	1.88E-04
PCB-138 (2,2',3,4,4',5')	2.00E-03	9.01E-09	1.78E-03	2.69E-09	1.88E-04
PCB-153 (2,2',4,4',5,5')	9.00E-04	4.06E-09	8.01E-04	1.21E-09	8.47E-05
PCB-180 (2,2',3,4,4',5,5')	4.00E-04	1.80E-09	3.56E-04	5.38E-10	3.77E-05
PCB-187 (2,2',3,4',5,5',6)	4.00E-04	1.80E-09	3.56E-04	5.38E-10	3.77E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	2.00E-03	9.01E-09	1.78E-03	2.69E-09	1.88E-04
PCB-209 (2,2',3,3',4,4',5,5',6)	8.00E-04	3.61E-09	7.12E-04	1.08E-09	7.53E-05
PCB-77 (3,3',4,4')	3.00E-04	*	2.67E-04	*	2.82E-05
	Total	**4.01E-08**	**0.0092**	**1.20E-08**	**0.00097**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-2-9).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-2-9
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT FROID AND TAYLOR ROADS
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	4.00E-04	--	--	--	--	--
PCB-105 (2,3,3',4,4')	3.00E-04	0.0001	7.70E-09	--	1.88E-09	--
PCB-118 (2,3',4,4',5)	7.00E-04	0.0001	1.80E-08	--	4.40E-09	--
PCB-126 (3,3',4,4',5)	1.00E-04	0.1	2.57E-06	--	6.28E-07	--
PCB-128 (2,2',3,3',4,4')	2.00E-03	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	2.00E-03	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	9.00E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	4.00E-04	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	4.00E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	2.00E-03	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	8.00E-04	--	--	--	--	--
PCB-77 (3,3',4,4')	3.00E-04	0.0001	7.70E-09	--	1.88E-09	--
		Total	**2.60E-06**	**--**	**6.36E-07**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-2-10
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT FROID AND TAYLOR ROADS
0 TO 3 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Cadmium	1.90E+00	1.35E-09	5.13E-02	6.36E-10	4.21E-03
Lead	5.15E+02	--	--	--	--
Mercury	4.90E-01	--	2.09E-02	--	1.60E-03
Silver	6.30E-01	--	1.61E-03	--	1.23E-04
Zinc	4.36E+02	--	1.86E-02	--	1.42E-03
Volatile Organic Compounds					
4-Methyl-2-pentanone	2.70E-02	--	3.43E-05	--	9.52E-06
Semivolatile Organic Compounds					
1,1'-Biphenyl	9.00E-03	--	2.99E-06	--	3.86E-07
1-Methylnaphthalene	3.00E-02	--	5.37E-04	--	1.60E-04
2,4-Dimethylphenol	1.20E-02	--	9.82E-06	--	9.75E-07
2,6-Dimethylnaphthalene	4.10E-02	--	7.33E-04	--	2.18E-04
2-Methylnaphthalene	4.60E-02	--	8.23E-04	--	2.45E-04
4-Methylphenol	3.00E-01	--	9.82E-04	--	9.75E-05
Acenaphthylene	2.90E-02	--	7.88E-06	--	9.92E-07
Anthracene	3.70E-02	--	1.69E-06	--	1.55E-07
Benzo(a)anthracene	9.10E-02	1.46E-07	4.16E-06	4.31E-08	3.82E-07
Benzo(a)pyrene	1.30E-01	2.09E-06	5.61E-05	6.16E-07	4.46E-06
Benzo(b)fluoranthene	2.40E-01	3.86E-07	1.05E-04	1.14E-07	1.09E-05
Benzo(e)pyrene	2.80E-01	--	1.21E-04	--	9.61E-06
Benzo(g,h,i)perylene	2.10E-01	--	9.07E-05	--	7.21E-06
Benzo(k)fluoranthene	1.20E-01	3.17E-07	5.23E-05	9.35E-08	5.45E-06
Benzoic Acid	5.30E-01	--	2.17E-06	--	2.15E-07
Bis(2-ethylhexyl)phthalate	2.50E+00	7.20E-08	2.05E-03	2.03E-08	2.03E-04
Carbazole	2.40E-02	9.87E-10	--	2.78E-10	--
Chrysene	2.40E-01	6.35E-08	--	1.87E-08	--
Dibenzofuran	7.00E-03	--	2.41E-05	--	2.24E-06
Fluoranthene	1.90E-01	--	8.28E-05	--	8.64E-06
Fluorene	6.00E-03	--	2.18E-06	--	2.28E-07
Indeno(1,2,3-cd)pyrene	1.40E-01	2.25E-07	6.05E-05	6.64E-08	4.81E-06
Naphthalene	1.40E-02	--	2.50E-04	--	7.46E-05
Phenanthrene	4.90E-02	--	2.24E-06	--	2.06E-07

TABLE K-2-10
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT FROID AND TAYLOR ROADS
0 TO 3 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Phenol	5.00E-01	--	1.36E-05	--	1.35E-06
Pyrene	2.00E-01	--	8.64E-05	--	6.87E-06
Pesticides					
2,4'-DDD	7.00E-03	2.87E-09	--	7.03E-10	--
2,4'-DDE	6.00E-04	3.49E-10	--	8.54E-11	--
2,4'-DDT	3.00E-03	1.74E-09	8.32E-05	4.27E-10	7.03E-06
4,4'-DDD	1.40E-02	5.75E-09	--	1.41E-09	--
4,4'-DDE	1.50E-02	8.72E-09	--	2.14E-09	--
4,4'-DDT	1.90E-02	1.10E-08	5.27E-04	2.70E-09	4.45E-05
Aldrin	4.00E-04	1.40E-08	2.18E-04	3.95E-09	2.17E-05
Alpha-BHC	7.00E-04	7.76E-09	1.99E-05	1.95E-09	1.73E-06
Alpha-chlordane	3.50E-02	2.16E-08	9.95E-04	5.41E-09	8.66E-05
Dieldrin	8.00E-04	2.63E-08	2.62E-04	7.43E-09	2.60E-05
Gamma-BHC (Lindane)	4.00E-04	9.15E-10	1.90E-05	2.30E-10	1.65E-06
Gamma-chlordane	2.50E-02	1.54E-08	7.11E-04	3.87E-09	6.19E-05
Hexachlorobenzene	5.00E-04	1.64E-09	1.02E-05	4.64E-10	1.02E-06
Technical Chlordane	1.90E-01	1.17E-07	5.40E-03	2.94E-08	4.70E-04
Trans-nonachlor	4.00E-03	2.46E-09	1.14E-04	6.18E-10	9.90E-06
	Total	**3.54E-06**	**0.11**	**1.03E-06**	**0.0092**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-2-11 and K-2-12.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

TABLE K-2-11
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT FROID AND TAYLOR ROADS
0 TO 3 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	4.00E-04	1.80E-09	3.56E-04	5.38E-10	3.77E-05
PCB-105 (2,3,3',4,4')	3.00E-04	*	2.67E-04	*	2.82E-05
PCB-118 (2,3',4,4',5)	7.00E-04	*	6.23E-04	*	6.59E-05
PCB-126 (3,3',4,4',5)	1.00E-04	*	8.90E-05	*	9.41E-06
PCB-128 (2,2',3,3',4,4')	2.00E-03	9.01E-09	1.78E-03	2.69E-09	1.88E-04
PCB-138 (2,2',3,4,4',5')	2.00E-03	9.01E-09	1.78E-03	2.69E-09	1.88E-04
PCB-153 (2,2',4,4',5,5')	9.00E-04	4.06E-09	8.01E-04	1.21E-09	8.47E-05
PCB-180 (2,2',3,4,4',5,5')	4.00E-04	1.80E-09	3.56E-04	5.38E-10	3.77E-05
PCB-187 (2,2',3,4',5,5',6)	4.00E-04	1.80E-09	3.56E-04	5.38E-10	3.77E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	2.00E-03	9.01E-09	1.78E-03	2.69E-09	1.88E-04
PCB-209 (2,2',3,3',4,4',5,5',6)	8.00E-04	3.61E-09	7.12E-04	1.08E-09	7.53E-05
PCB-77 (3,3',4,4')	3.00E-04	*	2.67E-04	*	2.82E-05
	Total	**4.01E-08**	**0.0092**	**1.20E-08**	**0.00097**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-2-12).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-2-12
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT FROID AND TAYLOR ROADS
0 TO 3 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	4.00E-04	--	--	--	--	--
PCB-105 (2,3,3',4,4')	3.00E-04	0.0001	7.70E-09	--	1.88E-09	--
PCB-118 (2,3',4,4',5)	7.00E-04	0.0001	1.80E-08	--	4.40E-09	--
PCB-126 (3,3',4,4',5)	1.00E-04	0.1	2.57E-06	--	6.28E-07	--
PCB-128 (2,2',3,3',4,4')	2.00E-03	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	2.00E-03	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	9.00E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	4.00E-04	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	4.00E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	2.00E-03	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	8.00E-04	--	--	--	--	--
PCB-77 (3,3',4,4')	3.00E-04	0.0001	7.70E-09	--	1.88E-09	--
		Total	**2.60E-06**	**--**	**6.36E-07**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-2-13
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	1.61E+00	1.61E+00	1.00E-03	b	--	7.60E-06	--	7.60E-06	--
Antimony	3.84E-03	9.90E-03	1.00E-03	b	--	1.81E-08	--	4.67E-08	--
Arsenic	2.75E-01	2.75E-01	1.00E-03	c	1.50E+00	1.30E-06	1.95E-06	1.30E-06	1.95E-06
Barium	4.26E-01	8.09E-01	1.00E-03	b	--	2.01E-06	--	3.82E-06	--
Cadmium	4.10E-04	1.10E-03	1.00E-03	c	3.80E-01	1.94E-09	7.36E-10	5.19E-09	1.97E-09
Calcium	2.55E+02	1.95E+03	1.00E-03	--	--	1.20E-03	--	9.21E-03	--
Chromium	2.94E-03	6.90E-03	1.00E-03	b	--	1.39E-08	--	3.26E-08	--
Cobalt	3.35E-03	5.10E-03	4.00E-04	b	--	6.33E-09	--	9.63E-09	--
Copper	1.01E-02	1.34E-02	1.00E-03	b	--	4.79E-08	--	6.33E-08	--
Iron	8.48E+00	8.48E+00	1.00E-03	b	--	4.00E-05	--	4.00E-05	--
Lead	2.01E-03	4.00E-03	1.00E-04	--	--	9.49E-10	--	1.89E-09	--
Magnesium	4.21E+03	5.28E+03	1.00E-03	--	--	1.99E-02	--	2.49E-02	--
Manganese	3.03E+00	4.48E+00	1.00E-03	b	--	1.43E-05	--	2.12E-05	--
Mercury	1.10E-04	1.70E-04	1.00E-03	b	--	5.19E-10	--	8.03E-10	--
Molybdenum	2.69E-03	4.60E-03	1.00E-03	b	--	1.27E-08	--	2.17E-08	--
Nickel	2.37E-02	4.47E-02	2.00E-04	b	--	2.24E-08	--	4.22E-08	--
Potassium	3.12E+02	5.52E+02	2.00E-03	--	--	2.94E-03	--	5.21E-03	--
Selenium	2.00E-03	2.40E-03	1.00E-03	b	--	9.44E-09	--	1.13E-08	--
Silver	3.00E-04	3.00E-04	6.00E-04	b	--	8.50E-10	--	8.50E-10	--
Sodium	1.86E+04	2.83E+04	1.00E-03	--	--	8.76E-02	--	1.34E-01	--
Thallium	3.47E-03	8.40E-03	1.00E-03	b	--	1.64E-08	--	3.97E-08	--
Vanadium	2.98E-02	2.98E-02	1.00E-03	b	--	1.41E-07	--	1.41E-07	--

TABLE K-2-13
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Zinc	3.99E-02	9.52E-02	6.00E-04	b	--	1.13E-07	--	2.70E-07	--
Carbon Disulfide	1.25E-02	2.00E-02	1.70E-02	b	--	1.01E-06	--	1.61E-06	--
4-Methylphenol	3.00E-03	3.00E-03	7.70E-03	b	--	1.09E-07	--	1.09E-07	--
Chrysene	6.00E-04	6.00E-04	4.70E-01	c	1.20E-01	1.33E-06	1.60E-07	1.33E-06	1.60E-07
Phenol	9.00E-04	9.00E-04	4.30E-03	b	--	1.83E-08	--	1.83E-08	--
						Total	**2.11E-06**		**2.11E-06**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-2-14
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	1.61E+00	1.61E+00	1.00E-03	d	1.00E+00	8.87E-05	8.87E-05	8.87E-05	8.87E-05
Antimony	3.84E-03	9.90E-03	1.00E-03	b	4.00E-04	2.12E-07	5.29E-04	5.45E-07	1.36E-03
Arsenic	2.75E-01	2.75E-01	1.00E-03	b	3.00E-04	1.51E-05	5.05E-02	1.51E-05	5.05E-02
Barium	4.26E-01	8.09E-01	1.00E-03	b	7.00E-02	2.35E-05	3.35E-04	4.46E-05	6.37E-04
Cadmium	4.10E-04	1.10E-03	1.00E-03	b	5.00E-04	2.26E-08	4.52E-05	6.06E-08	1.21E-04
Calcium	2.55E+02	1.95E+03	1.00E-03	--	--	1.41E-02	--	1.07E-01	--
Chromium	2.94E-03	6.90E-03	1.00E-03	b	1.50E+00	1.62E-07	1.08E-07	3.80E-07	2.53E-07
Cobalt	3.35E-03	5.10E-03	4.00E-04	d	2.00E-02	7.38E-08	3.69E-06	1.12E-07	5.62E-06
Copper	1.01E-02	1.34E-02	1.00E-03	e	4.00E-02	5.59E-07	1.40E-05	7.38E-07	1.85E-05
Iron	8.48E+00	8.48E+00	1.00E-03	d	3.00E-01	4.67E-04	1.56E-03	4.67E-04	1.56E-03
Lead	2.01E-03	4.00E-03	1.00E-04	c	8.50E-03	1.11E-08	1.30E-06	2.20E-08	2.59E-06
Magnesium	4.21E+03	5.28E+03	1.00E-03	--	--	2.32E-01	--	2.91E-01	--
Manganese	3.03E+00	4.48E+00	1.00E-03	b	2.40E-02	1.67E-04	6.95E-03	2.47E-04	1.03E-02
Mercury	1.10E-04	1.70E-04	1.00E-03	b	3.00E-04	6.06E-09	2.02E-05	9.36E-09	3.12E-05
Molybdenum	2.69E-03	4.60E-03	1.00E-03	b	5.00E-03	1.48E-07	2.96E-05	2.53E-07	5.07E-05
Nickel	2.37E-02	4.47E-02	2.00E-04	b	2.00E-02	2.61E-07	1.30E-05	4.92E-07	2.46E-05
Potassium	3.12E+02	5.52E+02	2.00E-03	--	--	3.43E-02	--	6.08E-02	--
Selenium	2.00E-03	2.40E-03	1.00E-03	b	5.00E-03	1.10E-07	2.20E-05	1.32E-07	2.64E-05
Silver	3.00E-04	3.00E-04	6.00E-04	b	5.00E-03	9.92E-09	1.98E-06	9.92E-09	1.98E-06
Sodium	1.86E+04	2.83E+04	1.00E-03	--	--	1.02E+00	--	1.56E+00	--
Thallium	3.47E-03	8.40E-03	1.00E-03	b	6.60E-05	1.91E-07	2.90E-03	4.63E-07	7.01E-03
Vanadium	2.98E-02	2.98E-02	1.00E-03	e	7.00E-03	1.64E-06	2.35E-04	1.64E-06	2.35E-04

TABLE K-2-14
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Zinc	3.99E-02	9.52E-02	6.00E-04	b	3.00E-01	1.32E-06	4.39E-06	3.15E-06	1.05E-05
Carbon Disulfide	1.25E-02	2.00E-02	1.70E-02	b	1.00E-01	1.17E-05	1.17E-04	1.87E-05	1.87E-04
4-Methylphenol	3.00E-03	3.00E-03	7.70E-03	e	5.00E-03	1.27E-06	2.55E-04	1.27E-06	2.55E-04
Chrysene	6.00E-04	6.00E-04	4.70E-01	b	3.00E-01	1.55E-05	5.18E-05	1.55E-05	5.18E-05
Phenol	9.00E-04	9.00E-04	4.30E-03	b	6.00E-01	2.13E-07	3.55E-07	2.13E-07	3.55E-07
						Total	**0.064**		**0.072**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-2-15
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	1.61E+00	1.61E+00	1.00E-03	b	--	1.28E-05	--	1.28E-05	--
Antimony	3.84E-03	9.90E-03	1.00E-03	b	--	3.05E-08	--	7.88E-08	--
Arsenic	2.75E-01	2.75E-01	1.00E-03	c	1.50E+00	2.19E-06	3.28E-06	2.19E-06	3.28E-06
Barium	4.26E-01	8.09E-01	1.00E-03	b	--	3.39E-06	--	6.44E-06	--
Cadmium	4.10E-04	1.10E-03	1.00E-03	c	3.80E-01	3.26E-09	1.24E-09	8.75E-09	3.33E-09
Calcium	2.55E+02	1.95E+03	1.00E-03	--	--	2.03E-03	--	1.55E-02	--
Chromium	2.94E-03	6.90E-03	1.00E-03	b	--	2.34E-08	--	5.49E-08	--
Cobalt	3.35E-03	5.10E-03	4.00E-04	b	--	1.07E-08	--	1.62E-08	--
Copper	1.01E-02	1.34E-02	1.00E-03	b	--	8.07E-08	--	1.07E-07	--
Iron	8.48E+00	8.48E+00	1.00E-03	b	--	6.75E-05	--	6.75E-05	--
Lead	2.01E-03	4.00E-03	1.00E-04	--	--	1.60E-09	--	3.18E-09	--
Magnesium	4.21E+03	5.28E+03	1.00E-03	--	--	3.35E-02	--	4.20E-02	--
Manganese	3.03E+00	4.48E+00	1.00E-03	b	--	2.41E-05	--	3.56E-05	--
Mercury	1.10E-04	1.70E-04	1.00E-03	b	--	8.75E-10	--	1.35E-09	--
Molybdenum	2.69E-03	4.60E-03	1.00E-03	b	--	2.14E-08	--	3.66E-08	--
Nickel	2.37E-02	4.47E-02	2.00E-04	b	--	3.77E-08	--	7.11E-08	--
Potassium	3.12E+02	5.52E+02	2.00E-03	--	--	4.96E-03	--	8.78E-03	--
Selenium	2.00E-03	2.40E-03	1.00E-03	b	--	1.59E-08	--	1.91E-08	--
Silver	3.00E-04	3.00E-04	6.00E-04	b	--	1.43E-09	--	1.43E-09	--
Sodium	1.86E+04	2.83E+04	1.00E-03	--	--	1.48E-01	--	2.25E-01	--
Thallium	3.47E-03	8.40E-03	1.00E-03	b	--	2.76E-08	--	6.68E-08	--
Vanadium	2.98E-02	2.98E-02	1.00E-03	b	--	2.37E-07	--	2.37E-07	--
Zinc	3.99E-02	9.52E-02	6.00E-04	b	--	1.90E-07	--	4.54E-07	--

TABLE K-2-15
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Carbon Disulfide	1.25E-02	2.00E-02	1.70E-02	b	--	1.70E-06	--	2.70E-06	--
4-Methylphenol	3.00E-03	3.00E-03	7.70E-03	b	--	1.84E-07	--	1.84E-07	--
Chrysene	6.00E-04	6.00E-04	4.70E-01	c	1.20E-01	2.24E-06	2.69E-07	2.24E-06	2.69E-07
Phenol	9.00E-04	9.00E-04	4.30E-03	b	--	3.08E-08	--	3.08E-08	--
						Total	**3.55E-06**		**3.55E-06**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-2-16
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	1.61E+00	1.61E+00	1.00E-03	d	1.00E+00	3.74E-05	3.74E-05	3.74E-05	3.74E-05
Antimony	3.84E-03	9.90E-03	1.00E-03	b	4.00E-04	8.91E-08	2.23E-04	2.30E-07	5.74E-04
Arsenic	2.75E-01	2.75E-01	1.00E-03	b	3.00E-04	6.38E-06	2.13E-02	6.38E-06	2.13E-02
Barium	4.26E-01	8.09E-01	1.00E-03	b	7.00E-02	9.88E-06	1.41E-04	1.88E-05	2.68E-04
Cadmium	4.10E-04	1.10E-03	1.00E-03	b	5.00E-04	9.51E-09	1.90E-05	2.55E-08	5.10E-05
Calcium	2.55E+02	1.95E+03	1.00E-03	--	--	5.92E-03	--	4.52E-02	--
Chromium	2.94E-03	6.90E-03	1.00E-03	b	1.50E+00	6.82E-08	4.55E-08	1.60E-07	1.07E-07
Cobalt	3.35E-03	5.10E-03	4.00E-04	d	2.00E-02	3.11E-08	1.55E-06	4.73E-08	2.37E-06
Copper	1.01E-02	1.34E-02	1.00E-03	e	4.00E-02	2.35E-07	5.88E-06	3.11E-07	7.77E-06
Iron	8.48E+00	8.48E+00	1.00E-03	d	3.00E-01	1.97E-04	6.56E-04	1.97E-04	6.56E-04
Lead	2.01E-03	4.00E-03	1.00E-04	c	8.50E-03	4.66E-09	5.49E-07	9.28E-09	1.09E-06
Magnesium	4.21E+03	5.28E+03	1.00E-03	--	--	9.76E-02	--	1.23E-01	--
Manganese	3.03E+00	4.48E+00	1.00E-03	b	2.40E-02	7.03E-05	2.93E-03	1.04E-04	4.33E-03
Mercury	1.10E-04	1.70E-04	1.00E-03	b	3.00E-04	2.55E-09	8.51E-06	3.94E-09	1.31E-05
Molybdenum	2.69E-03	4.60E-03	1.00E-03	b	5.00E-03	6.24E-08	1.25E-05	1.07E-07	2.13E-05
Nickel	2.37E-02	4.47E-02	2.00E-04	b	2.00E-02	1.10E-07	5.49E-06	2.07E-07	1.04E-05
Potassium	3.12E+02	5.52E+02	2.00E-03	--	--	1.45E-02	--	2.56E-02	--
Selenium	2.00E-03	2.40E-03	1.00E-03	b	5.00E-03	4.64E-08	9.28E-06	5.57E-08	1.11E-05
Silver	3.00E-04	3.00E-04	6.00E-04	b	5.00E-03	4.18E-09	8.35E-07	4.18E-09	8.35E-07
Sodium	1.86E+04	2.83E+04	1.00E-03	--	--	4.30E-01	--	6.57E-01	--
Thallium	3.47E-03	8.40E-03	1.00E-03	b	6.60E-05	8.05E-08	1.22E-03	1.95E-07	2.95E-03
Vanadium	2.98E-02	2.98E-02	1.00E-03	e	7.00E-03	6.91E-07	9.88E-05	6.91E-07	9.88E-05

TABLE K-2-16
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Zinc	3.99E-02	9.52E-02	6.00E-04	b	3.00E-01	5.55E-07	1.85E-06	1.33E-06	4.42E-06
Carbon Disulfide	1.25E-02	2.00E-02	1.70E-02	b	1.00E-01	4.95E-06	4.95E-05	7.89E-06	7.89E-05
4-Methylphenol	3.00E-03	3.00E-03	7.70E-03	e	5.00E-03	5.36E-07	1.07E-04	5.36E-07	1.07E-04
Chrysene	6.00E-04	6.00E-04	4.70E-01	b	3.00E-01	6.54E-06	2.18E-05	6.54E-06	2.18E-05
Phenol	9.00E-04	9.00E-04	4.30E-03	b	6.00E-01	8.98E-08	1.50E-07	8.98E-08	1.50E-07
						Total	**0.027**		**0.031**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-2-17
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	1.61E+00	1.61E+00	1.00E-03	b	--	1.33E-05	--	1.33E-05	--
Antimony	3.84E-03	9.90E-03	1.00E-03	b	--	3.18E-08	--	8.20E-08	--
Arsenic	2.75E-01	2.75E-01	1.00E-03	c	1.50E+00	2.28E-06	3.42E-06	2.28E-06	3.42E-06
Barium	4.26E-01	8.09E-01	1.00E-03	b	--	3.53E-06	--	6.70E-06	--
Cadmium	4.10E-04	1.10E-03	1.00E-03	c	3.80E-01	3.40E-09	1.29E-09	9.11E-09	3.46E-09
Calcium	2.55E+02	1.95E+03	1.00E-03	--	--	2.11E-03	--	1.62E-02	--
Chromium	2.94E-03	6.90E-03	1.00E-03	b	--	2.44E-08	--	5.72E-08	--
Cobalt	3.35E-03	5.10E-03	4.00E-04	b	--	1.11E-08	--	1.69E-08	--
Copper	1.01E-02	1.34E-02	1.00E-03	b	--	8.40E-08	--	1.11E-07	--
Iron	8.48E+00	8.48E+00	1.00E-03	b	--	7.03E-05	--	7.03E-05	--
Lead	2.01E-03	4.00E-03	1.00E-04	--	--	1.67E-09	--	3.31E-09	--
Magnesium	4.21E+03	5.28E+03	1.00E-03	--	--	3.49E-02	--	4.38E-02	--
Manganese	3.03E+00	4.48E+00	1.00E-03	b	--	2.51E-05	--	3.71E-05	--
Mercury	1.10E-04	1.70E-04	1.00E-03	b	--	9.11E-10	--	1.41E-09	--
Molybdenum	2.69E-03	4.60E-03	1.00E-03	b	--	2.23E-08	--	3.81E-08	--
Nickel	2.37E-02	4.47E-02	2.00E-04	b	--	3.92E-08	--	7.41E-08	--
Potassium	3.12E+02	5.52E+02	2.00E-03	--	--	5.16E-03	--	9.15E-03	--
Selenium	2.00E-03	2.40E-03	1.00E-03	b	--	1.66E-08	--	1.99E-08	--
Silver	3.00E-04	3.00E-04	6.00E-04	b	--	1.49E-09	--	1.49E-09	--
Sodium	1.86E+04	2.83E+04	1.00E-03	--	--	1.54E-01	--	2.35E-01	--
Thallium	3.47E-03	8.40E-03	1.00E-03	b	--	2.88E-08	--	6.96E-08	--
Vanadium	2.98E-02	2.98E-02	1.00E-03	b	--	2.47E-07	--	2.47E-07	--
Zinc	3.99E-02	9.52E-02	6.00E-04	b	--	1.98E-07	--	4.73E-07	--

TABLE K-2-17
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Carbon Disulfide	1.25E-02	2.00E-02	1.70E-02	b	--	1.77E-06	--	2.82E-06	--
4-Methylphenol	3.00E-03	3.00E-03	7.70E-03	b	--	1.91E-07	--	1.91E-07	--
Chrysene	6.00E-04	6.00E-04	4.70E-01	c	1.20E-01	2.34E-06	2.80E-07	2.34E-06	2.80E-07
Phenol	9.00E-04	9.00E-04	4.30E-03	b	--	3.21E-08	--	3.21E-08	--
						Total	**3.70E-06**		**3.70E-06**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-2-18
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	1.61E+00	1.61E+00	1.00E-03	d	1.00E+00	3.74E-05	3.74E-05	3.74E-05	3.74E-05
Antimony	3.84E-03	9.90E-03	1.00E-03	b	4.00E-04	8.91E-08	2.23E-04	2.30E-07	5.74E-04
Arsenic	2.75E-01	2.75E-01	1.00E-03	b	3.00E-04	6.38E-06	2.13E-02	6.38E-06	2.13E-02
Barium	4.26E-01	8.09E-01	1.00E-03	b	7.00E-02	9.88E-06	1.41E-04	1.88E-05	2.68E-04
Cadmium	4.10E-04	1.10E-03	1.00E-03	b	5.00E-04	9.51E-09	1.90E-05	2.55E-08	5.10E-05
Calcium	2.55E+02	1.95E+03	1.00E-03	--	--	5.92E-03	--	4.52E-02	--
Chromium	2.94E-03	6.90E-03	1.00E-03	b	1.50E+00	6.82E-08	4.55E-08	1.60E-07	1.07E-07
Cobalt	3.35E-03	5.10E-03	4.00E-04	d	2.00E-02	3.11E-08	1.55E-06	4.73E-08	2.37E-06
Copper	1.01E-02	1.34E-02	1.00E-03	e	4.00E-02	2.35E-07	5.88E-06	3.11E-07	7.77E-06
Iron	8.48E+00	8.48E+00	1.00E-03	d	3.00E-01	1.97E-04	6.56E-04	1.97E-04	6.56E-04
Lead	2.01E-03	4.00E-03	1.00E-04	c	8.50E-03	4.66E-09	5.49E-07	9.28E-09	1.09E-06
Magnesium	4.21E+03	5.28E+03	1.00E-03	--	--	9.76E-02	--	1.23E-01	--
Manganese	3.03E+00	4.48E+00	1.00E-03	b	2.40E-02	7.03E-05	2.93E-03	1.04E-04	4.33E-03
Mercury	1.10E-04	1.70E-04	1.00E-03	b	3.00E-04	2.55E-09	8.51E-06	3.94E-09	1.31E-05
Molybdenum	2.69E-03	4.60E-03	1.00E-03	b	5.00E-03	6.24E-08	1.25E-05	1.07E-07	2.13E-05
Nickel	2.37E-02	4.47E-02	2.00E-04	b	2.00E-02	1.10E-07	5.49E-06	2.07E-07	1.04E-05
Potassium	3.12E+02	5.52E+02	2.00E-03	--	--	1.45E-02	--	2.56E-02	--
Selenium	2.00E-03	2.40E-03	1.00E-03	b	5.00E-03	4.64E-08	9.28E-06	5.57E-08	1.11E-05
Silver	3.00E-04	3.00E-04	6.00E-04	b	5.00E-03	4.18E-09	8.35E-07	4.18E-09	8.35E-07
Sodium	1.86E+04	2.83E+04	1.00E-03	--	--	4.30E-01	--	6.57E-01	--
Thallium	3.47E-03	8.40E-03	1.00E-03	b	6.60E-05	8.05E-08	1.22E-03	1.95E-07	2.95E-03
Vanadium	2.98E-02	2.98E-02	1.00E-03	e	7.00E-03	6.91E-07	9.88E-05	6.91E-07	9.88E-05

TABLE K-2-18
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT FROID AND TAYLOR ROADS, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Zinc	3.99E-02	9.52E-02	6.00E-04	b	3.00E-01	5.55E-07	1.85E-06	1.33E-06	4.42E-06
Carbon Disulfide	1.25E-02	2.00E-02	1.70E-02	b	1.00E-01	4.95E-06	4.95E-05	7.89E-06	7.89E-05
4-Methylphenol	3.00E-03	3.00E-03	7.70E-03	e	5.00E-03	5.36E-07	1.07E-04	5.36E-07	1.07E-04
Chrysene	6.00E-04	6.00E-04	4.70E-01	b	3.00E-01	6.54E-06	2.18E-05	6.54E-06	2.18E-05
Phenol	9.00E-04	9.00E-04	4.30E-03	b	6.00E-01	8.98E-08	1.50E-07	8.98E-08	1.50E-07
						Total	**0.027**		**0.031**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-2-19
RISK SUMMARY FOR FROID AND TAYLOR ROADS, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Receptor	Medium		Cancer Risk[a]	HI[a]	Soil Lead Concentration (mg/kg)
Current Site Configuration					
Resident	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides	3.4E-06	1.4E-01	325
		Nondioxin-like PCBs	1.8E-08	4.3E-03	
		Dioxin-like PCBs	2.6E-06	--	
	Surface water		5.7E-06	6.4E-02	
	Total		**1.2E-05**	**2.1E-01**	
Commercial/ Industrial Worker	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides	1.0E-06	1.2E-02	
		Nondioxin-like PCBs	5.4E-09	4.5E-04	
		Dioxin-like PCBs	6.3E-07	--	
	Surface water		3.7E-06	2.7E-02	
	Total		**5.3E-06**	**3.9E-02**	
Future Site Configuration					
Resident	Soil (0-3 ft)	Metals, VOCs, SVOCs, Pesticides	3.4E-06	5.9E-02	232
		Nondioxin-like PCBs	1.8E-08	4.3E-03	
		Dioxin-like PCBs	2.6E-06	--	
	Surface water		5.7E-06	6.4E-02	
	Total		**1.2E-05**	**1.3E-01**	
Commercial/ Industrial Worker	Soil (0-3 ft)	Metals, VOCs, SVOCs, Pesticides	1.0E-06	5.3E-03	
		Nondioxin-like PCBs	5.4E-09	4.5E-04	
		Dioxin-like PCBs	6.3E-07	--	
	Surface water		3.7E-06	2.7E-02	
	Total		**5.3E-06**	**3.3E-02**	

Notes:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI and the value in parenthesis is the total HI.

ft Feet
HI Hazard index
mg/kg Milligrams per kilogram
PCBs Polychlorinated biphphenyls
SVOCs Semi-volatile organic compounds
VOCs Volatile organic compounds

TABLE K-2-20
RISK SUMMARY FOR FROID AND TAYLOR ROADS, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Receptor	Medium		Cancer Risk[a]	HI[a]	Soil Lead Concentration (mg/kg)
Current Site Configuration					
Resident	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides	3.5E-06	1.8E-01	325
		Nondioxin-like PCBs	4.0E-08	9.2E-03	
		Dioxin-like PCBs	2.6E-06	--	
	Surface water		5.7E-06	7.2E-02	
	Total		**1.2E-05**	**2.6E-01**	
Commercial/ Industrial Worker	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides	1.0E-06	1.5E-02	
		Nondioxin-like PCBs	1.2E-08	9.7E-04	
		Dioxin-like PCBs	6.4E-07	--	
	Surface water		3.7E-06	3.1E-02	
	Total		**5.4E-06**	**4.6E-02**	
Future Site Configuration					
Resident	Soil (0-3 ft)	Metals, VOCs, SVOCs, Pesticides	3.5E-06	1.1E-01	232
		Nondioxin-like PCBs	4.0E-08	9.2E-03	
		Dioxin-like PCBs	2.6E-06	--	
	Surface water		5.7E-06	7.2E-02	
	Total		**1.2E-05**	**1.9E-01**	
Commercial/ Industrial Worker	Soil (0-3 ft)	Metals, VOCs, SVOCs, Pesticides	1.0E-06	9.2E-03	
		Nondioxin-like PCBs	1.2E-08	9.7E-04	
		Dioxin-like PCBs	6.4E-07	--	
	Surface water		5.7E-06	7.2E-02	
	Total		**7.3E-06**	**8.3E-02**	

Notes:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI and the value in parenthesis is the total HI.

ft Feet
HI Hazard index
mg/kg Milligrams per kilogram
PCBs Polychlorinated biphphenyls
SVOCs Semi-volatile organic compounds
VOCs Volatile organic compounds

TABLE K-3-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	1.76E+04	--	2.31E-01	--	1.91E-02
Antimony	2.16E+00	--	6.91E-02	--	5.29E-03
Barium	1.43E+02	--	2.67E-02	--	2.15E-03
Beryllium	2.56E-01	2.43E-10	1.66E-03	1.14E-10	1.32E-04
Cadmium	3.80E+00	2.70E-09	1.03E-01	1.27E-09	8.41E-03
Chromium VI	6.00E-02	1.99E-09	2.69E-04	9.37E-10	2.36E-05
Cobalt	1.68E+01	1.86E-08	1.22E-02	8.75E-09	1.26E-03
Copper	6.91E+01	--	2.21E-02	--	1.69E-03
Lead	1.09E+02	--	--	--	--
Manganese	5.61E+02	--	3.18E-01	--	2.88E-02
Mercury	8.06E-01	--	3.43E-02	--	2.63E-03
Silver	2.94E-01	--	7.53E-04	--	5.76E-05
Vanadium	6.92E+01	--	1.26E-01	--	9.67E-03
Zinc	3.18E+02	--	1.36E-02	--	1.04E-03
Semivolatile Organic Compounds					
1-Methylphenanthrene	3.50E-01	--	1.60E-05	--	1.47E-06
2,6-Dimethylnaphthalene	3.70E-02	--	6.62E-04	--	1.97E-04
Acenaphthene	2.80E-01	--	7.61E-05	--	9.58E-06
Acenaphthylene	2.70E-01	--	7.33E-05	--	9.24E-06
Anthracene	1.36E+00	--	6.22E-05	--	5.72E-06
Benzo(a)anthracene	1.32E+00	2.12E-06	6.02E-05	6.25E-07	5.53E-06
Benzo(a)pyrene	1.33E+00	2.14E-05	5.74E-04	6.30E-06	4.56E-05
Benzo(b)fluoranthene	1.48E+00	2.37E-06	6.43E-04	6.99E-07	6.71E-05
Benzo(e)pyrene	1.24E+00	--	5.37E-04	--	4.27E-05
Benzo(g,h,i)perylene	1.10E+00	--	4.75E-04	--	3.78E-05
Benzo(k)fluoranthene	1.39E+00	3.68E-06	6.06E-04	1.08E-06	6.32E-05
Benzoic Acid	2.30E+00	--	9.41E-06	--	9.34E-07
Butylbenzylphthalate	7.80E-02	--	6.38E-06	--	6.34E-07
Carbazole	8.80E-01	3.62E-08	--	1.02E-08	--
Chrysene	1.53E+00	4.05E-07	--	1.19E-07	--
Dibenz(a,h)anthracene	6.00E-01	9.65E-06	2.74E-05	2.84E-06	2.52E-06

TABLE K-3-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Dibenzofuran	1.70E-01	--	5.85E-04	--	5.44E-05
Dibenzothiophene	1.70E-01	--	5.85E-04	--	5.44E-05
Fluoranthene	1.56E+00	--	6.78E-04	--	7.07E-05
Fluorene	3.50E-01	--	1.27E-04	--	1.33E-05
Indeno(1,2,3-cd)pyrene	1.20E+00	1.93E-06	5.18E-04	5.69E-07	4.12E-05
Naphthalene	1.10E-01	--	1.97E-03	--	5.86E-04
Pentachlorophenol	7.80E-01	2.62E-07	5.65E-04	8.67E-08	6.74E-05
Perylene	8.40E-01	--	3.63E-04	--	2.88E-05
Phenanthrene	1.31E+00	--	5.97E-05	--	5.48E-06
Phenol	9.00E-01	--	2.45E-05	--	2.44E-06
Pyrene	1.36E+00	--	5.87E-04	--	4.67E-05
Pesticides					
2,4'-DDD	5.00E-04	2.05E-10	--	5.02E-11	--
2,4'-DDE	1.60E-04	9.30E-11	--	2.28E-11	--
2,4'-DDT	2.80E-04	1.63E-10	7.76E-06	3.99E-11	6.57E-07
4,4'-DDD	1.17E-03	4.80E-10	--	1.18E-10	--
4,4'-DDE	7.13E-03	4.15E-09	--	1.02E-09	--
4,4'-DDT	6.00E-04	3.49E-10	1.66E-05	8.54E-11	1.41E-06
Aldrin	2.00E-04	6.99E-09	1.09E-04	1.97E-09	1.08E-05
Alpha-chlordane	9.40E-04	5.79E-10	2.67E-05	1.45E-10	2.33E-06
Dieldrin	3.50E-04	1.15E-08	1.15E-04	3.25E-09	1.14E-05
Gamma-bhc (Lindane)	1.80E-04	4.12E-10	8.53E-06	1.03E-10	7.42E-07
Heptachlor	5.90E-04	5.46E-09	1.93E-05	1.54E-09	1.92E-06
Heptachlor Epoxide	1.60E-04	2.99E-09	2.01E-04	8.45E-10	2.00E-05
Hexachlorobenzene	1.80E-04	5.92E-10	3.68E-06	1.67E-10	3.65E-07
Mirex	2.00E-04	7.40E-10	1.64E-05	2.09E-10	1.62E-06
Trans-nonachlor	7.70E-04	4.74E-10	2.19E-05	1.19E-10	1.91E-06

TABLE K-3-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Dioxin and Furans					
1,2,3,4,6,7,8,9-OCDD	1.40E-01	3.59E-06	--	8.79E-07	--
1,2,3,4,6,7,8,9-OCDF	4.08E-03	1.05E-07	--	2.56E-08	--
1,2,3,4,6,7,8-HPCDD	1.60E-02	4.10E-05	--	1.00E-05	--
1,2,3,4,6,7,8-HPCDF	2.80E-04	7.18E-07	--	1.76E-07	--
	Total	**8.73E-05**	**0.97**	**2.35E-05**	**0.082**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-3-2 and K-3-3.

-- Not available or not evaluated

BHC Benzenehexachloride

DDD Dichlorodiphenyldichloroethane

DDE Dichlorodiphenyldichloroethene

DDT Dichlorodiphenyltrichloroethane

EPC Exposure point concentration

mg/kg Miligrams per kilogram

TABLE K-3-2
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	4.00E-04	1.80E-09	3.56E-04	5.38E-10	3.77E-05
PCB-105 (2,3,3',4,4')	3.50E-04	*	3.11E-04	*	3.29E-05
PCB-118 (2,3',4,4',5)	3.30E-04	*	2.94E-04	*	3.11E-05
PCB-126 (3,3',4,4',5)	1.60E-04	*	1.42E-04	*	1.51E-05
PCB-128 (2,2',3,3',4,4')	1.80E-04	8.11E-10	1.60E-04	2.42E-10	1.69E-05
PCB-138 (2,2',3,4,4',5')	5.60E-04	2.52E-09	4.98E-04	7.53E-10	5.27E-05
PCB-153 (2,2',4,4',5,5')	3.60E-04	1.62E-09	3.20E-04	4.84E-10	3.39E-05
PCB-170 (2,2',3,3',4,4',5)	2.30E-04	1.04E-09	2.05E-04	3.09E-10	2.17E-05
PCB-18 (2,2',5)	1.80E-04	8.11E-10	1.60E-04	2.42E-10	1.69E-05
PCB-180 (2,2',3,4,4',5,5')	3.10E-04	1.40E-09	2.76E-04	4.17E-10	2.92E-05
PCB-187 (2,2',3,4',5,5',6)	2.30E-04	1.04E-09	2.05E-04	3.09E-10	2.17E-05
PCB-195 (2,2',3,3',4,4',5,6)	1.60E-04	7.21E-10	1.42E-04	2.15E-10	1.51E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	2.50E-04	1.13E-09	2.22E-04	3.36E-10	2.35E-05
PCB-209 (2,2',3,3',4,4',5,5',6)	2.50E-04	1.13E-09	2.22E-04	3.36E-10	2.35E-05
PCB-28 (2,4,4')	1.60E-04	7.21E-10	1.42E-04	2.15E-10	1.51E-05
PCB-44 (2,2',3,5')	2.50E-04	1.13E-09	2.22E-04	3.36E-10	2.35E-05
PCB-52 (2,2',5,5')	2.40E-04	1.08E-09	2.14E-04	3.23E-10	2.26E-05
PCB-66 (2,3',4,4')	1.80E-04	8.11E-10	1.60E-04	2.42E-10	1.69E-05
PCB-77 (3,3',4,4')	5.90E-04	*	5.25E-04	*	5.55E-05
PCB-8 (2,4')	1.60E-04	7.21E-10	1.42E-04	2.15E-10	1.51E-05
	Total	**1.85E-08**	**0.0049**	**5.51E-09**	**0.0005**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-3-3).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-3-3
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	4.00E-04	--	--	--	--	--
PCB-105 (2,3,3',4,4')	3.50E-04	0.0001	8.98E-09	--	2.20E-09	--
PCB-118 (2,3',4,4',5)	3.30E-04	0.0001	8.46E-09	--	2.07E-09	--
PCB-126 (3,3',4,4',5)	1.60E-04	0.1	4.10E-06	--	1.00E-06	--
PCB-128 (2,2',3,3',4,4')	1.80E-04	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	5.60E-04	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	3.60E-04	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	2.30E-04	--	--	--	--	--
PCB-18 (2,2',5)	1.80E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	3.10E-04	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	2.30E-04	--	--	--	--	--
PCB-195 (2,2',3,3',4,4',5,6)	1.60E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	2.50E-04	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	2.50E-04	--	--	--	--	--
PCB-28 (2,4,4')	1.60E-04	--	--	--	--	--
PCB-44 (2,2',3,5')	2.50E-04	--	--	--	--	--
PCB-52 (2,2',5,5')	2.40E-04	--	--	--	--	--
PCB-66 (2,3',4,4')	1.80E-04	--	--	--	--	--
PCB-77 (3,3',4,4')	5.90E-04	0.0001	1.51E-08	--	3.71E-09	--
PCB-8 (2,4')	1.60E-04	--	--	--	--	--
		Total	**4.14E-06**	**--**	**1.01E-06**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-3-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	1.76E+04	--	2.31E-01	--	1.91E-02
Antimony	1.56E+00	--	5.00E-02	--	3.82E-03
Barium	1.81E+02	--	3.37E-02	--	2.72E-03
Beryllium	1.25E-01	1.19E-10	8.12E-04	5.59E-11	6.46E-05
Cadmium	1.09E+00	7.75E-10	2.94E-02	3.64E-10	2.41E-03
Chromium VI	6.00E-02	1.99E-09	2.69E-04	9.37E-10	2.36E-05
Cobalt	1.74E+01	1.93E-08	1.26E-02	9.07E-09	1.31E-03
Copper	5.36E+01	--	1.71E-02	--	1.31E-03
Lead	6.39E+01	--	--	--	--
Manganese	5.73E+02	--	3.25E-01	--	2.94E-02
Mercury	3.51E-01	--	1.50E-02	--	1.15E-03
Silver	2.10E-01	--	5.36E-04	--	4.10E-05
Vanadium	7.34E+01	--	1.34E-01	--	1.03E-02
Zinc	2.17E+02	--	9.25E-03	--	7.09E-04
Volatile Organic Compounds					
2-Butanone	5.45E-02	--	7.44E-06	--	2.01E-06
Acetone	1.06E-01	--	6.73E-05	--	1.75E-05
Carbon Disulfide	2.04E-02	--	5.74E-05	--	1.70E-05
Ethylbenzene	1.80E-02	2.02E-09	9.66E-06	9.22E-10	2.43E-06
Xylene (Total)	2.15E-02	--	7.82E-05	--	2.38E-05
Semivolatile Organic Compounds					
1-Methylphenanthrene	3.50E-01	--	1.60E-05	--	1.47E-06
2,6-Dimethylnaphthalene	3.70E-02	--	6.62E-04	--	1.97E-04
Acenaphthene	2.80E-01	--	7.61E-05	--	9.58E-06
Acenaphthylene	2.70E-01	--	7.33E-05	--	9.24E-06
Anthracene	6.89E-01	--	3.15E-05	--	2.89E-06
Benzo(a)anthracene	6.82E-01	1.10E-06	3.11E-05	3.23E-07	2.86E-06
Benzo(a)pyrene	6.85E-01	1.10E-05	2.96E-04	3.25E-06	2.35E-05
Benzo(b)fluoranthene	7.10E-01	1.14E-06	3.10E-04	3.37E-07	3.23E-05
Benzo(e)pyrene	1.24E+00	--	5.37E-04	--	4.27E-05
Benzo(g,h,i)perylene	6.51E-01	--	2.81E-04	--	2.24E-05

TABLE K-3-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Benzo(k)fluoranthene	6.94E-01	1.83E-06	3.02E-04	5.40E-07	3.15E-05
Benzoic Acid	2.30E+00	--	9.41E-06	--	9.34E-07
Butylbenzylphthalate	7.80E-02	--	6.38E-06	--	6.34E-07
Carbazole	6.43E-01	2.64E-08	--	7.46E-09	--
Chrysene	7.17E-01	1.90E-07	--	5.59E-08	--
Dibenz(a,h)anthracene	6.00E-01	9.65E-06	2.74E-05	2.84E-06	2.52E-06
Dibenzofuran	1.70E-01	--	5.85E-04	--	5.44E-05
Dibenzothiophene	1.70E-01	--	5.85E-04	--	5.44E-05
Fluoranthene	7.32E-01	--	3.19E-04	--	3.33E-05
Fluorene	3.50E-01	--	1.27E-04	--	1.33E-05
Indeno(1,2,3-cd)pyrene	6.80E-01	1.09E-06	2.94E-04	3.22E-07	2.33E-05
Naphthalene	1.10E-01	--	1.97E-03	--	5.86E-04
Pentachlorophenol	7.80E-01	2.62E-07	5.65E-04	8.67E-08	6.74E-05
Perylene	8.40E-01	--	3.63E-04	--	2.88E-05
Phenanthrene	6.80E-01	--	3.11E-05	--	2.85E-06
Phenol	8.98E-01	--	2.45E-05	--	2.43E-06
Pyrene	6.92E-01	--	2.99E-04	--	2.38E-05
Pesticides					
2,4'-DDD	5.00E-04	2.05E-10	--	5.02E-11	--
2,4'-DDE	1.60E-04	9.30E-11	--	2.28E-11	--
2,4'-DDT	2.80E-04	1.63E-10	7.76E-06	3.99E-11	6.57E-07
4,4'-DDD	1.16E-02	4.74E-09	--	1.16E-09	--
4,4'-DDE	6.67E-03	3.88E-09	--	9.50E-10	--
4,4'-DDT	1.10E-02	6.40E-09	3.05E-04	1.57E-09	2.58E-05
Aldrin	4.80E-04	1.68E-08	2.62E-04	4.73E-09	2.60E-05
Alpha-chlordane	4.23E-03	2.60E-09	1.20E-04	6.54E-10	1.05E-05
Dieldrin	6.00E-03	1.97E-07	1.96E-03	5.57E-08	1.95E-04
Endrin Ketone	3.70E-03	--	2.02E-04	--	2.00E-05
Gamma-bhc (Lindane)	2.00E-03	4.57E-09	9.48E-05	1.15E-09	8.25E-06
Heptachlor	7.40E-04	6.85E-09	2.42E-05	1.93E-09	2.40E-06
Heptachlor Epoxide	2.52E-03	4.71E-08	3.17E-03	1.33E-08	3.15E-04
Hexachlorobenzene	1.80E-04	5.92E-10	3.68E-06	1.67E-10	3.65E-07

TABLE K-3-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Mirex	2.00E-04	7.40E-10	1.64E-05	2.09E-10	1.62E-06
Trans-nonachlor	7.70E-04	4.74E-10	2.19E-05	1.19E-10	1.91E-06
Dioxins					
1,2,3,4,6,7,8,9-OCDD	1.40E-01	3.59E-06	--	8.79E-07	--
1,2,3,4,6,7,8,9-OCDF	4.08E-03	1.05E-07	--	2.56E-08	--
1,2,3,4,6,7,8-HPCDD	1.60E-02	4.10E-05	--	1.00E-05	--
1,2,3,4,6,7,8-HPCDF	2.80E-04	7.18E-07	--	1.76E-07	--
	Total	**7.21E-05**	**0.87**	**1.90E-05**	**0.074**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-3-5 and K-3-6.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

TABLE K-3-5
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	4.00E-04	1.80E-09	3.56E-04	5.38E-10	3.77E-05
PCB-105 (2,3,3',4,4')	3.50E-04	*	3.11E-04	*	3.29E-05
PCB-118 (2,3',4,4',5)	3.30E-04	*	2.94E-04	*	3.11E-05
PCB-126 (3,3',4,4',5)	1.60E-04	*	1.42E-04	*	1.51E-05
PCB-128 (2,2',3,3',4,4')	1.80E-04	8.11E-10	1.60E-04	2.42E-10	1.69E-05
PCB-138 (2,2',3,4,4',5')	5.60E-04	2.52E-09	4.98E-04	7.53E-10	5.27E-05
PCB-153 (2,2',4,4',5,5')	3.60E-04	1.62E-09	3.20E-04	4.84E-10	3.39E-05
PCB-170 (2,2',3,3',4,4',5)	2.30E-04	1.04E-09	2.05E-04	3.09E-10	2.17E-05
PCB-18 (2,2',5)	1.80E-04	8.11E-10	1.60E-04	2.42E-10	1.69E-05
PCB-180 (2,2',3,4,4',5,5')	3.10E-04	1.40E-09	2.76E-04	4.17E-10	2.92E-05
PCB-187 (2,2',3,4',5,5',6)	2.30E-04	1.04E-09	2.05E-04	3.09E-10	2.17E-05
PCB-195 (2,2',3,3',4,4',5,6)	1.60E-04	7.21E-10	1.42E-04	2.15E-10	1.51E-05
PCB-206 (2,2',3,3',4,4',5,5',6)	2.50E-04	1.13E-09	2.22E-04	3.36E-10	2.35E-05
PCB-209 (2,2',3,3',4,4',5,5',6)	2.50E-04	1.13E-09	2.22E-04	3.36E-10	2.35E-05
PCB-28 (2,4,4')	1.60E-04	7.21E-10	1.42E-04	2.15E-10	1.51E-05
PCB-44 (2,2',3,5')	2.50E-04	1.13E-09	2.22E-04	3.36E-10	2.35E-05
PCB-52 (2,2',5,5')	2.40E-04	1.08E-09	2.14E-04	3.23E-10	2.26E-05
PCB-66 (2,3',4,4')	1.80E-04	8.11E-10	1.60E-04	2.42E-10	1.69E-05
PCB-77 (3,3',4,4')	5.90E-04	*	5.25E-04	*	5.55E-05
PCB-8 (2,4')	1.60E-04	7.21E-10	1.42E-04	2.15E-10	1.51E-05
	Total	**1.85E-08**	**0.0049**	**5.51E-09**	**0.00052**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-3-6).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-3-6
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	4.00E-04	--	--	--	--	--
PCB-105 (2,3,3',4,4')	3.50E-04	0.0001	8.98E-09	--	2.20E-09	--
PCB-118 (2,3',4,4',5)	3.30E-04	0.0001	8.46E-09	--	2.07E-09	--
PCB-126 (3,3',4,4',5)	1.60E-04	0.1	4.10E-06	--	1.00E-06	--
PCB-128 (2,2',3,3',4,4')	1.80E-04	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	5.60E-04	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	3.60E-04	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	2.30E-04	--	--	--	--	--
PCB-18 (2,2',5)	1.80E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	3.10E-04	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	2.30E-04	--	--	--	--	--
PCB-195 (2,2',3,3',4,4',5,6)	1.60E-04	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	2.50E-04	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	2.50E-04	--	--	--	--	--
PCB-28 (2,4,4')	1.60E-04	--	--	--	--	--
PCB-44 (2,2',3,5')	2.50E-04	--	--	--	--	--
PCB-52 (2,2',5,5')	2.40E-04	--	--	--	--	--
PCB-66 (2,3',4,4')	1.80E-04	--	--	--	--	--
PCB-77 (3,3',4,4')	5.90E-04	0.0001	1.51E-08	--	3.71E-09	--
PCB-8 (2,4')	1.60E-04	--	--	--	--	--
		Total	**4.14E-06**	**--**	**1.01E-06**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-3-7
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	4.27E+04	--	5.61E-01	--	4.64E-02
Antimony	7.10E+00	--	2.27E-01	--	1.74E-02
Barium	3.53E+02	--	6.57E-02	--	5.30E-03
Beryllium	8.40E-01	7.97E-10	5.44E-03	3.75E-10	4.33E-04
Cadmium	2.08E+01	1.48E-08	5.62E-01	6.96E-09	4.61E-02
Chromium VI	6.00E-02	1.99E-09	2.69E-04	9.37E-10	2.36E-05
Cobalt	3.93E+01	4.35E-08	2.85E-02	2.05E-08	2.95E-03
Copper	6.07E+02	--	1.94E-01	--	1.48E-02
Lead	5.98E+02	--	--	--	--
Manganese	1.27E+03	--	7.21E-01	--	6.53E-02
Mercury	1.85E+01	--	7.88E-01	--	6.03E-02
Silver	4.40E+00	--	1.13E-02	--	8.61E-04
Vanadium	1.39E+02	--	2.54E-01	--	1.94E-02
Zinc	3.01E+03	--	1.28E-01	--	9.82E-03
Semivolatile Organic Compounds					
1-Methylphenanthrene	3.50E-01	--	1.60E-05	--	1.47E-06
2,6-Dimethylnaphthalene	3.70E-02	--	6.62E-04	--	1.97E-04
Acenaphthene	2.80E-01	--	7.61E-05	--	9.58E-06
Acenaphthylene	2.70E-01	--	7.33E-05	--	9.24E-06
Anthracene	2.10E+00	--	9.59E-05	--	8.81E-06
Benzo(a)anthracene	3.80E+00	6.11E-06	1.74E-04	1.80E-06	1.59E-05
Benzo(a)pyrene	2.70E+00	4.34E-05	1.17E-03	1.28E-05	9.27E-05
Benzo(b)fluoranthene	3.10E+00	4.99E-06	1.35E-03	1.47E-06	1.41E-04
Benzo(e)pyrene	2.40E+00	--	1.04E-03	--	8.24E-05
Benzo(g,h,i)perylene	1.10E+00	--	4.75E-04	--	3.78E-05
Benzo(k)fluoranthene	3.40E+00	8.99E-06	1.48E-03	2.65E-06	1.55E-04
Benzoic Acid	2.30E+00	--	9.41E-06	--	9.34E-07
Butylbenzylphthalate	7.80E-02	--	6.38E-06	--	6.34E-07
Carbazole	8.80E-01	3.62E-08	--	1.02E-08	--
Chrysene	6.40E+00	1.69E-06	--	4.99E-07	--
Dibenz(a,h)anthracene	6.00E-01	9.65E-06	2.74E-05	2.84E-06	2.52E-06

TABLE K-3-7
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Dibenzofuran	1.70E-01	--	5.85E-04	--	5.44E-05
Dibenzothiophene	1.70E-01	--	5.85E-04	--	5.44E-05
Fluoranthene	1.40E+01	--	6.10E-03	--	6.36E-04
Fluorene	3.50E-01	--	1.27E-04	--	1.33E-05
Indeno(1,2,3-cd)pyrene	1.20E+00	1.93E-06	5.18E-04	5.69E-07	4.12E-05
Naphthalene	1.10E-01	--	1.97E-03	--	5.86E-04
Pentachlorophenol	7.80E-01	2.62E-07	5.65E-04	8.67E-08	6.74E-05
Perylene	8.40E-01	--	3.63E-04	--	2.88E-05
Phenanthrene	4.00E+00	--	1.83E-04	--	1.68E-05
Phenol	9.00E-01	--	2.45E-05	--	2.44E-06
Pyrene	1.30E+01	--	5.61E-03	--	4.46E-04
Pesticides					
2,4'-DDD	8.00E-03	3.28E-09	--	8.04E-10	--
2,4'-DDE	3.00E-03	1.74E-09	--	4.27E-10	--
2,4'-DDT	3.40E-02	1.98E-08	9.42E-04	4.84E-09	7.97E-05
4,4'-DDD	2.80E-01	1.15E-07	--	2.81E-08	--
4,4'-DDE	3.20E-02	1.86E-08	--	4.56E-09	--
4,4'-DDT	2.30E-01	1.34E-07	6.38E-03	3.27E-08	5.39E-04
Aldrin	4.80E-04	1.68E-08	2.62E-04	4.73E-09	2.60E-05
Alpha-chlordane	7.80E-02	4.80E-08	2.22E-03	1.21E-08	1.93E-04
Dieldrin	6.00E-03	1.97E-07	1.96E-03	5.57E-08	1.95E-04
Gamma-bhc (Lindane)	2.00E-03	4.57E-09	9.48E-05	1.15E-09	8.25E-06
Heptachlor	7.40E-04	6.85E-09	2.42E-05	1.93E-09	2.40E-06
Heptachlor Epoxide	6.00E-03	1.12E-07	7.55E-03	3.17E-08	7.50E-04
Hexachlorobenzene	3.70E-04	1.22E-09	7.57E-06	3.43E-10	7.51E-07
Mirex	5.00E-03	1.85E-08	4.09E-04	5.22E-09	4.06E-05
Trans-nonachlor	6.50E-02	4.00E-08	1.85E-03	1.01E-08	1.61E-04

TABLE K-3-7
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Dioxin and Furans					
1,2,3,4,6,7,8,9-OCDD	1.40E-01	3.59E-06	--	8.79E-07	--
1,2,3,4,6,7,8,9-OCDF	1.30E-02	3.33E-07	--	8.16E-08	--
1,2,3,4,6,7,8-HPCDD	1.60E-02	4.10E-05	--	1.00E-05	--
1,2,3,4,6,7,8-HPCDF	3.00E-03	7.70E-06	--	1.88E-06	--
	Total	**1.31E-04**	**3.59**	**3.58E-05**	**0.29**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-3-8 and K-3-9.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

Hazard Index Segregation - Resident	
Target Organ	**Hazard Index**
Central Nervous System	2.1E+00
Liver	3.1E-02
Kidney	5.7E-01
Respiratory	2.8E-02
Blood	3.9E-01
Skin	1.1E-02
Gastrointestinal	1.9E-01
Reproductive	2.5E-05
Non-specific	4.9E-01
Body Weight	2.0E-03
Cardiovascular	6.6E-02

TABLE K-3-8
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	7.00E-03	3.16E-08	6.23E-03	9.41E-09	6.59E-04
PCB-105 (2,3,3',4,4')	3.00E-03	*	2.67E-03	*	2.82E-04
PCB-118 (2,3',4,4',5)	5.00E-03	*	4.45E-03	*	4.71E-04
PCB-126 (3,3',4,4',5)	5.60E-04	*	4.98E-04	*	5.27E-05
PCB-128 (2,2',3,3',4,4')	3.00E-03	1.35E-08	2.67E-03	4.03E-09	2.82E-04
PCB-138 (2,2',3,4,4',5')	1.20E-02	5.41E-08	1.07E-02	1.61E-08	1.13E-03
PCB-153 (2,2',4,4',5,5')	9.60E-03	4.33E-08	8.54E-03	1.29E-08	9.04E-04
PCB-170 (2,2',3,3',4,4',5)	6.60E-03	2.97E-08	5.87E-03	8.88E-09	6.21E-04
PCB-18 (2,2',5)	8.10E-04	3.65E-09	7.21E-04	1.09E-09	7.63E-05
PCB-180 (2,2',3,4,4',5,5')	1.50E-02	6.76E-08	1.33E-02	2.02E-08	1.41E-03
PCB-187 (2,2',3,4',5,5',6)	6.70E-03	3.02E-08	5.96E-03	9.01E-09	6.31E-04
PCB-195 (2,2',3,3',4,4',5,6)	1.30E-03	5.86E-09	1.16E-03	1.75E-09	1.22E-04
PCB-206 (2,2',3,3',4,4',5,5',6)	8.60E-04	3.88E-09	7.65E-04	1.16E-09	8.10E-05
PCB-209 (2,2',3,3',4,4',5,5',6)	2.50E-04	1.13E-09	2.22E-04	3.36E-10	2.35E-05
PCB-28 (2,4,4')	2.10E-03	9.47E-09	1.87E-03	2.82E-09	1.98E-04
PCB-44 (2,2',3,5')	1.70E-03	7.66E-09	1.51E-03	2.29E-09	1.60E-04
PCB-52 (2,2',5,5')	2.00E-03	9.01E-09	1.78E-03	2.69E-09	1.88E-04
PCB-66 (2,3',4,4')	1.00E-03	4.51E-09	8.90E-04	1.34E-09	9.41E-05
PCB-77 (3,3',4,4')	8.70E-04	*	7.74E-04	*	8.19E-05
PCB-8 (2,4')	5.90E-03	2.66E-08	5.25E-03	7.93E-09	5.55E-04
	Total	**3.42E-07**	**0.076**	**1.02E-07**	**0.0080**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-3-9).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-3-9
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT THE WOOD HOGGER SITE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	7.00E-03	--	--	--	--	--
PCB-105 (2,3,3',4,4')	3.00E-03	0.0001	7.70E-08	--	1.88E-08	--
PCB-118 (2,3',4,4',5)	5.00E-03	0.0001	1.28E-07	--	3.14E-08	--
PCB-126 (3,3',4,4',5)	5.60E-04	0.1	1.44E-05	--	3.52E-06	--
PCB-128 (2,2',3,3',4,4')	3.00E-03	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	1.20E-02	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	9.60E-03	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	6.60E-03	--	--	--	--	--
PCB-18 (2,2',5)	8.10E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	1.50E-02	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	6.70E-03	--	--	--	--	--
PCB-195 (2,2',3,3',4,4',5,6)	1.30E-03	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	8.60E-04	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	2.50E-04	--	--	--	--	--
PCB-28 (2,4,4')	2.10E-03	--	--	--	--	--
PCB-44 (2,2',3,5')	1.70E-03	--	--	--	--	--
PCB-52 (2,2',5,5')	2.00E-03	--	--	--	--	--
PCB-66 (2,3',4,4')	1.00E-03	--	--	--	--	--
PCB-77 (3,3',4,4')	8.70E-04	0.0001	2.23E-08	--	5.46E-09	--
PCB-8 (2,4')	5.90E-03	--	--	--	--	--
		Total	**1.46E-05**	**--**	**3.57E-06**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-3-10
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	4.27E+04	--	5.61E-01	--	4.64E-02
Antimony	7.10E+00	--	2.27E-01	--	1.74E-02
Barium	5.46E+02	--	1.02E-01	--	8.20E-03
Beryllium	8.40E-01	7.97E-10	5.44E-03	3.75E-10	4.33E-04
Cadmium	2.08E+01	1.48E-08	5.62E-01	6.96E-09	4.61E-02
Chromium VI	6.00E-02	1.99E-09	2.69E-04	9.37E-10	2.36E-05
Cobalt	3.93E+01	4.35E-08	2.85E-02	2.05E-08	2.95E-03
Copper	6.07E+02	--	1.94E-01	--	1.48E-02
Lead	7.28E+02	--	--	--	--
Manganese	1.47E+03	--	8.34E-01	--	7.55E-02
Mercury	1.85E+01	--	7.88E-01	--	6.03E-02
Silver	4.40E+00	--	1.13E-02	--	8.61E-04
Vanadium	1.63E+02	--	2.98E-01	--	2.28E-02
Zinc	3.01E+03	--	1.28E-01	--	9.82E-03
Volatile Organic Compounds					
2-Butanone	7.20E-01	--	9.83E-05	--	2.66E-05
Acetone	3.00E-01	--	1.91E-04	--	4.97E-05
Carbon Disulfide	2.90E-01	--	8.16E-04	--	2.41E-04
Ethylbenzene	1.60E-01	1.79E-08	8.58E-05	8.19E-09	2.16E-05
Xylene (Total)	2.20E-01	--	8.00E-04	--	2.44E-04
Semivolatile Organic Compounds					
1-Methylphenanthrene	3.50E-01	--	1.60E-05	--	1.47E-06
2,6-Dimethylnaphthalene	3.70E-02	--	6.62E-04	--	1.97E-04
Acenaphthene	2.80E-01	--	7.61E-05	--	9.58E-06
Acenaphthylene	2.70E-01	--	7.33E-05	--	9.24E-06
Anthracene	2.10E+00	--	9.59E-05	--	8.81E-06
Benzo(a)anthracene	3.80E+00	6.11E-06	1.74E-04	1.80E-06	1.59E-05
Benzo(a)pyrene	2.70E+00	4.34E-05	1.17E-03	1.28E-05	9.27E-05
Benzo(b)fluoranthene	3.10E+00	4.99E-06	1.35E-03	1.47E-06	1.41E-04
Benzo(e)pyrene	2.40E+00	--	1.04E-03	--	8.24E-05
Benzo(g,h,i)perylene	1.10E+00	--	4.75E-04	--	3.78E-05

TABLE K-3-10
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Benzo(k)fluoranthene	3.40E+00	8.99E-06	1.48E-03	2.65E-06	1.55E-04
Benzoic Acid	2.30E+00	--	9.41E-06	--	9.34E-07
Butylbenzylphthalate	7.80E-02	--	6.38E-06	--	6.34E-07
Carbazole	8.80E-01	3.62E-08	--	1.02E-08	--
Chrysene	6.40E+00	1.69E-06	--	4.99E-07	--
Dibenz(a,h)anthracene	6.00E-01	9.65E-06	2.74E-05	2.84E-06	2.52E-06
Dibenzofuran	1.70E-01	--	5.85E-04	--	5.44E-05
Dibenzothiophene	1.70E-01	--	5.85E-04	--	5.44E-05
Fluoranthene	1.40E+01	--	6.10E-03	--	6.36E-04
Fluorene	3.50E-01	--	1.27E-04	--	1.33E-05
Indeno(1,2,3-cd)pyrene	1.20E+00	1.93E-06	5.18E-04	5.69E-07	4.12E-05
Naphthalene	1.10E-01	--	1.97E-03	--	5.86E-04
Pentachlorophenol	7.80E-01	2.62E-07	5.65E-04	8.67E-08	6.74E-05
Perylene	8.40E-01	--	3.63E-04	--	2.88E-05
Phenanthrene	4.00E+00	--	1.83E-04	--	1.68E-05
Phenol	4.60E+00	--	1.25E-04	--	1.25E-05
Pyrene	1.30E+01	--	5.61E-03	--	4.46E-04
Pesticides					
2,4'-DDD	8.00E-03	3.28E-09	--	8.04E-10	--
2,4'-DDE	3.00E-03	1.74E-09	--	4.27E-10	--
2,4'-DDT	3.40E-02	1.98E-08	9.42E-04	4.84E-09	7.97E-05
4,4'-DDD	2.80E-01	1.15E-07	--	2.81E-08	--
4,4'-DDE	3.20E-02	1.86E-08	--	4.56E-09	--
4,4'-DDT	2.30E-01	1.34E-07	6.38E-03	3.27E-08	5.39E-04
Aldrin	4.80E-04	1.68E-08	2.62E-04	4.73E-09	2.60E-05
Alpha-chlordane	7.80E-02	4.80E-08	2.22E-03	1.21E-08	1.93E-04
Dieldrin	6.00E-03	1.97E-07	1.96E-03	5.57E-08	1.95E-04
Endrin Ketone	3.70E-03	--	2.02E-04	--	2.00E-05
Gamma-bhc (Lindane)	2.00E-03	4.57E-09	9.48E-05	1.15E-09	8.25E-06
Heptachlor	7.40E-04	6.85E-09	2.42E-05	1.93E-09	2.40E-06
Heptachlor Epoxide	6.00E-03	1.12E-07	7.55E-03	3.17E-08	7.50E-04
Hexachlorobenzene	3.70E-04	1.22E-09	7.57E-06	3.43E-10	7.51E-07

TABLE K-3-10
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Mirex	5.00E-03	1.85E-08	4.09E-04	5.22E-09	4.06E-05
Trans-nonachlor	6.50E-02	4.00E-08	1.85E-03	1.01E-08	1.61E-04
Dioxin/Furans					
1,2,3,4,6,7,8,9-OCDD	1.40E-01	3.59E-06	--	8.79E-07	--
1,2,3,4,6,7,8,9-OCDF	1.30E-02	3.33E-07	--	8.16E-08	--
1,2,3,4,6,7,8-HPCDD	1.60E-02	4.10E-05	--	1.00E-05	--
1,2,3,4,6,7,8-HPCDF	3.00E-03	7.70E-06	--	1.88E-06	--
	Total	**1.31E-04**	**3.79**	**3.59E-05**	**0.31**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-3-11 and K-3-12.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

Hazard Index Segregation - Resident	
Target Organ	**Hazard Index**
Central Nervous System	2.2E+00
Liver	3.2E-02
Kidney	5.7E-01
Respiratory	2.8E-02
Blood	3.9E-01
Skin	1.1E-02
Gastrointestinal	1.9E-01
Reproductive	1.0E-03
Non-specific	5.4E-01
Body Weight	2.8E-03
Cardiovascular	1.0E-01

TABLE K-3-11
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	7.00E-03	3.16E-08	6.23E-03	9.41E-09	6.59E-04
PCB-105 (2,3,3',4,4')	3.00E-03	*	2.67E-03	*	2.82E-04
PCB-118 (2,3',4,4',5)	5.00E-03	*	4.45E-03	*	4.71E-04
PCB-126 (3,3',4,4',5)	5.60E-04	*	4.98E-04	*	5.27E-05
PCB-128 (2,2',3,3',4,4')	3.00E-03	1.35E-08	2.67E-03	4.03E-09	2.82E-04
PCB-138 (2,2',3,4,4',5')	1.20E-02	5.41E-08	1.07E-02	1.61E-08	1.13E-03
PCB-153 (2,2',4,4',5,5')	9.60E-03	4.33E-08	8.54E-03	1.29E-08	9.04E-04
PCB-170 (2,2',3,3',4,4',5)	6.60E-03	2.97E-08	5.87E-03	8.88E-09	6.21E-04
PCB-18 (2,2',5)	8.10E-04	3.65E-09	7.21E-04	1.09E-09	7.63E-05
PCB-180 (2,2',3,4,4',5,5')	1.50E-02	6.76E-08	1.33E-02	2.02E-08	1.41E-03
PCB-187 (2,2',3,4',5,5',6)	6.70E-03	3.02E-08	5.96E-03	9.01E-09	6.31E-04
PCB-195 (2,2',3,3',4,4',5,6)	1.30E-03	5.86E-09	1.16E-03	1.75E-09	1.22E-04
PCB-206 (2,2',3,3',4,4',5,5',6)	8.60E-04	3.88E-09	7.65E-04	1.16E-09	8.10E-05
PCB-209 (2,2',3,3',4,4',5,5',6)	2.50E-04	1.13E-09	2.22E-04	3.36E-10	2.35E-05
PCB-28 (2,4,4')	2.10E-03	9.47E-09	1.87E-03	2.82E-09	1.98E-04
PCB-44 (2,2',3,5')	1.70E-03	7.66E-09	1.51E-03	2.29E-09	1.60E-04
PCB-52 (2,2',5,5')	2.00E-03	9.01E-09	1.78E-03	2.69E-09	1.88E-04
PCB-66 (2,3',4,4')	1.00E-03	4.51E-09	8.90E-04	1.34E-09	9.41E-05
PCB-77 (3,3',4,4')	8.70E-04	*	7.74E-04	*	8.19E-05
PCB-8 (2,4')	5.90E-03	2.66E-08	5.25E-03	7.93E-09	5.55E-04
	Total	**3.42E-07**	**0.076**	**1.02E-07**	**0.0080**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-3-12).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-3-12
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SOIL AT THE WOOD HOGGER SITE
0 TO 11 FEET BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	7.00E-03	--	--	--	--	--
PCB-105 (2,3,3',4,4')	3.00E-03	0.0001	7.70E-08	--	1.88E-08	--
PCB-118 (2,3',4,4',5)	5.00E-03	0.0001	1.28E-07	--	3.14E-08	--
PCB-126 (3,3',4,4',5)	5.60E-04	0.1	1.44E-05	--	3.52E-06	--
PCB-128 (2,2',3,3',4,4')	3.00E-03	--	--	--	--	--
PCB-138 (2,2',3,4,4',5')	1.20E-02	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	9.60E-03	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	6.60E-03	--	--	--	--	--
PCB-18 (2,2',5)	8.10E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	1.50E-02	--	--	--	--	--
PCB-187 (2,2',3,4',5,5',6)	6.70E-03	--	--	--	--	--
PCB-195 (2,2',3,3',4,4',5,6)	1.30E-03	--	--	--	--	--
PCB-206 (2,2',3,3',4,4',5,5',6)	8.60E-04	--	--	--	--	--
PCB-209 (2,2',3,3',4,4',5,5',6)	2.50E-04	--	--	--	--	--
PCB-28 (2,4,4')	2.10E-03	--	--	--	--	--
PCB-44 (2,2',3,5')	1.70E-03	--	--	--	--	--
PCB-52 (2,2',5,5')	2.00E-03	--	--	--	--	--
PCB-66 (2,3',4,4')	1.00E-03	--	--	--	--	--
PCB-77 (3,3',4,4')	8.70E-04	0.0001	2.23E-08	--	5.46E-09	--
PCB-8 (2,4')	5.90E-03	--	--	--	--	--
		Total	**1.46E-05**	**--**	**3.57E-06**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-3-13
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	2.10E+00	2.10E+00	1.00E-03	b	--	9.92E-06	--	9.92E-06	--
Antimony	1.87E-03	3.60E-03	1.00E-03	b	--	8.83E-09	--	1.70E-08	--
Arsenic	2.60E-03	1.18E-02	1.00E-03	c	1.50E+00	1.23E-08	1.84E-08	5.57E-08	8.36E-08
Barium	1.11E-01	1.73E-01	1.00E-03	b	--	5.25E-07	--	8.17E-07	--
Cadmium	8.00E-04	2.50E-03	1.00E-03	c	3.80E-01	3.78E-09	1.44E-09	1.18E-08	4.49E-09
Calcium	7.10E+01	1.08E+02	1.00E-03	--	--	3.35E-04	--	5.10E-04	--
Chromium	5.03E-03	6.10E-03	1.00E-03	b	--	2.38E-08	--	2.88E-08	--
Cobalt	9.10E-04	1.40E-03	4.00E-04	b	--	1.72E-09	--	2.64E-09	--
Copper	9.31E-03	1.37E-02	1.00E-03	b	--	4.40E-08	--	6.47E-08	--
Iron	2.61E+00	3.30E+00	1.00E-03	b	--	1.23E-05	--	1.56E-05	--
Lead	1.74E-03	3.70E-03	1.00E-04	--	--	8.22E-10	--	1.75E-09	--
Magnesium	1.53E+02	2.68E+02	1.00E-03	--	--	7.24E-04	--	1.27E-03	--
Manganese	3.12E-01	1.95E+00	1.00E-03	b	--	1.47E-06	--	9.21E-06	--
Mercury	9.00E-05	2.00E-04	1.00E-03	b	--	4.25E-10	--	9.44E-10	--
Molybdenum	3.03E-03	7.30E-03	1.00E-03	b	--	1.43E-08	--	3.45E-08	--
Nickel	5.50E-03	7.60E-03	2.00E-04	b	--	5.19E-09	--	7.18E-09	--
Potassium	4.64E+01	7.33E+01	2.00E-03	--	--	4.38E-04	--	6.92E-04	--
Sodium	1.24E+03	2.20E+03	1.00E-03	--	--	5.87E-03	--	1.04E-02	--
Thallium	1.56E-03	2.40E-03	1.00E-03	b	--	7.37E-09	--	1.13E-08	--
Vanadium	7.58E-03	1.13E-02	1.00E-03	b	--	3.58E-08	--	5.34E-08	--

TABLE K-3-13
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Zinc	3.29E-01	3.29E-01	6.00E-04	b	--	9.32E-07	--	9.32E-07	--
Xylene (Total)	5.70E-03	8.00E-03	5.30E-02	b	--	1.43E-06	--	2.00E-06	--
						Total	**1.99E-08**		**8.81E-08**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-3-14
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	2.10E+00	2.10E+00	1.00E-03	d	1.00E+00	1.16E-04	1.16E-04	1.16E-04	1.16E-04
Antimony	1.87E-03	3.60E-03	1.00E-03	b	4.00E-04	1.03E-07	2.58E-04	1.98E-07	4.96E-04
Arsenic	2.60E-03	1.18E-02	1.00E-03	b	3.00E-04	1.43E-07	4.77E-04	6.50E-07	2.17E-03
Barium	1.11E-01	1.73E-01	1.00E-03	b	7.00E-02	6.13E-06	8.76E-05	9.53E-06	1.36E-04
Cadmium	8.00E-04	2.50E-03	1.00E-03	b	5.00E-04	4.41E-08	8.81E-05	1.38E-07	2.75E-04
Calcium	7.10E+01	1.08E+02	1.00E-03	--	--	3.91E-03	--	5.95E-03	--
Chromium	5.03E-03	6.10E-03	1.00E-03	b	1.50E+00	2.77E-07	1.85E-07	3.36E-07	2.24E-07
Cobalt	9.10E-04	1.40E-03	4.00E-04	d	2.00E-02	2.01E-08	1.00E-06	3.08E-08	1.54E-06
Copper	9.31E-03	1.37E-02	1.00E-03	e	4.00E-02	5.13E-07	1.28E-05	7.55E-07	1.89E-05
Iron	2.61E+00	3.30E+00	1.00E-03	d	3.00E-01	1.44E-04	4.80E-04	1.82E-04	6.06E-04
Lead	1.74E-03	3.70E-03	1.00E-04	c	8.50E-03	9.59E-09	1.13E-06	2.04E-08	2.40E-06
Magnesium	1.53E+02	2.68E+02	1.00E-03	--	--	8.44E-03	--	1.48E-02	--
Manganese	3.12E-01	1.95E+00	1.00E-03	b	2.40E-02	1.72E-05	7.15E-04	1.07E-04	4.48E-03
Mercury	9.00E-05	2.00E-04	1.00E-03	b	3.00E-04	4.96E-09	1.65E-05	1.10E-08	3.67E-05
Molybdenum	3.03E-03	7.30E-03	1.00E-03	b	5.00E-03	1.67E-07	3.34E-05	4.02E-07	8.04E-05
Nickel	5.50E-03	7.60E-03	2.00E-04	b	2.00E-02	6.06E-08	3.03E-06	8.37E-08	4.19E-06
Potassium	4.64E+01	7.33E+01	2.00E-03	--	--	5.11E-03	--	8.08E-03	--
Sodium	1.24E+03	2.20E+03	1.00E-03	--	--	6.85E-02	--	1.21E-01	--
Thallium	1.56E-03	2.40E-03	1.00E-03	b	6.60E-05	8.59E-08	1.30E-03	1.32E-07	2.00E-03
Vanadium	7.58E-03	1.13E-02	1.00E-03	e	7.00E-03	4.18E-07	5.97E-05	6.22E-07	8.89E-05

TABLE K-3-14
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Zinc	3.29E-01	3.29E-01	6.00E-04	b	3.00E-01	1.09E-05	3.62E-05	1.09E-05	3.62E-05
Xylene (Total)	5.70E-03	8.00E-03	5.30E-02	b	7.00E-01	1.66E-05	2.38E-05	2.34E-05	3.34E-05
						Total	**0.0037**		**0.011**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-3-15
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	2.10E+00	2.10E+00	1.00E-03	b	--	1.67E-05	--	1.67E-05	--
Antimony	1.87E-03	3.60E-03	1.00E-03	b	--	1.49E-08	--	2.86E-08	--
Arsenic	2.60E-03	1.18E-02	1.00E-03	c	1.50E+00	2.07E-08	3.10E-08	9.39E-08	1.41E-07
Barium	1.11E-01	1.73E-01	1.00E-03	b	--	8.85E-07	--	1.38E-06	--
Cadmium	8.00E-04	2.50E-03	1.00E-03	c	3.80E-01	6.36E-09	2.42E-09	1.99E-08	7.56E-09
Calcium	7.10E+01	1.08E+02	1.00E-03	--	--	5.65E-04	--	8.59E-04	--
Chromium	5.03E-03	6.10E-03	1.00E-03	b	--	4.00E-08	--	4.85E-08	--
Cobalt	9.10E-04	1.40E-03	4.00E-04	b	--	2.90E-09	--	4.45E-09	--
Copper	9.31E-03	1.37E-02	1.00E-03	b	--	7.41E-08	--	1.09E-07	--
Iron	2.61E+00	3.30E+00	1.00E-03	b	--	2.08E-05	--	2.63E-05	--
Lead	1.74E-03	3.70E-03	1.00E-04	--	--	1.38E-09	--	2.94E-09	--
Magnesium	1.53E+02	2.68E+02	1.00E-03	--	--	1.22E-03	--	2.13E-03	--
Manganese	3.12E-01	1.95E+00	1.00E-03	b	--	2.48E-06	--	1.55E-05	--
Mercury	9.00E-05	2.00E-04	1.00E-03	b	--	7.16E-10	--	1.59E-09	--
Molybdenum	3.03E-03	7.30E-03	1.00E-03	b	--	2.41E-08	--	5.81E-08	--
Nickel	5.50E-03	7.60E-03	2.00E-04	b	--	8.75E-09	--	1.21E-08	--
Potassium	4.64E+01	7.33E+01	2.00E-03	--	--	7.38E-04	--	1.17E-03	--
Sodium	1.24E+03	2.20E+03	1.00E-03	--	--	9.89E-03	--	1.75E-02	--
Thallium	1.56E-03	2.40E-03	1.00E-03	b	--	1.24E-08	--	1.91E-08	--

TABLE K-3-15
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Vanadium	7.58E-03	1.13E-02	1.00E-03	b	--	6.03E-08	--	8.99E-08	--
Zinc	3.29E-01	3.29E-01	6.00E-04	b	--	1.57E-06	--	1.57E-06	--
Xylene (Total)	5.70E-03	8.00E-03	5.30E-02	b	--	2.40E-06	--	3.37E-06	--
						Total	**3.34E-08**		**1.48E-07**

Notes:

a	RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b	IRIS (online database, EPA 2003)
c	Cal/EPA (2003a)
--	Not available or not calculated
CDIc	Chronic daily intake
cm/hr	Centimeter per hour
MAX	Maximum detected concentration
mg/kg-day	Milligram per kilogram per day
mg/L	Milligram per liter
RME	Reasonable maximum exposure

TABLE K-3-16
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	2.10E+00	2.10E+00	1.00E-03	d	1.00E+00	4.87E-05	4.87E-05	4.87E-05	4.87E-05
Antimony	1.87E-03	3.60E-03	1.00E-03	b	4.00E-04	4.34E-08	1.08E-04	8.35E-08	2.09E-04
Arsenic	2.60E-03	1.18E-02	1.00E-03	b	3.00E-04	6.03E-08	2.01E-04	2.74E-07	9.13E-04
Barium	1.11E-01	1.73E-01	1.00E-03	b	7.00E-02	2.58E-06	3.69E-05	4.01E-06	5.73E-05
Cadmium	8.00E-04	2.50E-03	1.00E-03	b	5.00E-04	1.86E-08	3.71E-05	5.80E-08	1.16E-04
Calcium	7.10E+01	1.08E+02	1.00E-03	--	--	1.65E-03	--	2.51E-03	--
Chromium	5.03E-03	6.10E-03	1.00E-03	b	1.50E+00	1.17E-07	7.78E-08	1.42E-07	9.44E-08
Cobalt	9.10E-04	1.40E-03	4.00E-04	d	2.00E-02	8.45E-09	4.22E-07	1.30E-08	6.50E-07
Copper	9.31E-03	1.37E-02	1.00E-03	e	4.00E-02	2.16E-07	5.40E-06	3.18E-07	7.95E-06
Iron	2.61E+00	3.30E+00	1.00E-03	d	3.00E-01	6.06E-05	2.02E-04	7.66E-05	2.55E-04
Lead	1.74E-03	3.70E-03	1.00E-04	c	8.50E-03	4.04E-09	4.75E-07	8.58E-09	1.01E-06
Magnesium	1.53E+02	2.68E+02	1.00E-03	--	--	3.56E-03	--	6.22E-03	--
Manganese	3.12E-01	1.95E+00	1.00E-03	b	2.40E-02	7.23E-06	3.01E-04	4.52E-05	1.89E-03
Mercury	9.00E-05	2.00E-04	1.00E-03	b	3.00E-04	2.09E-09	6.96E-06	4.64E-09	1.55E-05
Molybdenum	3.03E-03	7.30E-03	1.00E-03	b	5.00E-03	7.03E-08	1.41E-05	1.69E-07	3.39E-05
Nickel	5.50E-03	7.60E-03	2.00E-04	b	2.00E-02	2.55E-08	1.28E-06	3.53E-08	1.76E-06
Potassium	4.64E+01	7.33E+01	2.00E-03	--	--	2.15E-03	--	3.40E-03	--
Sodium	1.24E+03	2.20E+03	1.00E-03	--	--	2.88E-02	--	5.10E-02	--
Thallium	1.56E-03	2.40E-03	1.00E-03	b	6.60E-05	3.62E-08	5.48E-04	5.57E-08	8.44E-04

TABLE K-3-16
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Vanadium	7.58E-03	1.13E-02	1.00E-03	e	7.00E-03	1.76E-07	2.51E-05	2.62E-07	3.75E-05
Zinc	3.29E-01	3.29E-01	6.00E-04	b	3.00E-01	4.58E-06	1.53E-05	4.58E-06	1.53E-05
Xylene (Total)	5.70E-03	8.00E-03	5.30E-02	b	7.00E-01	7.01E-06	1.00E-05	9.84E-06	1.41E-05
						Total	**0.0016**		**0.0045**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-3-17
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	2.10E+00	2.10E+00	1.00E-03	b	--	1.74E-05	--	1.74E-05	--
Antimony	1.87E-03	3.60E-03	1.00E-03	b	--	1.55E-08	--	2.98E-08	--
Arsenic	2.60E-03	1.18E-02	1.00E-03	c	1.50E+00	2.15E-08	3.23E-08	9.78E-08	1.47E-07
Barium	1.11E-01	1.73E-01	1.00E-03	b	--	9.22E-07	--	1.43E-06	--
Cadmium	8.00E-04	2.50E-03	1.00E-03	c	3.80E-01	6.63E-09	2.52E-09	2.07E-08	7.87E-09
Calcium	7.10E+01	1.08E+02	1.00E-03	--	--	5.88E-04	--	8.95E-04	--
Chromium	5.03E-03	6.10E-03	1.00E-03	b	--	4.17E-08	--	5.05E-08	--
Cobalt	9.10E-04	1.40E-03	4.00E-04	b	--	3.02E-09	--	4.64E-09	--
Copper	9.31E-03	1.37E-02	1.00E-03	b	--	7.71E-08	--	1.14E-07	--
Iron	2.61E+00	3.30E+00	1.00E-03	b	--	2.17E-05	--	2.73E-05	--
Lead	1.74E-03	3.70E-03	1.00E-04	--	--	1.44E-09	--	3.07E-09	--
Magnesium	1.53E+02	2.68E+02	1.00E-03	--	--	1.27E-03	--	2.22E-03	--
Manganese	3.12E-01	1.95E+00	1.00E-03	b	--	2.58E-06	--	1.62E-05	--
Mercury	9.00E-05	2.00E-04	1.00E-03	b	--	7.46E-10	--	1.66E-09	--
Molybdenum	3.03E-03	7.30E-03	1.00E-03	b	--	2.51E-08	--	6.05E-08	--
Nickel	5.50E-03	7.60E-03	2.00E-04	b	--	9.11E-09	--	1.26E-08	--
Potassium	4.64E+01	7.33E+01	2.00E-03	--	--	7.69E-04	--	1.21E-03	--
Sodium	1.24E+03	2.20E+03	1.00E-03	--	--	1.03E-02	--	1.82E-02	--
Thallium	1.56E-03	2.40E-03	1.00E-03	b	--	1.29E-08	--	1.99E-08	--

TABLE K-3-17
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Vanadium	7.58E-03	1.13E-02	1.00E-03	b	--	6.28E-08	--	9.36E-08	--
Zinc	3.29E-01	3.29E-01	6.00E-04	b	--	1.64E-06	--	1.64E-06	--
Xylene (Total)	5.70E-03	8.00E-03	5.30E-02	b	--	2.50E-06	--	3.51E-06	--
						Total	**3.48E-08**		**1.55E-07**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-3-18
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	2.10E+00	2.10E+00	1.00E-03	d	1.00E+00	4.87E-05	4.87E-05	4.87E-05	4.87E-05
Antimony	1.87E-03	3.60E-03	1.00E-03	b	4.00E-04	4.34E-08	1.08E-04	8.35E-08	2.09E-04
Arsenic	2.60E-03	1.18E-02	1.00E-03	b	3.00E-04	6.03E-08	2.01E-04	2.74E-07	9.13E-04
Barium	1.11E-01	1.73E-01	1.00E-03	b	7.00E-02	2.58E-06	3.69E-05	4.01E-06	5.73E-05
Cadmium	8.00E-04	2.50E-03	1.00E-03	b	5.00E-04	1.86E-08	3.71E-05	5.80E-08	1.16E-04
Calcium	7.10E+01	1.08E+02	1.00E-03	--	--	1.65E-03	--	2.51E-03	--
Chromium	5.03E-03	6.10E-03	1.00E-03	b	1.50E+00	1.17E-07	7.78E-08	1.42E-07	9.44E-08
Cobalt	9.10E-04	1.40E-03	4.00E-04	d	2.00E-02	8.45E-09	4.22E-07	1.30E-08	6.50E-07
Copper	9.31E-03	1.37E-02	1.00E-03	e	4.00E-02	2.16E-07	5.40E-06	3.18E-07	7.95E-06
Iron	2.61E+00	3.30E+00	1.00E-03	d	3.00E-01	6.06E-05	2.02E-04	7.66E-05	2.55E-04
Lead	1.74E-03	3.70E-03	1.00E-04	c	8.50E-03	4.04E-09	4.75E-07	8.58E-09	1.01E-06
Magnesium	1.53E+02	2.68E+02	1.00E-03	--	--	3.56E-03	--	6.22E-03	--
Manganese	3.12E-01	1.95E+00	1.00E-03	b	2.40E-02	7.23E-06	3.01E-04	4.52E-05	1.89E-03
Mercury	9.00E-05	2.00E-04	1.00E-03	b	3.00E-04	2.09E-09	6.96E-06	4.64E-09	1.55E-05
Molybdenum	3.03E-03	7.30E-03	1.00E-03	b	5.00E-03	7.03E-08	1.41E-05	1.69E-07	3.39E-05
Nickel	5.50E-03	7.60E-03	2.00E-04	b	2.00E-02	2.55E-08	1.28E-06	3.53E-08	1.76E-06
Potassium	4.64E+01	7.33E+01	2.00E-03	--	--	2.15E-03	--	3.40E-03	--
Sodium	1.24E+03	2.20E+03	1.00E-03	--	--	2.88E-02	--	5.10E-02	--
Thallium	1.56E-03	2.40E-03	1.00E-03	b	6.60E-05	3.62E-08	5.48E-04	5.57E-08	8.44E-04

TABLE K-3-18
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT THE WOOD HOGGER SITE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Vanadium	7.58E-03	1.13E-02	1.00E-03	e	7.00E-03	1.76E-07	2.51E-05	2.62E-07	3.75E-05
Zinc	3.29E-01	3.29E-01	6.00E-04	b	3.00E-01	4.58E-06	1.53E-05	4.58E-06	1.53E-05
Xylene (Total)	5.70E-03	8.00E-03	5.30E-02	b	7.00E-01	7.01E-06	1.00E-05	9.84E-06	1.41E-05
						Total	**0.0016**		**0.0045**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-3-19
RISK SUMMARY FOR WOOD HOGGER SITE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Receptor	Medium		Cancer Risk[a]	HI[a]	Soil Lead Concentration (mg/kg)
Current Site Configuration					
Resident	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides, Dioxins and Furans	8.7E-05	9.7E-01	109
		Nondioxin-like PCBs	1.8E-08	4.9E-03	
		Dioxin-like PCBs	4.1E-06	--	
	Surface water		5.3E-08	3.7E-03	
	Total		**9.2E-05**	**9.8E-01**	
Commercial/ Industrial Worker	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides, Dioxins and Furans	2.3E-05	8.2E-02	
		Nondioxin-like PCBs	5.5E-09	5.2E-04	
		Dioxin-like PCBs	1.0E-06	--	
	Surface water		3.5E-08	1.6E-03	
	Total		**2.5E-05**	**8.4E-02**	
Future Site Configuration					
Resident	Soil (0-11 ft)	Metals, SVOCs, Pesticides, Dioxins and Furans	7.2E-05	8.7E-01	64
		Nondioxin-like PCBs	1.8E-08	4.9E-03	
		Dioxin-like PCBs	4.1E-06	--	
	Surface water		5.3E-08	3.7E-03	
	Total		**7.6E-05**	**8.8E-01**	
Commercial/ Industrial Worker	Soil (0-11 ft)	Metals, SVOCs, Pesticides, Dioxins and Furans	1.9E-05	7.4E-02	
		Nondioxin-like PCBs	5.5E-09	5.2E-04	
		Dioxin-like PCBs	1.0E-06	--	
	Surface water		3.5E-08	1.6E-03	
	Total		**2.0E-05**	**7.6E-02**	

Notes:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI and the value in parenthesis is the total HI.

ft Feet
HI Hazard index
mg/kg Milligrams per kilogram
PCBs Polychlorinated biphphenyls
SVOCs Semi-volatile organic compounds
VOCs Volatile organic compounds

TABLE K-3-20
RISK SUMMARY FOR WOOD HOGGER SITE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Receptor	Medium		Cancer Risk[a]	HI[a]	Soil Lead Concentration (mg/kg)
Current Site Configuration					
Resident	Soil (0-0.5 ft)	Metals, VOCs, SVOCs, Pesticides, Dioxins and Furans	1.3E-04	3.6E+00	109
		Nondioxin-like PCBs	3.4E-07	7.6E-02	
		Dioxin-like PCBs	1.5E-05	--	
	Surface water		2.4E-07	1.1E-02	
	Total		**1.5E-04**	**2.1 (3.7)**	
Commercial/ Industrial Worker	Soil (0-0.5 ft)	Metals, VOCs, SVOCs, Pesticides, Dioxins and Furans	3.6E-05	2.9E-01	
		Nondioxin-like PCBs	1.0E-07	8.0E-03	
		Dioxin-like PCBs	3.6E-06	--	
	Surface water		1.5E-07	4.5E-03	
	Total		**4.0E-05**	**3.1E-01**	
Future Site Configuration					
Resident	Soil (0-11 ft)	Metals, VOCs, SVOCs, Pesticides, Dioxins and Furans	1.3E-04	3.8E+00	64
		Nondioxin-like PCBs	3.4E-07	7.6E-02	
		Dioxin-like PCBs	1.5E-05	--	
	Surface water		2.4E-07	1.1E-02	
	Total		**1.5E-04**	**2.2 (3.9)**	
Commercial/ Industrial Worker	Soil (0-11 ft)	Metals, VOCs, SVOCs, Pesticides, Dioxins and Furans	3.6E-05	3.1E-01	
		Nondioxin-like PCBs	1.0E-07	8.0E-03	
		Dioxin-like PCBs	3.6E-06	--	
	Surface water		1.5E-07	4.5E-03	
	Total		**4.0E-05**	**3.2E-01**	

Notes:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI and the value in parenthesis is the total HI.

ft Feet
HI Hazard index
mg/kg Milligrams per kilogram
PCBs Polychlorinated biphphenyls
SVOCs Semi-volatile organic compounds
VOCs Volatile organic compounds

TABLE K-4-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SEDIMENT AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	2.62E+04	--	3.44E-01	--	2.84E-02
Antimony	3.62E+00	--	1.16E-01	--	8.84E-03
Arsenic	1.96E+01	5.04E-05	9.07E-01	1.23E-05	7.67E-02
Beryllium	5.51E-01	5.23E-10	3.57E-03	2.46E-10	2.84E-04
Cadmium	1.90E+00	1.35E-09	5.13E-02	6.36E-10	4.21E-03
Chromium	9.07E+01	4.30E-07	--	2.02E-07	--
Cobalt	2.08E+01	2.30E-08	1.50E-02	1.08E-08	1.56E-03
Copper	7.45E+01	--	2.38E-02	--	1.82E-03
Lead	5.24E+01	--	--	--	--
Manganese	4.61E+02	--	2.62E-01	--	2.37E-02
Mercury	9.15E-01	--	3.90E-02	--	2.98E-03
Nickel	8.71E+01	--	5.57E-02	--	4.26E-03
Selenium	1.50E+00	--	3.84E-03	--	2.94E-04
Silver	6.00E-01	--	1.53E-03	--	1.17E-04
Thallium	1.56E+00	--	3.02E-01	--	2.31E-02
Vanadium	9.74E+01	--	1.78E-01	--	1.36E-02
Zinc	2.03E+02	--	8.63E-03	--	6.61E-04
Semivolatile Organic Compounds					
2,6-Dimethylnaphthalene	1.30E-02	--	2.32E-04	--	6.93E-05
4-Methylphenol	2.00E-01	--	6.55E-04	--	6.50E-05
Anthracene	2.40E-02	--	1.10E-06	--	1.01E-07
Benzo(a)anthracene	1.10E-01	1.77E-07	5.02E-06	5.21E-08	4.62E-07
Benzo(a)pyrene	1.40E-01	2.25E-06	6.05E-05	6.64E-07	4.81E-06
Benzo(b)fluoranthene	1.30E-01	2.09E-07	5.67E-05	6.16E-08	5.91E-06
Benzo(e)pyrene	9.90E-02	--	4.27E-05	--	3.40E-06
Benzo(g,h,i)perylene	1.10E-01	--	4.75E-05	--	3.78E-06
Benzo(k)fluoranthene	1.30E-01	3.44E-07	5.67E-05	1.01E-07	5.91E-06
Chrysene	1.40E-01	3.70E-08	--	1.09E-08	--
Fluoranthene	2.20E-01	--	9.59E-05	--	1.00E-05
Indeno(1,2,3-cd)pyrene	7.60E-02	1.22E-07	3.28E-05	3.60E-08	2.61E-06
Perylene	1.60E-01	--	6.91E-05	--	5.49E-06
Phenanthrene	5.90E-02	--	2.69E-06	--	2.48E-07
Pyrene	4.10E-01	--	1.77E-04	--	1.41E-05

TABLE K-4-1
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SEDIMENT AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Pesticides					
2,4'-DDD	4.00E-04	1.64E-10	--	4.02E-11	--
2,4'-DDT	2.90E-04	1.69E-10	8.04E-06	4.13E-11	6.80E-07
4,4'-DDD	1.25E-03	5.13E-10	--	1.26E-10	--
4,4'-DDE	1.58E-03	9.19E-10	--	2.25E-10	--
4,4'-DDT	3.60E-04	2.09E-10	9.98E-06	5.12E-11	8.44E-07
Alpha-BHC	4.40E-04	4.88E-09	1.25E-05	1.22E-09	1.09E-06
Alpha-chlordane	7.00E-04	4.31E-10	1.99E-05	1.08E-10	1.73E-06
Gamma-BHC (Lindane)	3.40E-04	7.78E-10	1.61E-05	1.95E-10	1.40E-06
Gamma-chlordane	5.10E-04	3.14E-10	1.45E-05	7.89E-11	1.26E-06
Heptachlor	6.30E-04	5.83E-09	2.06E-05	1.64E-09	2.05E-06
Hexachlorobenzene	4.00E-04	1.32E-09	8.18E-06	3.71E-10	8.12E-07
Methoxychlor	2.87E-03	--	9.39E-06	--	9.32E-07
Trans-nonachlor	5.10E-04	3.14E-10	1.45E-05	7.89E-11	1.26E-06
Dioxins					
1,2,3,4,6,7,8,9-OCDD	8.00E-04	2.05E-08	--	5.02E-09	--
	Total	**5.40E-05**	**2.31**	**1.35E-05**	**0.19**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-4-2 and K-4-3.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

Hazard Index Segregation - Resident	
Target Organ	**Hazard Index**
Central Nervous System	6.5E-01
Liver	4.8E-03
Kidney	5.2E-02
Respiratory	1.6E-02
Blood	1.4E-01
Skin	1.2E+00
Gastrointestinal	2.4E-02
Reproductive	0.0E+00
Non-specific	6.0E-01
Body Weight	5.6E-02
Cardiovascular	9.1E-01

TABLE K-4-2
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SEDIMENT AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	9.00E-05	4.06E-10	8.01E-05	1.21E-10	8.47E-06
PCB-105 (2,3,3',4,4')	1.90E-04	*	1.69E-04	*	1.79E-05
PCB-138 (2,2',3,4,4',5')	5.00E-04	2.25E-09	4.45E-04	6.72E-10	4.71E-05
PCB-153 (2,2',4,4',5,5')	4.50E-04	2.03E-09	4.00E-04	6.05E-10	4.24E-05
PCB-170 (2,2',3,3',4,4',5)	4.10E-04	1.85E-09	3.65E-04	5.51E-10	3.86E-05
PCB-180 (2,2',3,4,4',5,5')	3.60E-04	1.62E-09	3.20E-04	4.84E-10	3.39E-05
PCB-44 (2,2',3,5')	3.60E-04	1.62E-09	3.20E-04	4.84E-10	3.39E-05
PCB-52 (2,2',5,5')	4.70E-04	2.12E-09	4.18E-04	6.32E-10	4.42E-05
PCB-66 (2,3',4,4')	2.20E-04	9.92E-10	1.96E-04	2.96E-10	2.07E-05
PCB-8 (2,4')	7.40E-04	3.34E-09	6.59E-04	9.95E-10	6.97E-05
	Total	**1.62E-08**	**0.0034**	**4.84E-09**	**0.00036**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-4-3).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-4-3
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SEDIMENT AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	9.00E-05	--	--	--	--	--
PCB-105 (2,3,3',4,4')	1.90E-04	0.0001	4.87E-09	--	1.19E-09	--
PCB-138 (2,2',3,4,4',5')	5.00E-04	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	4.50E-04	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	4.10E-04	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	3.60E-04	--	--	--	--	--
PCB-44 (2,2',3,5')	3.60E-04	--	--	--	--	--
PCB-52 (2,2',5,5')	4.70E-04	--	--	--	--	--
PCB-66 (2,3',4,4')	2.20E-04	--	--	--	--	--
PCB-8 (2,4')	7.40E-04	--	--	--	--	--
		Total	**4.87E-09**	**--**	**1.19E-09**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-4-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SEDIMENT AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Metals					
Aluminum	3.52E+04	--	4.62E-01	--	3.82E-02
Antimony	9.30E+00	--	2.97E-01	--	2.27E-02
Arsenic	2.59E+01	6.65E-05	1.20E+00	1.63E-05	1.01E-01
Beryllium	9.40E-01	8.92E-10	6.09E-03	4.19E-10	4.84E-04
Cadmium	1.90E+00	1.35E-09	5.13E-02	6.36E-10	4.21E-03
Chromium	9.55E+01	4.53E-07	--	2.13E-07	--
Cobalt	2.51E+01	2.78E-08	1.82E-02	1.31E-08	1.88E-03
Copper	1.01E+02	--	3.23E-02	--	2.47E-03
Lead	8.95E+01	--	--	--	--
Manganese	6.07E+02	--	3.44E-01	--	3.12E-02
Mercury	1.60E+00	--	6.82E-02	--	5.22E-03
Nickel	1.12E+02	--	7.16E-02	--	5.48E-03
Selenium	1.50E+00	--	3.84E-03	--	2.94E-04
Silver	6.00E-01	--	1.53E-03	--	1.17E-04
Thallium	2.80E+00	--	5.42E-01	--	4.15E-02
Vanadium	1.19E+02	--	2.17E-01	--	1.66E-02
Zinc	2.85E+02	--	1.21E-02	--	9.30E-04
Semivolatile Organic Compounds					
2,6-Dimethylnaphthalene	1.30E-02	--	2.32E-04	--	6.93E-05
4-Methylphenol	2.00E-01	--	6.55E-04	--	6.50E-05
Anthracene	2.40E-02	--	1.10E-06	--	1.01E-07
Benzo(a)anthracene	1.10E-01	1.77E-07	5.02E-06	5.21E-08	4.62E-07
Benzo(a)pyrene	1.40E-01	2.25E-06	6.05E-05	6.64E-07	4.81E-06
Benzo(b)fluoranthene	1.30E-01	2.09E-07	5.67E-05	6.16E-08	5.91E-06
Benzo(e)pyrene	9.90E-02	--	4.27E-05	--	3.40E-06
Benzo(g,h,i)perylene	1.10E-01	--	4.75E-05	--	3.78E-06
Benzo(k)fluoranthene	1.30E-01	3.44E-07	5.67E-05	1.01E-07	5.91E-06
Chrysene	1.40E-01	3.70E-08	--	1.09E-08	--
Fluoranthene	2.20E-01	--	9.59E-05	--	1.00E-05
Indeno(1,2,3-cd)pyrene	7.60E-02	1.22E-07	3.28E-05	3.60E-08	2.61E-06
Perylene	1.60E-01	--	6.91E-05	--	5.49E-06
Phenanthrene	5.90E-02	--	2.69E-06	--	2.48E-07
Pyrene	4.10E-01	--	1.77E-04	--	1.41E-05

TABLE K-4-4
RISK RESULTS FOR THE PRELIMINARY REMEDIATION GOAL ASSESSMENT
OF SEDIMENT AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
Pesticides					
2,4'-DDD	6.70E-04	2.75E-10	--	6.73E-11	--
2,4'-DDT	3.20E-04	1.86E-10	8.87E-06	4.56E-11	7.50E-07
4,4'-DDD	2.00E-03	8.21E-10	--	2.01E-10	--
4,4'-DDE	2.00E-03	1.16E-09	--	2.85E-10	--
4,4'-DDT	3.60E-04	2.09E-10	9.98E-06	5.12E-11	8.44E-07
Alpha-BHC	5.00E-04	5.54E-09	1.42E-05	1.39E-09	1.24E-06
Alpha-chlordane	1.10E-03	6.77E-10	3.13E-05	1.70E-10	2.72E-06
Gamma-BHC (Lindane)	6.00E-04	1.37E-09	2.84E-05	3.45E-10	2.47E-06
Gamma-chlordane	7.00E-04	4.31E-10	1.99E-05	1.08E-10	1.73E-06
Heptachlor	1.80E-03	1.67E-08	5.89E-05	4.70E-09	5.85E-06
Hexachlorobenzene	4.00E-04	1.32E-09	8.18E-06	3.71E-10	8.12E-07
Methoxychlor	5.00E-03	--	1.64E-05	--	1.62E-06
Trans-nonachlor	9.30E-04	5.73E-10	2.64E-05	1.44E-10	2.30E-06
Dioxins					
1,2,3,4,6,7,8,9-OCDD	8.00E-04	2.05E-08	--	5.02E-09	--
	Total	**7.01E-05**	**3.33**	**1.75E-05**	**0.27**

Notes:

a Polychlorinated biphenyls were evaluated separately using a mixture approach and a toxicity equivalence factor approach, as described in Section 6.1.4.2. The risk estimates are presented in Tables K-4-5 and K-4-6.

-- Not available or not evaluated
BHC Benzenehexachloride
DDD Dichlorodiphenyldichloroethane
DDE Dichlorodiphenyldichloroethene
DDT Dichlorodiphenyltrichloroethane
EPC Exposure point concentration
mg/kg Miligrams per kilogram

Hazard Index Segregation - Resident	
Target Organ	**Hazard Index**
Central Nervous System	8.8E-01
Liver	4.9E-03
Kidney	5.2E-02
Respiratory	1.9E-02
Blood	3.3E-01
Skin	1.7E+00
Gastrointestinal	3.2E-02
Reproductive	0.0E+00
Non-specific	1.1E+00
Body Weight	7.2E-02
Cardiovascular	1.2E+00

TABLE K-4-5
RISK RESULTS USING A MIXTURES APPROACH FOR POLYCHLORINATED BIPHENYLS
IN SEDIMENT AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

		Resident		Industrial Worker	
Analyte[a]	**EPC (mg/kg)**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	9.00E-05	4.06E-10	8.01E-05	1.21E-10	8.47E-06
PCB-105 (2,3,3',4,4')	1.90E-04	*	1.69E-04	*	1.79E-05
PCB-138 (2,2',3,4,4',5')	1.00E-03	4.51E-09	8.90E-04	1.34E-09	9.41E-05
PCB-153 (2,2',4,4',5,5')	8.00E-04	3.61E-09	7.12E-04	1.08E-09	7.53E-05
PCB-170 (2,2',3,3',4,4',5)	1.00E-03	4.51E-09	8.90E-04	1.34E-09	9.41E-05
PCB-180 (2,2',3,4,4',5,5')	7.00E-04	3.16E-09	6.23E-04	9.41E-10	6.59E-05
PCB-44 (2,2',3,5')	5.70E-04	2.57E-09	5.07E-04	7.67E-10	5.37E-05
PCB-52 (2,2',5,5')	8.90E-04	4.01E-09	7.92E-04	1.20E-09	8.38E-05
PCB-66 (2,3',4,4')	2.20E-04	9.92E-10	1.96E-04	2.96E-10	2.07E-05
PCB-8 (2,4')	7.40E-04	3.34E-09	6.59E-04	9.95E-10	6.97E-05
	Total	**2.71E-08**	**0.0055**	**8.08E-09**	**0.00058**

Notes:

* The cancer risk for dioxin-like PCBs is evaluated using toxicity equivalence factors (see Table K-4-6).

a For nondixon-like PCBs, the PRG for Aroclor 1260 was used to evaluate cancer effects and the PRG for Aroclor 1254 was used to evaluate noncancer adverse health effects.

-- Not available or not evaluated
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

TABLE K-4-6
RISK RESULTS FOR POLYCHLORINATED BIPHENYLS WITH DIOXIN-LIKE ACTIVITY
IN SEDIMENT AT OTTER SLUICE
0 TO 0.5 FOOT BELOW GROUND SURFACE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

			Resident		Industrial Worker	
Analyte	**EPC (mg/kg)**	**TCDD-TEF**	**Cancer Risk**	**Hazard Index**	**Cancer Risk**	**Hazard Index**
PCB-101 (2,2',3,5,5')	9.00E-05	--	--	--	--	--
PCB-105 (2,3,3',4,4')	1.90E-04	0.0001	4.87E-09	--	1.19E-09	--
PCB-138 (2,2',3,4,4',5')	1.00E-03	--	--	--	--	--
PCB-153 (2,2',4,4',5,5')	8.00E-04	--	--	--	--	--
PCB-170 (2,2',3,3',4,4',5)	1.00E-03	--	--	--	--	--
PCB-180 (2,2',3,4,4',5,5')	7.00E-04	--	--	--	--	--
PCB-44 (2,2',3,5')	5.70E-04	--	--	--	--	--
PCB-52 (2,2',5,5')	8.90E-04	--	--	--	--	--
PCB-66 (2,3',4,4')	2.20E-04	--	--	--	--	--
PCB-8 (2,4')	7.40E-04	--	--	--	--	--
		Total	**4.87E-09**	**--**	**1.19E-09**	**--**

Notes:

--	Not available or not evaluated
EPC	Exposure point concentration
mg/kg	Milligrams per kilogram
PCB	Polychlorinated biphenyl
TCDD-TEF	2,3,7,8-Tetrachlorodibenzo-p-dioxin

TABLE K-4-7
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	8.64E-01	1.45E+00	1.00E-03	b	--	4.08E-06	--	6.85E-06	--
Arsenic	2.40E-03	5.00E-03	1.00E-03	c	1.50E+00	1.13E-08	1.70E-08	2.36E-08	3.54E-08
Barium	4.79E-02	1.16E+00	1.00E-03	b	--	2.26E-07	--	5.48E-06	--
Cadmium	1.90E-04	5.20E-04	1.00E-03	c	3.80E-01	8.97E-10	3.41E-10	2.46E-09	9.33E-10
Calcium	4.06E+01	5.82E+01	1.00E-03	--	--	1.92E-04	--	2.75E-04	--
Chromium	2.10E-03	4.50E-03	1.00E-03	b	--	9.92E-09	--	2.12E-08	--
Cobalt	6.60E-04	1.30E-03	4.00E-04	b	--	1.25E-09	--	2.46E-09	--
Copper	5.65E-03	9.50E-03	1.00E-03	b	--	2.67E-08	--	4.49E-08	--
Iron	1.54E+00	2.56E+00	1.00E-03	b	--	7.29E-06	--	1.21E-05	--
Lead	1.11E-03	3.10E-03	1.00E-04	--	--	5.24E-10	--	1.46E-09	--
Magnesium	9.32E+01	1.50E+02	1.00E-03	--	--	4.40E-04	--	7.08E-04	--
Manganese	1.36E-01	2.56E-01	1.00E-03	b	--	6.44E-07	--	1.21E-06	--
Mercury	7.00E-05	2.40E-04	1.00E-03	b	--	3.31E-10	--	1.13E-09	--
Molybdenum	8.50E-04	2.20E-03	1.00E-03	b	--	4.01E-09	--	1.04E-08	--
Nickel	4.49E-03	6.90E-03	2.00E-04	b	--	4.24E-09	--	6.52E-09	--
Potassium	3.02E+01	4.37E+01	2.00E-03	--	--	2.85E-04	--	4.13E-04	--
Selenium	1.00E-03	1.00E-03	1.00E-03	b	--	4.72E-09	--	4.72E-09	--
Sodium	6.98E+02	1.17E+03	1.00E-03	--	--	3.30E-03	--	5.52E-03	--
Thallium	1.59E-03	2.40E-03	1.00E-03	b	--	7.51E-09	--	1.13E-08	--
Vanadium	5.99E-03	9.80E-03	1.00E-03	b	--	2.83E-08	--	4.63E-08	--
Zinc	1.64E-02	4.30E-01	6.00E-04	b	--	4.66E-08	--	1.22E-06	--
Chloromethane	5.68E-03	1.10E-02	3.30E-03	d	1.30E-02	8.85E-08	1.15E-09	1.71E-07	2.23E-09
Bis(2-ethylhexyl)pl	4.78E-03	2.90E-02	2.50E-02	c	3.00E-03	5.64E-07	1.69E-09	3.42E-06	1.03E-08

TABLE K-4-7
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Alpha-chlordane	3.00E-05	4.00E-05	3.40E-02	c	1.30E+00	4.82E-09	6.26E-09	6.42E-09	8.35E-09
Heptachlor	3.00E-05	1.10E-04	8.60E-03	c	4.10E+00	1.22E-09	4.99E-09	4.47E-09	1.83E-08
						Total	**3.14E-08**		**7.55E-08**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d HEAST (EPA 1997b)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-4-8
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	8.64E-01	1.45E+00	1.00E-03	d	1.00E+00	4.76E-05	4.76E-05	7.99E-05	7.99E-05
Arsenic	2.40E-03	5.00E-03	1.00E-03	b	3.00E-04	1.32E-07	4.41E-04	2.75E-07	9.18E-04
Barium	4.79E-02	1.16E+00	1.00E-03	b	7.00E-02	2.64E-06	3.77E-05	6.39E-05	9.13E-04
Cadmium	1.90E-04	5.20E-04	1.00E-03	b	5.00E-04	1.05E-08	2.09E-05	2.86E-08	5.73E-05
Calcium	4.06E+01	5.82E+01	1.00E-03	--	--	2.24E-03	--	3.21E-03	--
Chromium	2.10E-03	4.50E-03	1.00E-03	b	1.50E+00	1.16E-07	7.71E-08	2.48E-07	1.65E-07
Cobalt	6.60E-04	1.30E-03	4.00E-04	d	2.00E-02	1.45E-08	7.27E-07	2.86E-08	1.43E-06
Copper	5.65E-03	9.50E-03	1.00E-03	e	4.00E-02	3.11E-07	7.78E-06	5.23E-07	1.31E-05
Iron	1.54E+00	2.56E+00	1.00E-03	d	3.00E-01	8.50E-05	2.83E-04	1.41E-04	4.70E-04
Lead	1.11E-03	3.10E-03	1.00E-04	c	8.50E-03	6.11E-09	7.19E-07	1.71E-08	2.01E-06
Magnesium	9.32E+01	1.50E+02	1.00E-03	--	--	5.13E-03	--	8.26E-03	--
Manganese	1.36E-01	2.56E-01	1.00E-03	b	2.40E-02	7.52E-06	3.13E-04	1.41E-05	5.88E-04
Mercury	7.00E-05	2.40E-04	1.00E-03	b	3.00E-04	3.86E-09	1.29E-05	1.32E-08	4.41E-05
Molybdenum	8.50E-04	2.20E-03	1.00E-03	b	5.00E-03	4.68E-08	9.36E-06	1.21E-07	2.42E-05
Nickel	4.49E-03	6.90E-03	2.00E-04	b	2.00E-02	4.95E-08	2.47E-06	7.60E-08	3.80E-06
Potassium	3.02E+01	4.37E+01	2.00E-03	--	--	3.32E-03	--	4.81E-03	--
Selenium	1.00E-03	1.00E-03	1.00E-03	b	5.00E-03	5.51E-08	1.10E-05	5.51E-08	1.10E-05
Sodium	6.98E+02	1.17E+03	1.00E-03	--	--	3.85E-02	--	6.45E-02	--
Thallium	1.59E-03	2.40E-03	1.00E-03	b	6.60E-05	8.76E-08	1.33E-03	1.32E-07	2.00E-03
Vanadium	5.99E-03	9.80E-03	1.00E-03	e	7.00E-03	3.30E-07	4.71E-05	5.40E-07	7.71E-05
Zinc	1.64E-02	4.30E-01	6.00E-04	b	3.00E-01	5.43E-07	1.81E-06	1.42E-05	4.74E-05
Chloromethane	5.68E-03	1.10E-02	3.30E-03	f,d	8.60E-02	1.03E-06	1.20E-05	2.00E-06	2.33E-05

TABLE K-4-8
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, CHILD RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Bis(2-ethylhexyl)phtha	4.78E-03	2.90E-02	2.50E-02	b	2.00E-02	6.58E-06	3.29E-04	3.99E-05	2.00E-03
Alpha-chlordane	3.00E-05	4.00E-05	3.40E-02	b	5.00E-04	5.62E-08	1.12E-04	7.49E-08	1.50E-04
Heptachlor	3.00E-05	1.10E-04	8.60E-03	b	5.00E-04	1.42E-08	2.84E-05	5.21E-08	1.04E-04
						Total	**0.0030**		**0.0075**

Notes:

a	RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b	IRIS (online database, EPA 2003)
c	Cal/EPA (2003a)
d	NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e	HEAST (EPA 1997b)
f	Route-to-route extrapolation
--	Not available or not calculated
CDIc	Chronic daily intake
cm/hr	Centimeter per hour
MAX	Maximum detected concentration
mg/kg-day	Milligram per kilogram per day
mg/L	Milligram per liter
RME	Reasonable maximum exposure

TABLE K-4-9
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	8.64E-01	1.45E+00	1.00E-03	b	--	6.87E-06	--	1.15E-05	--
Arsenic	2.40E-03	5.00E-03	1.00E-03	c	1.50E+00	1.91E-08	2.86E-08	3.98E-08	5.97E-08
Barium	4.79E-02	1.16E+00	1.00E-03	b	--	3.81E-07	--	9.23E-06	--
Cadmium	1.90E-04	5.20E-04	1.00E-03	c	3.80E-01	1.51E-09	5.74E-10	4.14E-09	1.57E-09
Calcium	4.06E+01	5.82E+01	1.00E-03	--	--	3.23E-04	--	4.63E-04	--
Chromium	2.10E-03	4.50E-03	1.00E-03	b	--	1.67E-08	--	3.58E-08	--
Cobalt	6.60E-04	1.30E-03	4.00E-04	b	--	2.10E-09	--	4.14E-09	--
Copper	5.65E-03	9.50E-03	1.00E-03	b	--	4.49E-08	--	7.56E-08	--
Iron	1.54E+00	2.56E+00	1.00E-03	b	--	1.23E-05	--	2.04E-05	--
Lead	1.11E-03	3.10E-03	1.00E-04	--	--	8.83E-10	--	2.47E-09	--
Magnesium	9.32E+01	1.50E+02	1.00E-03	--	--	7.42E-04	--	1.19E-03	--
Manganese	1.36E-01	2.56E-01	1.00E-03	b	--	1.09E-06	--	2.04E-06	--
Mercury	7.00E-05	2.40E-04	1.00E-03	b	--	5.57E-10	--	1.91E-09	--
Molybdenum	8.50E-04	2.20E-03	1.00E-03	b	--	6.76E-09	--	1.75E-08	--
Nickel	4.49E-03	6.90E-03	2.00E-04	b	--	7.14E-09	--	1.10E-08	--
Potassium	3.02E+01	4.37E+01	2.00E-03	--	--	4.80E-04	--	6.95E-04	--
Selenium	1.00E-03	1.00E-03	1.00E-03	b	--	7.95E-09	--	7.95E-09	--
Sodium	6.98E+02	1.17E+03	1.00E-03	--	--	5.56E-03	--	9.31E-03	--
Thallium	1.59E-03	2.40E-03	1.00E-03	b	--	1.26E-08	--	1.91E-08	--
Vanadium	5.99E-03	9.80E-03	1.00E-03	b	--	4.76E-08	--	7.80E-08	--
Zinc	1.64E-02	4.30E-01	6.00E-04	b	--	7.85E-08	--	2.05E-06	--
Chloromethane	5.68E-03	1.10E-02	3.30E-03	d	1.30E-02	1.49E-07	1.94E-09	2.89E-07	3.75E-09
Bis(2-ethylhexyl)p	4.78E-03	2.90E-02	2.50E-02	c	3.00E-03	9.51E-07	2.85E-09	5.77E-06	1.73E-08

TABLE K-4-9
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Alpha-chlordane	3.00E-05	4.00E-05	3.40E-02	c	1.30E+00	8.11E-09	1.05E-08	1.08E-08	1.41E-08
Heptachlor	3.00E-05	1.10E-04	8.60E-03	c	4.10E+00	2.05E-09	8.41E-09	7.53E-09	3.09E-08
						Total	**5.30E-08**		**1.27E-07**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d HEAST (EPA 1997b)

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-4-10
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	8.64E-01	1.45E+00	1.00E-03	d	1.00E+00	2.00E-05	2.00E-05	3.36E-05	3.36E-05
Arsenic	2.40E-03	5.00E-03	1.00E-03	b	3.00E-04	5.57E-08	1.86E-04	1.16E-07	3.87E-04
Barium	4.79E-02	1.16E+00	1.00E-03	b	7.00E-02	1.11E-06	1.59E-05	2.69E-05	3.84E-04
Cadmium	1.90E-04	5.20E-04	1.00E-03	b	5.00E-04	4.41E-09	8.82E-06	1.21E-08	2.41E-05
Calcium	4.06E+01	5.82E+01	1.00E-03	--	--	9.42E-04	--	1.35E-03	--
Chromium	2.10E-03	4.50E-03	1.00E-03	b	1.50E+00	4.87E-08	3.25E-08	1.04E-07	6.96E-08
Cobalt	6.60E-04	1.30E-03	4.00E-04	d	2.00E-02	6.13E-09	3.06E-07	1.21E-08	6.03E-07
Copper	5.65E-03	9.50E-03	1.00E-03	e	4.00E-02	1.31E-07	3.28E-06	2.20E-07	5.51E-06
Iron	1.54E+00	2.56E+00	1.00E-03	d	3.00E-01	3.58E-05	1.19E-04	5.94E-05	1.98E-04
Lead	1.11E-03	3.10E-03	1.00E-04	c	8.50E-03	2.58E-09	3.03E-07	7.19E-09	8.46E-07
Magnesium	9.32E+01	1.50E+02	1.00E-03	--	--	2.16E-03	--	3.48E-03	--
Manganese	1.36E-01	2.56E-01	1.00E-03	b	2.40E-02	3.17E-06	1.32E-04	5.94E-06	2.47E-04
Mercury	7.00E-05	2.40E-04	1.00E-03	b	3.00E-04	1.62E-09	5.41E-06	5.57E-09	1.86E-05
Molybdenum	8.50E-04	2.20E-03	1.00E-03	b	5.00E-03	1.97E-08	3.94E-06	5.10E-08	1.02E-05
Nickel	4.49E-03	6.90E-03	2.00E-04	b	2.00E-02	2.08E-08	1.04E-06	3.20E-08	1.60E-06
Potassium	3.02E+01	4.37E+01	2.00E-03	--	--	1.40E-03	--	2.03E-03	--
Selenium	1.00E-03	1.00E-03	1.00E-03	b	5.00E-03	2.32E-08	4.64E-06	2.32E-08	4.64E-06
Sodium	6.98E+02	1.17E+03	1.00E-03	--	--	1.62E-02	--	2.71E-02	--
Thallium	1.59E-03	2.40E-03	1.00E-03	b	6.60E-05	3.69E-08	5.59E-04	5.57E-08	8.44E-04
Vanadium	5.99E-03	9.80E-03	1.00E-03	e	7.00E-03	1.39E-07	1.99E-05	2.27E-07	3.25E-05
Zinc	1.64E-02	4.30E-01	6.00E-04	b	3.00E-01	2.29E-07	7.63E-07	5.99E-06	2.00E-05
Chloromethane	5.68E-03	1.10E-02	3.30E-03	f,d	8.60E-02	4.35E-07	5.06E-06	8.42E-07	9.79E-06

TABLE K-4-10
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, ADULT RESIDENT
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Bis(2-ethylhexyl)pl	4.78E-03	2.90E-02	2.50E-02	b	2.00E-02	2.77E-06	1.39E-04	1.68E-05	8.41E-04
Alpha-chlordane	3.00E-05	4.00E-05	3.40E-02	b	5.00E-04	2.37E-08	4.73E-05	3.16E-08	6.31E-05
Heptachlor	3.00E-05	1.10E-04	8.60E-03	b	5.00E-04	5.99E-09	1.20E-05	2.19E-08	4.39E-05
						Total	**0.0013**		**0.0032**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)
f Route-to-route extrapolation

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-4-11
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Aluminum	8.64E-01	1.45E+00	1.00E-03	b	--	7.16E-06	--	1.20E-05	--
Arsenic	2.40E-03	5.00E-03	1.00E-03	c	1.50E+00	1.99E-08	2.98E-08	4.14E-08	6.21E-08
Barium	4.79E-02	1.16E+00	1.00E-03	b	--	3.97E-07	--	9.61E-06	--
Cadmium	1.90E-04	5.20E-04	1.00E-03	c	3.80E-01	1.57E-09	5.98E-10	4.31E-09	1.64E-09
Calcium	4.06E+01	5.82E+01	1.00E-03	--	--	3.37E-04	--	4.82E-04	--
Chromium	2.10E-03	4.50E-03	1.00E-03	b	--	1.74E-08	--	3.73E-08	--
Cobalt	6.60E-04	1.30E-03	4.00E-04	b	--	2.19E-09	--	4.31E-09	--
Copper	5.65E-03	9.50E-03	1.00E-03	b	--	4.68E-08	--	7.87E-08	--
Iron	1.54E+00	2.56E+00	1.00E-03	b	--	1.28E-05	--	2.12E-05	--
Lead	1.11E-03	3.10E-03	1.00E-04	--	--	9.20E-10	--	2.57E-09	--
Magnesium	9.32E+01	1.50E+02	1.00E-03	--	--	7.72E-04	--	1.24E-03	--
Manganese	1.36E-01	2.56E-01	1.00E-03	b	--	1.13E-06	--	2.12E-06	--
Mercury	7.00E-05	2.40E-04	1.00E-03	b	--	5.80E-10	--	1.99E-09	--
Molybdenum	8.50E-04	2.20E-03	1.00E-03	b	--	7.04E-09	--	1.82E-08	--
Nickel	4.49E-03	6.90E-03	2.00E-04	b	--	7.44E-09	--	1.14E-08	--
Potassium	3.02E+01	4.37E+01	2.00E-03	--	--	5.00E-04	--	7.24E-04	--
Selenium	1.00E-03	1.00E-03	1.00E-03	b	--	8.29E-09	--	8.29E-09	--
Sodium	6.98E+02	1.17E+03	1.00E-03	--	--	5.79E-03	--	9.69E-03	--
Thallium	1.59E-03	2.40E-03	1.00E-03	b	--	1.32E-08	--	1.99E-08	--
Vanadium	5.99E-03	9.80E-03	1.00E-03	b	--	4.96E-08	--	8.12E-08	--
Zinc	1.64E-02	4.30E-01	6.00E-04	b	--	8.17E-08	--	2.14E-06	--
Chloromethane	5.68E-03	1.10E-02	3.30E-03	d	1.30E-02	1.55E-07	2.02E-09	3.01E-07	3.91E-09
Bis(2-ethylhexyl)phthalate	4.78E-03	2.90E-02	2.50E-02	c	3.00E-03	9.90E-07	2.97E-09	6.01E-06	1.80E-08

TABLE K-4-11
CANCER RISKS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Slope Factor		RME		MAX	
				Source	Value (mg/kg-day)-1	CDIc (mg/kg-day)	Cancer Risk (unitless)	CDIc (mg/kg-day)	Cancer Risk (unitless)
Alpha-chlordane	3.00E-05	4.00E-05	3.40E-02	c	1.30E+00	8.45E-09	1.10E-08	1.13E-08	1.47E-08
Heptachlor	3.00E-05	1.10E-04	8.60E-03	c	4.10E+00	2.14E-09	8.77E-09	7.84E-09	3.21E-08
						Total	**5.52E-08**		**1.33E-07**

Notes:

a	RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b	IRIS (online database, EPA 2003)
c	Cal/EPA (2003a)
d	HEAST (EPA 1997b)
--	Not available or not calculated
CDIc	Chronic daily intake
cm/hr	Centimeter per hour
MAX	Maximum detected concentration
mg/kg-day	Milligram per kilogram per day
mg/L	Milligram per liter
RME	Reasonable maximum exposure

TABLE K-4-12
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Aluminum	8.64E-01	1.45E+00	1.00E-03	d	1.00E+00	2.00E-05	2.00E-05	3.36E-05	3.36E-05
Arsenic	2.40E-03	5.00E-03	1.00E-03	b	3.00E-04	5.57E-08	1.86E-04	1.16E-07	3.87E-04
Barium	4.79E-02	1.16E+00	1.00E-03	b	7.00E-02	1.11E-06	1.59E-05	2.69E-05	3.84E-04
Cadmium	1.90E-04	5.20E-04	1.00E-03	b	5.00E-04	4.41E-09	8.82E-06	1.21E-08	2.41E-05
Calcium	4.06E+01	5.82E+01	1.00E-03	--	--	9.42E-04	--	1.35E-03	--
Chromium	2.10E-03	4.50E-03	1.00E-03	b	1.50E+00	4.87E-08	3.25E-08	1.04E-07	6.96E-08
Cobalt	6.60E-04	1.30E-03	4.00E-04	d	2.00E-02	6.13E-09	3.06E-07	1.21E-08	6.03E-07
Copper	5.65E-03	9.50E-03	1.00E-03	e	4.00E-02	1.31E-07	3.28E-06	2.20E-07	5.51E-06
Iron	1.54E+00	2.56E+00	1.00E-03	d	3.00E-01	3.58E-05	1.19E-04	5.94E-05	1.98E-04
Lead	1.11E-03	3.10E-03	1.00E-04	c	8.50E-03	2.58E-09	3.03E-07	7.19E-09	8.46E-07
Magnesium	9.32E+01	1.50E+02	1.00E-03	--	--	2.16E-03	--	3.48E-03	--
Manganese	1.36E-01	2.56E-01	1.00E-03	b	2.40E-02	3.17E-06	1.32E-04	5.94E-06	2.47E-04
Mercury	7.00E-05	2.40E-04	1.00E-03	b	3.00E-04	1.62E-09	5.41E-06	5.57E-09	1.86E-05
Molybdenum	8.50E-04	2.20E-03	1.00E-03	b	5.00E-03	1.97E-08	3.94E-06	5.10E-08	1.02E-05
Nickel	4.49E-03	6.90E-03	2.00E-04	b	2.00E-02	2.08E-08	1.04E-06	3.20E-08	1.60E-06
Potassium	3.02E+01	4.37E+01	2.00E-03	--	--	1.40E-03	--	2.03E-03	--
Selenium	1.00E-03	1.00E-03	1.00E-03	b	5.00E-03	2.32E-08	4.64E-06	2.32E-08	4.64E-06
Sodium	6.98E+02	1.17E+03	1.00E-03	--	--	1.62E-02	--	2.71E-02	--
Thallium	1.59E-03	2.40E-03	1.00E-03	b	6.60E-05	3.69E-08	5.59E-04	5.57E-08	8.44E-04
Vanadium	5.99E-03	9.80E-03	1.00E-03	e	7.00E-03	1.39E-07	1.99E-05	2.27E-07	3.25E-05
Zinc	1.64E-02	4.30E-01	6.00E-04	b	3.00E-01	2.29E-07	7.63E-07	5.99E-06	2.00E-05
Chloromethane	5.68E-03	1.10E-02	3.30E-03	f,d	8.60E-02	4.35E-07	5.06E-06	8.42E-07	9.79E-06

TABLE K-4-12
HAZARD QUOTIENTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE WATER
AT OTTER SLUICE, INDUSTRIAL WORKER
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Analyte	RME Concentration (mg/L)	MAX Concentration (mg/L)	Permeability Constant[a] (Kp) (cm/hr)	Reference Dose		RME		MAX	
				Source	Value (mg/kg-day)	CDIc (mg/kg-day)	Hazard Quotient (unitless)	CDIc (mg/kg-day)	Hazard Quotient (unitless)
Bis(2-ethylhexyl)phthalate	4.78E-03	2.90E-02	2.50E-02	b	2.00E-02	2.77E-06	1.39E-04	1.68E-05	8.41E-04
Alpha-chlordane	3.00E-05	4.00E-05	3.40E-02	b	5.00E-04	2.37E-08	4.73E-05	3.16E-08	6.31E-05
Heptachlor	3.00E-05	1.10E-04	8.60E-03	b	5.00E-04	5.99E-09	1.20E-05	2.19E-08	4.39E-05
						Total	**0.0013**		**0.0032**

Notes:

a RAGS Part E Supplemental Guidance for Dermal Risk Assessment Interim (EPA 2001)
b IRIS (online database, EPA 2003)
c Cal/EPA (2003a)
d NCEA (as provided in the Region 9 PRG Table, EPA 2002)
e HEAST (EPA 1997b)
f Route-to-route extrapolation

-- Not available or not calculated
CDIc Chronic daily intake
cm/hr Centimeter per hour
MAX Maximum detected concentration
mg/kg-day Milligram per kilogram per day
mg/L Milligram per liter
RME Reasonable maximum exposure

TABLE K-4-13
RISK SUMMARY FOR OTTER SLUICE SITE, REASONABLE MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Receptor	Medium		Cancer Risk[a]	HI[a]	Soil Lead Concentration (mg/kg)
Current Site Configuration					
Resident	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides, Dioxins	5.4E-05	2.3E+00	52
		Nondioxin-like PCBs	1.6E-08	3.4E-03	
		Dioxin-like PCBs	4.9E-09	--	
	Surface water		8.4E-08	3.0E-03	
	Total		**5.4E-05**	**1.2 (2.3)**	
Commercial/ Industrial Worker	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides, Dioxins	1.3E-05	1.9E-01	
		Nondioxin-like PCBs	4.8E-09	3.6E-04	
		Dioxin-like PCBs	1.2E-09	--	
	Surface water		5.5E-08	1.3E-03	
	Total		**1.4E-05**	**1.9E-01**	

Notes:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI and the value in parenthesis is the total HI.
ft Feet
HI Hazard index
mg/kg Milligrams per kilogram
PCBs Polychlorinated biphphenyls
SVOCs Semi-volatile organic compounds
VOCs Volatile organic compounds

TABLE K-4-14
RISK SUMMARY FOR OTTER SLUICE SITE, MAXIMUM EXPOSURE
REVISED HUMAN HEALTH RISK ASSESSMENT
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Receptor	Medium		Cancer Risk[a]	HI[a]	Soil Lead Concentration (mg/kg)
Current Site Configuration					
Resident	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides, Dioxins	7.0E-05	3.3E+00	52
		Nondioxin-like PCBs	2.7E-08	5.5E-03	
		Dioxin-like PCBs	4.9E-09	--	
	Surface water		2.0E-07	3.0E-03	
	Total		**7.0E-05**	**1.7 (3.3)**	
Commercial/ Industrial Worker	Soil (0-0.5 ft)	Metals, SVOCs, Pesticides, Dioxins	1.7E-05	2.7E-01	
		Nondioxin-like PCBs	8.1E-09	5.8E-04	
		Dioxin-like PCBs	1.2E-09	--	
	Surface water		1.3E-07	3.2E-03	
	Total		**1.8E-05**	**2.8E-01**	

Notes:

a Cancer risks and HIs are the cumulative totals for all chemicals of potential concern. For the resident, the cancer risk and HI is the sum of the risk to an adult and child over a period of 30 years. Where two values are listed for the HI, the first value is the segregated HI and the value in parenthesis is the total HI.
ft Feet
HI Hazard index
mg/kg Milligrams per kilogram
PCBs Polychlorinated biphphenyls
SVOCs Semi-volatile organic compounds
VOCs Volatile organic compounds

APPENDIX L

HISTORICAL GROUNDWATER SAMPLE DATA

Tidal Area Landfill Site
TLW-1

Compound Name	May-90	Aug-90	Oct-90	Jan-91	Oct-97
Metals (µg/L)					
Aluminum	60 J	---	---	..	---
Antimony	---	---	60.9	..	---
Arsenic	14	26.6 J	20 J	13.4 J	29.8
Barium	200 J	226 J	141 J	..	267
Beryllium	---	---	---	..	0.97 J
Cadmium	---	---	---	..	---
Calcium	747,000	672,000	557,000	..	665,000
Chromium	---	---	10 J	..	19.7
Cobalt	---	---	28.2 J	..	---
Copper	24 J	---	10 J	..	---
Iron	3,090 J	4,950	591,000	..	5,480
Lead	---	..	..	10.6 J	---
Magnesium	1,540,000	1,550,000	1,230,000	..	1,750,000
Manganese	11,300 J	7,500	6,220	..	10,300
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	76
Nickel	53	---	---	..	156
Potassium	214,000	189,000	146,000	..	247,000
Selenium	..	---	..	---	---
Silver	---	11.1	24.7	..	---
Sodium	7,880,000	8,360,000	6,450,000	..	8,550,000
Thallium	---	---	..	..	---
Vanadium	---	---	34.2 J	..	54.3
Zinc	---	---	---	..	---
Organic Compounds (µg/L)					
2-Butanone	..	..	---	---	---
4-Methyl-2-Pentanone	---	---	---	---	1 J
Acetone	..	---	---	---	---
Carbon Disulfide	2 J	---	---	---	2
Toluene	---	---	1 J	---	---
2,6-Dinitrotoluene	---	---	..	---	---
2-Nitroaniline	3 J	---	..	---	---
4-Bromophenyl phenyl ether	7 J	---	..	---	---
4-Chlorophenyl Phenly Ether	---	---	..	---	---
4-Methylphenol	---	..	..	---	---
4-Nitrophenol	---	..	..	---	---
Benzoic Acid	---	..	..	---	---
Bis (2-Ethylhexyl) Phthalate	5 J	---	..	5 J	38
Diethyl Phthalate	3 J	---	..	---	---
Dimethyl Phthalate	5 J	---	..	---	---
N-Nitrosodiphenylamine	---	---	..	---	---
Phenanthrene	---	---	..	---	---
Water Quality (mg/L)					
Bicarbonate As CaCO3	---	1,300	1,800	1,080	..
Carbonate As CaCO3	---	---	---	---	..
Chloride	4,400	..	16,000	..	..
Sulfate	1,400	..	---	..	..
Total Dissolved Solids	33,500	29,000 J	26,000	32,000	34,100
Total Suspended Solids	..	..	..	..	226
Total Organic Carbon	18	24	23	18	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Tidal Area Landfill Site
TLW-2

Compound Name	May-90	Jul-90	Oct-90	Jan-91	Oct-97
Metals (µg/L)					
Aluminum	148 J	75.6 J	44.4 J	..	427
Antimony	---	---	---	..	---
Arsenic	106	95.5 J	94	121	83.5
Barium	272	337 J	244 J	..	275
Beryllium	2 J	---	---	..	---
Cadmium	---	---	---	..	---
Calcium	616,000	595,000	573,000	..	247,000
Chromium	---	---	---	..	---
Cobalt	---	---	---	..	---
Copper	50	---	15.4 J	..	---
Iron	203	137	158	..	415
Lead	47	..	..	26 J	---
Magnesium	1,940,000	1,960,000	1,730,000	..	1,320,000
Manganese	3,480	2,330	1,320	..	155
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	49 J
Nickel	---	---	---	..	---
Potassium	216,000	236,000	178,000	..	223,000
Selenium	..	---	..	---	---
Silver	---	9.9 J	28	..	---
Sodium	10,400,000	11,600,000	10,800,000	..	8,400,000
Thallium	---	---	..	..	1.8 J
Vanadium	---	---	---	..	---
Zinc	---	---	---	..	---
Organic Compounds (µg/L)					
2-Butanone	..	..	---	---	---
4-Methyl-2-Pentanone	---	---	---	---	---
Acetone	---	---	---	---	---
Carbon Disulfide	---	1 J	---	1 J	---
Toluene	---	---	---	---	---
2,6-Dinitrotoluene	---	---	---	---	---
2-Nitroaniline	---	---	---	..	---
4-Bromophenyl phenyl ether	---	---	---	---	---
4-Chlorophenyl Phenly Ether	---	---	---	---	---
4-Methylphenol	---	---	---	---	---
4-Nitrophenol	---	---	---	..	---
Benzoic Acid	---	---	---	---	---
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	---
Diethyl Phthalate	---	---	---	---	---
Dimethyl Phthalate	---	---	---	---	---
N-Nitrosodiphenylamine	---	---	---	---	---
Phenanthrene	---	---	---	---	---
Water Quality (mg/L)					
Bicarbonate As CaCO3	---	2,700	2,700	2,900	..
Carbonate As CaCO3	---	---	---	---	..
Chloride	..	..	22,000	..	..
Sulfate	..	..	2,600	..	..
Total Dissolved Solids	46,400	44,000	39,000	38,400	31,400
Total Suspended Solids	..	..	..	..	155
Total Organic Carbon	---	77	55	56	...

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Tidal Area Landfill Site
TLW-3

Compound Name	Apr-90	Jul-90	Oct-90	Jan-91	Jan-93	Sep-94	Oct-97
Metals (µg/L)							
Aluminum	72 J	---	---	..	..	---	---
Antimony	---	---	---	..	..	3.5	---
Arsenic	81	99.2	90	71.2 J	..	12.6	---
Barium	510	336	184 J	..	..	46.2	52.4 J
Beryllium	1 J	---	---	..	..	---	0.97 J
Cadmium	---	---	---	..	..	0.30	---
Calcium	812,000	859,000	592,000	..	..	267,000	557,000
Chromium	131	1,390	34.1 J	..	..	11.1	---
Cobalt	---	79.4	---	..	..	1.1	---
Copper	13 J	---	---	..	..	---	---
Iron	572	1,390,000	649	..	..	1,330	1,960
Lead	---	---	70.8 J	..	..	---	---
Magnesium	2,450,000	2,700,000	1,770,000	..	..	2,000,000	2,680,000
Manganese	7,870	44,600	3,270	..	..	1,570	2,620
Mercury	---	---	---	---	..	..	---
Molybdenum	..	..	..	..	..	6.3	118
Nickel	---	65.8	---	..	..	9.3	147
Potassium	313,000	341,000	207,000	..	..	708,000	442,000
Selenium	---	..	..	---	..	3.8	---
Silver	---	112 J	41	..	..	..	---
Sodium	14,500,000	15,000,000	12,200,000	..	..	18,200,000	15,600,000
Thallium	---	..	..	..	..	---	---
Vanadium	17 J	67.9	19.7 J	..	..	---	---
Zinc	---	89.4	---	..	..	---	---
Organic Compounds (µg/L)							
2-Butanone	..	..	13	4 J	---	..	14
4-Methyl-2-Pentanone	---	---	---	---	---	..	---
Acetone	..	..	41	41	---	..	---
Carbon Disulfide	5	2 J	7	10	---	..	10
Toluene	---	---	---	---	---	..	---
2,6-Dinitrotoluene	---	---	---	---	---	..	---
2-Nitroaniline	---	---	---	---	---	..	---
4-Bromophenyl phenyl ether	---	---	---	---	---	..	---
4-Chlorophenyl Phenly Ether	---	---	---	---	---	..	---
4-Methylphenol	---	12	9 J	---	---	..	---
4-Nitrophenol	---	---	---	---	---	..	---
Benzoic Acid	59 J	---	---	---	---	..	---
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	---	..	---
Diethyl Phthalate	---	---	---	---	---	..	---
Dimethyl Phthalate	---	---	---	---	---	..	---
N-Nitrosodiphenylamine	---	---	---	---	---	..	---
Phenanthrene	---	---	---	---	---	..	---
Water Quality (mg/L)							
Bicarbonate As CaCO3	---	800	2,300	858	..	..	..
Carbonate As CaCO3	---	---	---	---	..	..	..
Chloride	28,000 J	..	23,000	..	..	..	..
Sulfate	3,900 J	..	2,500	..	..	..	..
Total Dissolved Solids	---	58,000	44,000	60,500	..	..	61,000
Total Suspended Solids	..	..	..	..	..	..	---
Total Organic Carbon	---	..	50	48	..	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Tidal Area Landfill Site
TLW-4

Compound Name	Apr-90	Jul-90	Oct-90	Jan-91	Jan-93	Oct-97
Metals (µg/L)						
Aluminum	40 J	---	---	..	..	86.5
Antimony	---	---	---	..	..	---
Arsenic	17	13.4	13.5	17.4	..	23.8
Barium	11 J	10.6 J	12.1 J	..	..	13.3 J
Beryllium	---	---	---	..	..	1.2 J
Cadmium	---	---	---	..	..	---
Calcium	19,800 J	13,200	12,600	..	..	9,310
Chromium	---	---	---	..	..	20.7
Cobalt	---	---	---	..	..	---
Copper	26	---	21.4 J	..	..	8.9 J
Iron	97 J	14.1 J	61.8 J	..	..	227
Lead	..	---	..	3.0 J	..	---
Magnesium	30,000 J	28,700	26,600	..	..	29,000
Manganese	120 J	90.4	68	..	..	21.7
Mercury	---	---	---	---	..	---
Molybdenum	..	..	..	..	..	118
Nickel	88 J	31.5 J	40.7	..	..	30.9 J
Potassium	47,300 J	34,600	35,200	..	..	39,400
Selenium	---	..	..	---	..	---
Silver	73 J	---	---	..	..	---
Sodium	1,330,000	1,220,000	1,410,000	..	..	1,470,000
Thallium	..	..	..	..	..	---
Vanadium	30 J	28.6 J	---	..	..	50.7
Zinc	442 J	23.4	19.6 J	..	..	---
Organic Compounds (µg/L)						
2-Butanone	..	..	---	---	---	---
4-Methyl-2-Pentanone	..	---	---	---	---	---
Acetone	---	2 J	---	---	---	---
Carbon Disulfide	---	---	---	---	---	---
Toluene	---	---	---	---	---	---
2,6-Dinitrotoluene	---	---	---	---	---	---
2-Nitroaniline	---	---	---	..	---	---
4-Bromophenyl phenyl ether	---	---	---	---	---	---
4-Chlorophenyl Phenly Ether	---	..	---	---	---	---
4-Methylphenol	---	---	---	---	---	---
4-Nitrophenol	3 J	---	---	..	---	---
Benzoic Acid	4 J	---	---	---	---	---
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	---	---
Diethyl Phthalate	---	---	---	---	---	---
Dimethyl Phthalate	---	---	---	---	---	---
N-Nitrosodiphenylamine	3 J	---	---	---	---	---
Phenanthrene	---	---	---	---	---	1 J
Water Quality (mg/L)						
Bicarbonate As CaCO3	1,300	1,400	1,300	1,150	..	..
Carbonate As CaCO3	---	---	---	100	..	..
Chloride	810 J	..	880	..	..	..
Sulfate	490 J	..	750	..	..	..
Total Dissolved Solids	3,750	3,400	4,000	3,530	..	3,930
Total Suspended Solids	..	..	..	..	..	---
Total Organic Carbon	11 J	6	13	12	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Tidal Area Landfill Site
TLW-5

Compound Name	Apr-90	Jul-90	Oct-90	Jan-91	Oct-97	Oct-97 Dup.
Metals (µg/L)						
Aluminum	---	---	---	..	---	---
Antimony	---	---	---	..	---	---
Arsenic	12	10.7	7.4 J	9.7 J	6.1 J	4.2 J
Barium	14 J	73.8 J	112 J	..	110 J	112 J
Beryllium	---	---	---	..	---	---
Cadmium	---	---	---	..	---	---
Calcium	7,510 J	50,400	48,200	..	49,100	50,100
Chromium	---	---	---	..	---	4.7 J
Cobalt	---	---	---	..	---	---
Copper	14 J	---	10.6 J	..	---	---
Iron	343 J	858	842	..	957	1,010
Lead	..	---	..	---	---	---
Magnesium	13,200 J	57,000	85,200	..	90,600	91,700
Manganese	81 J	632	591	..	639	650
Mercury	---	0.27 J	0.2	---	0.2 J	0.16 J
Molybdenum	..	..	..	..	71.5	65.6
Nickel	64	136	67.4	..	287	292
Potassium	24,000 J	41,700 J	41,300	..	47,900	48,200
Selenium	---	..	..	---	---	---
Silver	10	72.8 J	---	..	---	---
Sodium	737,000	1,610,000	2,010,000	..	1,850,000	1,850,000
Thallium	..	..	..	..	1.7 J	---
Vanadium	12 J	---	---	..	---	6.9 J
Zinc	99 J	---	6.3 J	..	---	---
Organic Compounds (µg/L)						
2-Butanone	..	..	---	---	---	---
4-Methyl-2-Pentanone	..	---	---	---	---	---
Acetone	---	..	---	---	---	---
Carbon Disulfide	---	---	---	---	---	---
Toluene	---	---	---	---	---	---
2,6-Dinitrotoluene	---	---	---	---	---	---
2-Nitroaniline	---	---	---	---	---	---
4-Bromophenyl phenyl ether	---	---	---	---	---	---
4-Chlorophenyl Phenly Ether	---	---	---	---	---	---
4-Methylphenol	---	---	---	---	---	---
4-Nitrophenol	---	---	---	---	---	---
Benzoic Acid	..	---	---	---	---	---
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	---	---
Diethyl Phthalate	---	---	---	---	---	---
Dimethyl Phthalate	---	---	---	---	---	---
N-Nitrosodiphenylamine	42 J	---	---	---	---	---
Phenanthrene	---	---	---	---	---	---
Water Quality (mg/L)						
Bicarbonate As CaCO3	780	1,100	..	1,060	..	..
Carbonate As CaCO3	10	---	..	..	..	..
Chloride	390 J	..	..	..	..	..
Sulfate	260 J	..	..	..	..	..
Total Dissolved Solids	2,050	4,600	..	3,000	5,580	5,480
Total Suspended Solids	..	..	..	..	---	---
Total Organic Carbon	8 J	..	..	13	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Tidal Area Landfill Site
TLW-6

Compound Name	Apr-90	Jul-90	Nov-90	Jan-91	Oct-97
Metals (µg/L)					
Aluminum	57 J	---	---	..	---
Antimony	---	---	---	..	---
Arsenic	5 J	2.7 J	28.1	7.1 J	12.7 J
Barium	795 J	916	233	..	565
Beryllium	---	---	---	..	---
Cadmium	---	---	---	..	---
Calcium	366,000	437,000	222,000	..	313,000
Chromium	---	---	---	..	---
Cobalt	---	---	---	..	---
Copper	24 J	---	29.5	..	---
Iron	6,520	11,400	27,900	..	3,240
Lead	..	---	---	4	---
Magnesium	423,000	462,000	504,000	..	426,000
Manganese	2,980	5,310	2,710	..	3,600
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	44 J
Nickel	---	---	---	..	55.2
Potassium	48,000	39,500	89,600	..	71,000
Selenium	---	..	---	---	---
Silver	---	9.2 J	11.3	..	---
Sodium	2,360,000	2,550,000	3,220,000	..	2,360,000
Thallium	---	..	---	..	---
Vanadium	---	---	---	..	---
Zinc	11 J	66.4	160 J	..	39.2
Organic Compounds (µg/L)					
2-Butanone	..	---	---	---	---
4-Methyl-2-Pentanone	---	---	---	---	---
Acetone	---	---	18	---	---
Carbon Disulfide	---	---	---	---	---
Toluene	---	---	---	---	---
2,6-Dinitrotoluene	---	---	..	---	---
2-Nitroaniline	---	---	..	---	---
4-Bromophenyl phenyl ether	---	---	..	---	---
4-Chlorophenyl Phenly Ether	---	..	..	---	---
4-Methylphenol	---	---	..	---	---
4-Nitrophenol	---	---	..	---	---
Benzoic Acid	---	---	..	---	---
Bis (2-Ethylhexyl) Phthalate	---	---	..	---	---
Diethyl Phthalate	---	---	..	---	---
Dimethyl Phthalate	---	---	..	---	---
N-Nitrosodiphenylamine	---	---	..	---	---
Phenanthrene	---	---	..	---	---
Water Quality (mg/L)					
Bicarbonate As CaCO3	370	790	1,290	1,020	..
Carbonate As CaCO3	---	---	---	---	..
Chloride	..	..	..	..	..
Sulfate	..	..	..	..	..
Total Dissolved Solids	9,980	11,000	9,530	10,900	9,790
Total Suspended Solids	..	..	..	..	---
Total Organic Carbon	30	10	..	16	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Tidal Area Landfill Site
TLW-7

Compound Name	May-90	Jul-90	Nov-90	Jan-91	Oct-97
Metals (µg/L)					
Aluminum	52 J	---	84 J	..	---
Antimony	---	---	---	..	---
Arsenic	17	7.4 J	35.7 J	12.2	14.4
Barium	118 J	141 J	115 J	..	189 J
Beryllium	---	---	---	..	---
Cadmium	---	---	---	..	---
Calcium	225,000	251,000	226,000	..	184,000
Chromium	---	---	---	..	---
Cobalt	---	---	---	..	---
Copper	16 J	---	32.2	..	---
Iron	23,200 J	2,030	2,130	..	839
Lead	---	---	20 J	20	---
Magnesium	529,000	563,000	544,000	..	462,000
Manganese	1,050 J	691	420	..	89.5 J
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	50.9
Nickel	---	---	---	..	---
Potassium	96,200	98,900	101,000	..	103,000
Selenium	..	..	---	---	---
Silver	---	8.5 J	11.1	..	---
Sodium	3,240,000	3,300,000	3,810,000	..	3,230,000
Thallium	---	..	---	..	---
Vanadium	---	---	---	..	68.9 J
Zinc	---	---	46.1 J	..	---
Organic Compounds (µg/L)					
2-Butanone	..	..	---	---	---
4-Methyl-2-Pentanone	---	---	---	---	---
Acetone	..	..	---	---	---
Carbon Disulfide	---	---	---	---	2 J
Toluene	---	---	---	---	---
2,6-Dinitrotoluene	3 J	---	---	---	---
2-Nitroaniline	---	---	---	---	---
4-Bromophenyl phenyl ether	---	---	---	---	---
4-Chlorophenyl Phenly Ether	5 J	..	---	---	---
4-Methylphenol	---	---	---	---	---
4-Nitrophenol	..	---	---	---	---
Benzoic Acid	..	---	---	---	---
Bis (2-Ethylhexyl) Phthalate	---	2 J	3 J	---	---
Diethyl Phthalate	---	---	---	---	---
Dimethyl Phthalate	2 J	---	---	---	---
N-Nitrosodiphenylamine	---	---	---	---	---
Phenanthrene	---	---	---	---	---
Water Quality (mg/L)					
Bicarbonate As CaCO3	---	1,200	1,630	1,750	..
Carbonate As CaCO3	---	---	---	---	..
Chloride	7,600	..	..	..	..
Sulfate	710	..	..	..	..
Total Dissolved Solids	13,500	13,000	12,300	12,800	11,800
Total Suspended Solids	..	..	..	..	---
Total Organic Carbon	32	40	..	50	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

R Area Disposal Site
RDW-1

Compound Name	Apr-90	Jul-90	Oct-90	Feb-91	Oct-97	Oct-97 Dup.
Metals (µg/L)						
Aluminum	---	---	---	190 J	---	---
Antimony	---	---	---	---	8.2	6.3
Arsenic	24	24.9	90.4	16.3	35.2	57
Barium	150 J	198 J	308 J	208	399	495
Beryllium	2 J	---	---	---	1.2 J	0.73 J
Cadmium	---	---	---	---	---	---
Calcium	168,000	192,000	184,000 J	183,000	189,000	185,000
Chromium	---	---	---	---	---	---
Cobalt	---	---	---	---	---	---
Copper	21 J	---	34.5 J	16.6 J	---	---
Iron	5,550	10,700	22,200	5,990	2,110	4,470
Lead	---	---	..	---	---	---
Lithium	..	..	..	..	..	..
Magnesium	390,000	396,000	426,000	38,400	478,000	465,000
Manganese	2,930	2,900	2,680	2,100	1,150	1,470
Mercury	0.3	---	---	---	---	---
Molybdenum	..	..	..	..	33.5 J	30.9 J
Nickel	---	---	---	---	45	41.6
Potassium	83,000	88,900	92,800	86,400 J	137,000	123,000
Selenium	..	..	..	---	---	---
Silver	---	11.8 J	8.9 J	10.7	---	---
Sodium	2,490,000	2,600,000	2,810,000	2,620,000	2,740,000	2,810,000
Thallium	---	..	..	---	---	---
Vanadium	---	---	---	15.3 J	115	83.8
Zinc	42 J	---	---	51.3 J	---	68
Organic Compounds (µg/L)						
Aldrin	---	---	..	..	..	..
Acetone	---	..	5 J	8 J	..	..
Carbon Disulfide	---	---	---	---	..	..
2-Nitroaniline	---	---	---	---	..	..
Benzoic Acid	---	---	---	---	..	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	..	..
Di-N-Butyl Phthalate	---	---	---	---	..	..
N-Nitrosodiphenylamine	---	---	---	---	..	..
Water Quality (mg/L)						
Bicarbonate As CaCO3	1,600	1,500	1,600	1,520	..	..
Chloride	..	..	3,600	..	..	..
Sulfate	..	..	---	..	..	..
Total Dissolved Solids	9,060	9,000	9,600	9,440 J	9,600	9,470
Total Suspended Solids	..	..	..	..	67	58
Total Organic Carbon	14	..	24	17	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

R Area Disposal Site
RDW-2

Compound Name	Apr-90	Jul-90	Oct-90	Feb-91	Oct-97
Metals (µg/L)					
Aluminum	---	72.3 J	63.7 J	3,930	200
Antimony	---	---	---	---	---
Arsenic	121	80.8	31.8 J	28.4	38.8
Barium	426	460	364 J	475	642
Beryllium	1 J	---	---	---	1.2 J
Cadmium	---	---	---	---	---
Calcium	418,000	511,000	---	532,000	464,000
Chromium	---	---	---	31.3	5.3 J
Cobalt	---	---	---	---	---
Copper	23 J	42.2	18.3 J	26.5 J	---
Iron	580	739	---	7,580	1,150
Lead	---	---	129 J	---	---
Lithium	..	..	..	..	..
Magnesium	1,300,000	1,470,000	---	1,390,000	1,470,000
Manganese	1,380	994	---	210	209
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	56.8 J
Nickel	---	---	---	---	---
Potassium	139,000	164,000	---	173,000	184,000
Selenium	..	..	..	---	---
Silver	---	51.5 J	7.5 J	6.6 J	---
Sodium	7,010,000	7,970,000	---	7,440,000	7,880,000
Thallium	---	..	..	---	---
Vanadium	---	29.2 J	26.8 J	44.8 J	42 J
Zinc	74 J	53.5	---	106 J	---
Organic Compounds (µg/L)					
Aldrin	---	---	..	..	..
Acetone	---	..	---	..	..
Carbon Disulfide	---	2 J	---	---	..
2-Nitroaniline	---	---	---	---	..
Benzoic Acid	230 J	---	---	---	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	..
Di-N-Butyl Phthalate	---	---	---	---	..
N-Nitrosodiphenylamine	---	---	---	---	..
Water Quality (mg/L)					
Bicarbonate As CaCO3	3,200	3,300	---	3,480	..
Chloride	..	..	---	..	..
Sulfate	..	..	---	..	..
Total Dissolved Solids	25,200	28,000	---	29,100 J	27,300
Total Suspended Solids	..	..	..	..	163
Total Organic Carbon	42 J	..	31 J	47	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

R Area Disposal Site
RDW-3

Compound Name	Apr-90	Jul-90	Oct-90	Feb-91	Oct-97
Metals (µg/L)					
Aluminum	54 J	82 J	101 J	2,040	807
Antimony	---	---	43.7 J	---	---
Arsenic	6 J	11.3 J	6.5 J	8.3 J	6.4 J
Barium	367	393	226 J	357	306
Beryllium	---	---	---	---	---
Cadmium	---	---	---	---	---
Calcium	260,000	540,000	---	322,000	245,000
Chromium	---	---	---	---	---
Cobalt	---	---	---	---	---
Copper	---	11.5 J	---	---	---
Iron	47,200	112,000	---	80,800	36,200
Lead	---	---	..	2.9 J	---
Lithium	..	27.6	..	..	..
Magnesium	515,000	653,000	---	609,000	459,000
Manganese	3,000	4,970	---	2,970	3,010
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	68.9
Nickel	---	---	---	---	---
Potassium	100,000	..	---	112,000	98,000
Selenium	..	..	..	10 J	---
Silver	---	75.8 J	---	9.4 J	2.1 J
Sodium	3,940,000	..	---	4,340,000	2,980,000
Thallium	---	..	..	---	---
Vanadium	12 J	16.2 J	16.2 J	15.5 J	14.2 J
Zinc	76 J	---	---	38.3 J	14.4 J
Organic Compounds (µg/L)					
Aldrin	---	---	..	..	..
Acetone	---	..	---	..	..
Carbon Disulfide	---	---	---	---	..
2-Nitroaniline	---	---	---	---	..
Benzoic Acid	---	---	---	---	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	..
Di-N-Butyl Phthalate	---	---	---	---	..
N-Nitrosodiphenylamine	---	---	---	---	..
Water Quality (mg/L)					
Bicarbonate As CaCO3	970	1,200	---	1,020	..
Chloride	..	..	---	..	..
Sulfate	..	..	---	..	..
Total Dissolved Solids	14,400	18,000	---	16,300 J	12,500
Total Suspended Solids	..	..	..	..	158
Total Organic Carbon	69	..	38 J	130	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

R Area Disposal Site
RDW-4

Compound Name	Apr-90	Jul-90	Oct-90	Feb-91	Oct-97
Metals (µg/L)					
Aluminum	45 J	---	45.9 J	1,890	---
Antimony	---	---	---	---	---
Arsenic	7	16.6	18.5 J	20.8	14.4 J
Barium	99 J	143 J	145 J	174 J	78.9 J
Beryllium	3 J	---	---	---	---
Cadmium	---	---	---	---	---
Calcium	159,000	327,000	---	484,000	196,000
Chromium	---	35.8 J	---	2,270	53.4
Cobalt	---	69.7	---	84.7	---
Copper	17 J	---	14.1 J	28.3 J	---
Iron	862	36,900	---	43,500	4,300
Lead	---	---	---	4.41 J	---
Lithium	..	..	..	..	..
Magnesium	244,000	680,000	---	1,120,000	321,000
Manganese	768	3,060	---	4,670	520
Mercury	---	0.56	---	---	---
Molybdenum	..	..	..	..	14.4 J
Nickel	258	3,410	---	3,660	91.8
Potassium	74,900	152,000	---	241,000	113,000
Selenium	---	..	..	---	---
Silver	---	11.6	7 J	---	1.4 J
Sodium	2,580,000	5,000,000	---	8,340,000	2,920,000
Thallium	---	..	..	---	2 J
Vanadium	---	---	---	23.3 J	7.5 J
Zinc	18 J	---	---	156 J	12 J
Organic Compounds (µg/L)					
Aldrin	---	---	..	..	..
Acetone	..	..	---	..	..
Carbon Disulfide	---	---	---	---	..
2-Nitroaniline	---	---	---	---	..
Benzoic Acid	---	---	---	---	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	..
Di-N-Butyl Phthalate	---	---	---	---	..
N-Nitrosodiphenylamine	---	---	---	---	..
Water Quality (mg/L)					
Bicarbonate As CaCO3	..	480	---	718	..
Chloride	7,700 J	..	---	..	..
Sulfate	640 J	..	---	..	..
Total Dissolved Solids	---	20,000	---	30,500 J	11,300
Total Suspended Solids	..	..	..	..	---
Total Organic Carbon	---	30	32 J	29	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

R Area Disposal Site
RDW-5

Compound Name	Apr-90	Jul-90	Oct-90	Jan-91	Jan-93	Sep-94	Oct-97
Metals (µg/L)							
Aluminum	47 J	---	114 J	..	..	---	104
Antimony	---	---	---	..	..	3.7	---
Arsenic	33	31.2 J	---	30.6	..	50.5	65
Barium	816	755	625 J	..	..	605	1,010
Beryllium	1 J	---	---	..	..	---	---
Cadmium	---	---	---	..	..	1.2	---
Calcium	914,000	971,000	---	..	..	945,000	876,000
Chromium	---	---	---	..	..	4.4	8.4 J
Cobalt	---	25.4 J	---	..	..	2.3	---
Copper	---	---	---	..	..	---	---
Iron	27,100	37,600	---	..	..	17,500	5,190
Lead	---	---	..	21 J	..	---	---
Lithium	..	..	---	..	..	..	..
Magnesium	1,560,000	1,580,000	---	..	..	1,610,000	1,520,000
Manganese	20,100	18,500	---	..	..	10,300	10,600
Mercury	---	---	---	---	..	..	---
Molybdenum	..	..	---	..	..	7.3	72.5
Nickel	---	34.4 J	31.7 J	..	..	10.2	19 J
Potassium	50,700	45,200	---	..	..	180,000	48,600
Selenium	---	..	..	---	..	4.8	3.6 J
Silver	---	---	---	..	..	..	---
Sodium	5,830,000	4,830,000	---	..	..	6,600,000	4,510,000
Thallium	---	..	..	..	..	7.0	---
Vanadium	10 J	14.6 J	---	..	..	14.5	26.2 J
Zinc	1,360 J	---	---	..	..	---	10.5 J
Organic Compounds (µg/L)							
Aldrin	0.15 J	---	..	..	---	..	---
Acetone	..	---	---	---	---	..	..
Carbon Disulfide	---	---	---	1 J	---	..	..
2-Nitroaniline	---	---	---	---	---	..	..
Benzoic Acid	---	..	---	---	---	..	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	---	..	..
Di-N-Butyl Phthalate	34	8 J	---	8 J	---	..	..
N-Nitrosodiphenylamine	---	---	---	---	---	..	..
Water Quality (mg/L)							
Bicarbonate As CaCO3	..	1,500	---	1,230	..	..	..
Chloride	18,000 J	..	---	..	..	..	..
Sulfate	460 J	..	---	..	..	..	..
Total Dissolved Solids	---	24,000	---	21,500	..	..	25,200
Total Suspended Solids	..	..	..	..	..	..	9
Total Organic Carbon	---	52	44 J	33	..	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

R Area Disposal Site
RDW-6

Compound Name	Apr-90	Jul-90	Oct-90	Feb-91	Oct-97
Metals (µg/L)					
Aluminum	48 J	41.4 J	----	490	94.6
Antimony	----	----	----	---	---
Arsenic	8 J	27 J	27 J	27.2	32.8
Barium	122 J	140 J	130 J	145 J	170 J
Beryllium	2 J	---	---	---	---
Cadmium	----	---	---	---	---
Calcium	330,000	366,000	---	317,000	285,000
Chromium	---	---	---	18	14.5 J
Cobalt	---	---	---	---	---
Copper	---	---	---	13.5 J	---
Iron	18,400	16,200	---	25,600	2,230
Lead	---	..	..	---	---
Lithium	..	..	..	..	..
Magnesium	934,000	944,000	---	812,000	758,000
Manganese	2,770	2,330	---	1,560	1,320
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	55.7
Nickel	---	---	---	---	59
Potassium	143,000	156,000	---	151,000	159,000
Selenium	---	---	..	---	---
Silver		15.3	8.6 J	9.6 J	---
Sodium	5,410,000	5,430,000	---	5,020,000	4,060,000
Thallium	---	---	..	---	---
Vanadium	---	---	12.6 J	---	36.5 J
Zinc	289 J	---	---	106	19.6 J
Organic Compounds (µg/L)					
Aldrin	---	---	..	..	---
Acetone	..	---	---	..	..
Carbon Disulfide	---	---	---	---	..
2-Nitroaniline	---	---	---	---	..
Benzoic Acid	---	---	---	---	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	..
Di-N-Butyl Phthalate	---	---	---	---	..
N-Nitrosodiphenylamine	---	---	---	---	..
Water Quality (mg/L)					
Bicarbonate As CaCO3	---	1,500	---	1,610	..
Chloride	11,000 J	..	---	..	..
Sulfate	1,400 J	..	---	..	..
Total Dissolved Solids	..	21,000 J	---	19,500 J	17,700
Total Suspended Solids	..	..	..	..	---
Total Organic Carbon	---	43	35 J	41	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

R Area Disposal Site
RDW-7

Compound Name	May-90	Jul-90	Oct-90	Feb-91	Oct-97
Metals (µg/L)					
Aluminum	1,670	267	95.3 J	2,660	350
Antimony	---	---	---	---	---
Arsenic	---	20	---	10.6	7.6 J
Barium	59 J	140 J	178 J	188 J	121 J
Beryllium	---	---	---	---	---
Cadmium	---	---	---	---	---
Calcium	881,000	1,020,000	---	908,000	732,000
Chromium	194	107 J	22.5 J	668	43.6
Cobalt	103 J	27.4 J	---	22.4 J	16.1 J
Copper	39 J	---	---	24.5 J	---
Iron	46,200 J	38,500	---	16,000	7,050
Lead	---	..	..	---	---
Lithium	..	..	..	..	..
Magnesium	2,680,000	3,290,000	---	2,730,000	2,740,000
Manganese	10,800 J	12,300	---	8,720	16,000
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	88.8
Nickel	640	204 J	---	415	69.8
Potassium	480,000	489,000	---	427,000	425,000
Selenium	..	---	..	---	4.4 J
Silver	---	7.5 J	---	---	---
Sodium	15,300,000	18,100,000	---	15,200,000	14,100,000
Thallium	---	---	..	---	---
Vanadium	10 J	---	---	15.7 J	---
Zinc	1,260	---	---	212 J	47
Organic Compounds (µg/L)					
Aldrin	---	---	..	..	..
Acetone	..	---	---	..	..
Carbon Disulfide	---	---	---	---	..
2-Nitroaniline	3 J	---	---	---	..
Benzoic Acid	---	..	---	---	..
Bis (2-Ethylhexyl) Phthalate	3 J	4 J	---	2 J	..
Di-N-Butyl Phthalate	---	---	---	---	..
N-Nitrosodiphenylamine	11 J	---	---	---	..
Water Quality (mg/L)					
Bicarbonate As CaCO3	---	380	---	756	..
Chloride	3,800 J	..	---	..	..
Sulfate	770	..	---	..	..
Total Dissolved Solids	65,000	68,000 J	---	59,800 J	65,600
Total Suspended Solids	..	..	..	..	32
Total Organic Carbon	67	64	69 J	54	..

--- = not detected µg/L = micrograms per liter J = estimated value
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Froid and Taylor Road Site Monitoring Well
FTW-1

Compound Name	Apr-90	Jul-90	Oct-90	Jan-91	Oct-97	Oct-97 Dup.
Metals (µg/L)						
Aluminum	58 J	---	---	..	---	---
Antimony	---	---	---	..	---	---
Arsenic	14	21.6 J	15.1	15.2 J	11.2 J	15.3 J
Barium	182 J	154 J	153 J	..	1,500	1,500
Beryllium	---	---	---	..	---	0.61 J
Cadmium	---	---	---	..	---	---
Calcium	1,480,000	1,380,000	1,200,000	..	1,100,000	1,170,000
Chromium	---	---	10 J	..	---	---
Cobalt	100	133	88.7 J	..	30.1 J	30.7 J
Copper	22 J	---	---	..	---	---
Iron	12,300	20,800	11,000	..	22,600	22,400
Lead	..	10.6 J	..	10.1 J	---	---
Magnesium	1,400,000	1,450,000	1,220,000	..	1,230,000	1,310,000
Manganese	23,600	24,300	20,000	..	16,400	16,500
Mercury	---	---	---	---	---	---
Molybdenum	..	..	..	..	69.1	90.4
Nickel	174	184	124	..	34.9 J	38.8 J
Potassium	12,000	10,900	15,000	..	16,100	16,800
Selenium	---	..	..	---	---	---
Silver	---	---	---	..	---	---
Sodium	6,430,000	6,500,000	6,670,000	..	5,410,000	5,950,000
Thallium	---	..	..	..	---	---
Vanadium	---	---	---	..	---	9.3 J
Zinc	---	---	---	..	---	5.8 J
Organic Compounds (µg/L)						
4-Methyl-2-Pentanone	---	---	---	---	..	..
Acetone	---	---	---	2 J	..	..
Carbon Disulfide	---	---	---	---	..	..
4-Methylphenol	---	..	---	---	..	..
Bis (2-Ethylhexyl) Phthalate	---	---	2 J	3 J	..	..
Diethyl Phthalate	---	---	---	---	..	..
N-Nitrosodiphenylamine	---	---	---	---	..	..
Diphenylamine	---	---	---	..	..	..
Water Quality (mg/L)						
Bicarbonate As CaCO3	1,100	1,100	1,120	1,050	..	..
Chloride	2,300	..	..	..	..	..
Sulfate	1,200	..	..	..	..	..
Total Dissolved Solids	27,800	33,000	25,200	25,400	25,800	26,500
Total Suspended Solids	..	..	..	..	60	60
Total Organic Carbon	16	18	..	14	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Froid and Taylor Road Site Monitoring Well
FTW-2

Compound Name	Apr-90	Jul-90	Oct-90	Jan-91	Jan-93	Sep-94	Oct-97
Metals (µg/L)							
Aluminum	44 J	---	---	..	..	---	84.3
Antimony	30 J	---	---	..	..	7.2	---
Arsenic	---	20.4 J	34.7	23.9	..	24.9	25.7
Barium	849 J	668	534 J	..	..	456	826
Beryllium	---	---	---	..	..	---	0.73 J
Cadmium	5 J	---	---	..	..	0.51	---
Calcium	3,388,000 J	396,000	364,000	..	..	320,000	385,000
Chromium	---	---	---	..	..	---	---
Cobalt	---	---	---	..	..	2.9	---
Copper	10 J	---	---	..	..	---	---
Iron	4,530 J	8,840	22,500	..	..	14,700	11,900
Lead	..	---	..	6.3 J	..	---	---
Magnesium	788,000 J	676,000	630,000	..	..	530,000	700,000
Manganese	8,530 J	6,480	4,560	..	..	3,900	4,910
Mercury	---	---	---	---	..	---	---
Molybdenum	..	..	..	..	..	3.7	62.8
Nickel	---	---	---	..	..	15.2	27.6 J
Potassium	68,800 J	89,900	100,000	..	..	---	126,000
Selenium	---	..	..	---	..	---	---
Silver	---	10.5	11.3	..	..	..	---
Sodium	4,880,000 J	3,960,000	4,400,000	..	..	---	3,890,000
Thallium	---	..	..	..	..	---	---
Vanadium	10 J	---	---	..	..	---	44.6 J
Zinc	60 J	---	---	..	..	---	---
Organic Compounds (µg/L)							
4-Methyl-2-Pentanone	---	---	---	1 J	---	..	..
Acetone	---	---	---	4 J	---	..	..
Carbon Disulfide	---	---	---	---	---	..	..
4-Methylphenol	---	---	---	---	---	..	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	---	..	..
Diethyl Phthalate	---	---	---	---	---	..	..
N-Nitrosodiphenylamine	21 J	---	---	---	---	..	..
Diphenylamine	---	---	---	..	---	..	..
Water Quality (mg/L)							
Bicarbonate As CaCO3	1,300	1,400	1,630	1,580	..	..	..
Chloride	..	..	..	..	..	..	..
Sulfate	..	..	..	..	..	..	..
Total Dissolved Solids	19,000	17,000	14,600	16,000	..	..	14,200
Total Suspended Solids	..	..	..	..	..	..	38
Total Organic Carbon	87 J	70	..	44	..	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Froid and Taylor Road Site Monitoring Well
FTW-3

Compound Name	Apr-90	Jul-90	Oct-90	Jan-91	Jan-93	Oct-97
Metals (µg/L)						
Aluminum	---	---	---	..	..	---
Antimony	---	---	---	..	..	---
Arsenic	13	22	20	21.5	..	24.5
Barium	1,990 J	1,610	1,560 J	..	..	3,370
Beryllium	---	---	---	..	..	0.97 J
Cadmium	---	---	---	..	..	---
Calcium	258,000	270,000	269,000	..	..	283,000
Chromium	---	---	---	..	..	---
Cobalt	---	---	---	..	..	---
Copper	12 J	---	---	..	..	---
Iron	6,810	11,900	57,100	..	..	562
Lead	..	---	..	3.1 J	..	---
Magnesium	483,000	498,000	496,000	..	..	490,000
Manganese	788	793	769	..	..	449
Mercury	---	---	---	---	..	---
Molybdenum	..	..	..	..	..	22.1 J
Nickel	---	---	---	..	..	---
Potassium	94,000	93,600	93,000	..	..	107,000
Selenium	---	..	..	---	..	---
Silver	---	11	11	..	..	---
Sodium	3,120,000	3,320,000	3,390,000	..	..	2,990,000
Thallium	---	..	..	..	..	---
Vanadium	---	---	---	..	..	16.3 J
Zinc	10 J	---	---	..	..	---
Organic Compounds (µg/L)						
4-Methyl-2-Pentanone	---	---	---	---	---	..
Acetone	---	---	..	---	---	..
Carbon Disulfide	---	---	---	---	---	..
4-Methylphenol	21	4 J	9 J	---	---	---
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	---	---
Diethyl Phthalate	---	---	---	---	---	---
N-Nitrosodiphenylamine	---	---	---	---	---	..
Diphenylamine	2.2	---	---	..	---	..
Water Quality (mg/L)						
Bicarbonate As CaCO3	1,000	1,000	883	1,110	..	..
Chloride	2,900	..	..	..	..	..
Sulfate	1,900	..	..	..	..	..
Total Dissolved Solids	11,300	13,000	11,200	11,600	..	11,400
Total Suspended Solids	..	..	..	..	..	---
Total Organic Carbon	15	10	..	13	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Froid and Taylor Road Site Monitoring Well
FTW-4

Compound Name	Apr-90	Jul-90	Oct-90	Jan-91	Oct-97
Metals (µg/L)					
Aluminum	157 J	---	---	..	---
Antimony	---	---	---	..	---
Arsenic	43	17.3	11.6	17.8	76.4
Barium	138 J	51.1 J	33.7 J	..	264
Beryllium	4 J	---	---	..	---
Cadmium	189	---	---	..	---
Calcium	201,000 J	104,000	52,800	..	301,000
Chromium	---	---	---	..	---
Cobalt	---	---	---	..	---
Copper	34	---	---	..	---
Iron	19,900 J	8,200	2,420	..	30,400
Lead	58 J	---	..	29.8 J	---
Magnesium	442,000 J	186,000	46,700	..	714,000
Manganese	1,200	1,460	2,000	..	459
Mercury	---	---	---	---	0.16 J
Molybdenum	..	..	..	..	60.2
Nickel	---	---	---	..	---
Potassium	77,900 J	34,500	13,600	..	131,000
Selenium	---	..	..	---	---
Silver	---	---	---	..	---
Sodium	3,330,000	1,530,000	491,000	..	5,550,000
Thallium	..	..	..	..	---
Vanadium	---	---	---	..	---
Zinc	5,010 J	---	84.5	..	164
Organic Compounds (µg/L)					
4-Methyl-2-Pentanone	..	---	---	---	..
Acetone	---	---	..	---	..
Carbon Disulfide	---	---	---	---	..
4-Methylphenol	---	---	---	---	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	..
Diethyl Phthalate	---	7 J	---	---	..
N-Nitrosodiphenylamine	6 J	---	---	---	..
Diphenylamine	---	---	---	..	..
Water Quality (mg/L)					
Bicarbonate As CaCO3	1,100	520	391	414	..
Chloride	9,000 J	..	..	..	..
Sulfate	690 J	..	..	..	..
Total Dissolved Solids	20,000	6,100	16,800	2,360	20,100
Total Suspended Solids	..	..	..	..	74
Total Organic Carbon	17 J	8	..	9 J	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Froid and Taylor Road Site Monitoring Well
FTW-5

Compound Name	Apr-90	Jul-90	Oct-90	Jan-91	Oct-97
Metals (µg/L)					
Aluminum	40 J	---	---	..	412
Antimony	30 J	---	---	..	---
Arsenic	37 J	16.9	5 J	7.2 J	3.3 J
Barium	1,180 J	1,530	1,490 J	..	2,370
Beryllium	---	---	---	..	---
Cadmium	---	---	---	..	---
Calcium	248,000 J	336,000	348,000	..	257,000
Chromium	---	---	---	..	39.6
Cobalt	---	---	---	..	---
Copper	10 J	14.6 J	---	..	---
Iron	88 J	78 J	36.2	..	666
Lead	---	---	..	32 J	---
Magnesium	814,000 J	888,000	830,000	..	673,000
Manganese	265 J	152	49	..	---
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	---
Nickel	---	---	---	..	27.1 J
Potassium	133,000 J	144,000	130,000	..	120,000
Selenium	---	..	..	---	---
Silver	---	9.4 J	10.1	..	2.4 J
Sodium	5,400,000 J	6,060,000	5,980,000	..	4,360,000
Thallium	..	..	..	..	1.6 J
Vanadium	11 J	11.9 J	11.8 J	..	11.7 J
Zinc	22 J	---	---	..	16.4 J
Organic Compounds (µg/L)					
4-Methyl-2-Pentanone	---	---	---	---	..
Acetone	---	..	..	---	..
Carbon Disulfide	---	1 J	---	1 J	..
4-Methylphenol	..	---	---	---	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	..
Diethyl Phthalate	---	---	---	---	..
N-Nitrosodiphenylamine	13 J	---	---	---	..
Diphenylamine	---	0.002	---	..	..
Water Quality (mg/L)					
Bicarbonate As CaCO3	2,000	2,000	2,090	1,990	..
Chloride	10,000 J	..	..	..	..
Sulfate	240 J	..	..	..	..
Total Dissolved Solids	21,000	21,000	19,400	20,300	18,000
Total Suspended Solids	..	..	..	..	23
Total Organic Carbon	39 J	..	..	47	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Wood Hogger Site
WHW-1

Compound Name	Apr-90	Jul-90	Nov-90	Jan-91	Oct-97
Metals (µg/L)					
Aluminum	74 J	49.1 J	75.8 J	..	---
Antimony	---	---	---	..	---
Arsenic	---	25 J	21.7	..	14.9 J
Barium	373	455	406	649	397
Beryllium	1	---	---	..	---
Cadmium	---	---	---	20.8	---
Calcium	1,210,000	1,160,000	1,240,000 J	1,140,000	748,000
Chromium	---	---	---	15.5	---
Cobalt	104	67.5	133	93	---
Copper	23 J	---	173	54.3	---
Iron	4,990	4,990	7,440	..	9,120
Lead	---	---	---	20	---
Magnesium	2,290,000	2,530,000	2,420,000	..	2,140,000
Manganese	29,600	19,900	29,100	19,800	6,580
Mercury	0.3	---	0.41	..	---
Molybdenum	..	..	..	..	80
Nickel	191	135	271	168	6.5 J
Potassium	88,900	136,000	96,000	132,000	160,000
Selenium	---	..	---	---	---
Silver	---	---	---	..	---
Sodium	15,100,000	14,400,000	17,400,000	15,400,000	15,200,000
Thallium	---	..	---	..	---
Vanadium	19 J	19.8 J	28.1 J	..	25.6 J
Zinc	55 J	---	---	..	11.5 J
Organic Compounds (µg/L)					
Acetone	..	---	---	---	..
4-Methylphenol	---	---	---	---	..
Benzoic Acid	..	---	..	---	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	..
Dibenzofuran	---	---	---	---	..
Diethyl Phthalate	3 J	---	---	---	..
Water Quality (mg/L)					
Bicarbonate As CaCO3	2,000	2,600	2,420	2,460	..
Total Dissolved Solids	55,800	62,000	55,600	56,200	53,100
Total Suspended Solids	..	..	..	..	40
Total Organic Carbon	110	140	..	86	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Wood Hogger Site
WHW-2

Compound Name	May-90	Jul-90	Nov-90	Jan-91	Oct-97
Metals (µg/L)					
Aluminum	48 J	88.4 J	---	365	276
Antimony	---	---	---	..	---
Arsenic	14	32.8	36.7	24	42.5
Barium	2,620	884	992	2,320	992
Beryllium	---	---	---	..	---
Cadmium	---	---	---	..	---
Calcium	564,000	361,000	368,000 J	457,000	302,000
Chromium	---	---	---	..	---
Cobalt	60 J	---	---	..	10.6 J
Copper	22 J	---	18.3 J	..	---
Iron	19,700	29,000	22,800	65,300	504
Lead	---	---	---	6	---
Magnesium	608,000	792,000	709,000	689,000	620,000
Manganese	14,500	8,010	7,330	10,400	3,950
Mercury	---	---	---	---	---
Molybdenum	..	..	..	..	62.1
Nickel	259	---	---	..	68.5
Potassium	48,500	90,500	96,100	74,300	112,000
Selenium	..	..	---	---	---
Silver	---	11.4	9.8 J	..	---
Sodium	2,900,000	4,160,000	4,290,000	..	3,640,000
Thallium	---	..	---	..	---
Vanadium	---	---	---	..	61.4 J
Zinc	---	---	---	36.5	36.8
Organic Compounds (µg/L)					
Acetone	10	---	---	3 J	..
4-Methylphenol	---	---	---	---	..
Benzoic Acid	---	---	---	---	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	..
Dibenzofuran	---	---	---	---	..
Diethyl Phthalate	---	---	---	---	..
Water Quality (mg/L)					
Bicarbonate As CaCO3	---	1,800	1,590	1,350	..
Total Dissolved Solids	13,900	16,000	14,500	14,500	14,300
Total Suspended Solids	..	..	..	..	---
Total Organic Carbon	---	33	..	48	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Wood Hogger Site
WHW-3

Compound Name	Apr-90	Jul-90	Nov-90	Jan-91	Jan-93	Oct-97
Metals (µg/L)						
Aluminum	74 J	---	66.8 J	1,770	..	---
Antimony	---	---	---	..	..	---
Arsenic	17	6.5 J	35.1	14.2	..	23.7
Barium	1,280	2,390	1,920	2,010	..	2,740
Beryllium	---	---	---	..	..	---
Cadmium	---	---	---	..	..	---
Calcium	346,000	473,000	454,000 J	529,000	..	296,000
Chromium	---	---	---	..	..	---
Cobalt	---	---	---	..	..	---
Copper	11 J	---	---	..	..	---
Iron	17,200	40,100	43,700	28,700	..	6,560
Lead	---	..	---	385 J	..	---
Magnesium	744,000	925,000	840,000	758,000	..	519,000
Manganese	3,660	4,630	3,590	9,450	..	5,680
Mercury	---	---	---	---	..	---
Molybdenum	..	..	..	..	..	46.5 J
Nickel	25 J	---	---	..	..	12.9 J
Potassium	83,900	89,200	93,200	50,800	..	65,100
Selenium	---	---	---	---	..	---
Silver	11 J	13.5	8.3 J	..	..	---
Sodium	4,500,000	5,500,000	5,230,000	4,680,000	..	3,410,000
Thallium	---	---	---	..	..	---
Vanadium	---	---	12.9 J	..	..	13.2 J
Zinc	36 J	---	---	85.1	..	18.6 J
Organic Compounds (µg/L)						
Acetone	..	---	22	5 J	---	..
4-Methylphenol	---	---	10	---	---	..
Benzoic Acid	..	---	3 J	---	---	..
Bis (2-Ethylhexyl) Phthalate	---	3 J	---	---	---	..
Dibenzofuran	3 J	---	---	---	---	..
Diethyl Phthalate	---	---	---	---	---	..
Water Quality (mg/L)						
Bicarbonate As CaCO3	1,400	1,300	1,180	800	..	..
Total Dissolved Solids	17,400	19,000	18,300	17,000	..	14,000
Total Suspended Solids	..	..	..	..	..	14
Total Organic Carbon	24	36	..	21	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Wood Hogger Site
WHW-4

Compound Name	May-90	Jul-90	Nov-90	Jan-91	Jan-93	Sep-94	Oct-97
Metals (µg/L)							
Aluminum	71 J	..	88.2 J	523	..	---	---
Antimony	---	..	---	..	..	5.9	---
Arsenic	25 J	132	140	30.3	..	6.0	31.7
Barium	385	..	439	431	..	1,490	1,140
Beryllium	---	..	---	..	..	---	---
Cadmium	---	..	---	..	..	3.4	---
Calcium	1,830,000	..	1,130,000	1,550,000	..	1,600,000	914,000
Chromium	---	..	66.2	30.3	..	---	93.9
Cobalt	46 J	..	---	..	..	6.6	---
Copper	36	..	48.2	29	..	---	---
Iron	43,600	..	2,680	47,400	..	55,300	6,790
Lead	---	---	68.2	---	..	4.4	---
Magnesium	1,240,000	..	1,990,000	1,420,000	..	969,000	1,670,000
Manganese	29,800	..	9,380	20,200	..	13,300	7,060
Mercury	---	---	---	---	..	..	---
Molybdenum	..	..	..	..	..	3.4	67.8
Nickel	38 J	..	---	..	..	9.3	---
Potassium	16,600	..	159,000	63,600	..	117,000	170,000
Selenium	---	..	---	---	..	4	---
Silver	---	..	---	..	..	..	---
Sodium	4,930,000	..	12,400,000	..	..	6,940,000	8,940,000
Thallium	---	..	---	..	..	5.4	---
Vanadium	---	..	28.2 J	..	..	---	33.4 J
Zinc	---	..	12.9 J	..	..	49.0	7.4 J
Organic Compou—s (mg/L)							
Acetone	8 J	2 J	---	---	..	..	..
4-Methylphenol	---	13	---	---	..	..	..
Benzoic Acid	---	---	---	---	---	..	..
Bis (2-Ethylhexyl) Phthalate	---	---	---	---	---	..	..
Dibenzofuran	---	---	---	---	..	..	..
Diethyl Phthalate	---	6 J	---	---	---	..	..
Water Quality (mg/L)							
Bicarbonate As CaCO3	..	3,400	1,030	1,760	..	..	..
Total Dissolved Solids	27,200	49,000	38,400	32,400	..	..	35,700
Total Suspended Solids	..	..	..	..	..	..	---
Total Organic Carbon	---	65	..	29	..	..	..

--- = not detected µg/L = micrograms per liter J = estimated value
.. = not analyzed/rejected data mg/L = milligrams per liter

Buildings A3A and E111 - UST Investigation Groundwater Data

NWS Concord Tidal Area

Analyte	A3AMW001 2/20/95	A3AMW001 6/20/96	A3AMW001 7/30/96	A3AMW002 2/21/95	A3AMW002 Dup. 2/21/95	A3AMW002 6/20/96	A3AMW002 7/30/96	A3AMW003 2/20/95	A3AMW003 6/20/96	A3AMW003 7/30/96	A3AMW003 Dup. 7/30/96	E11MW001 2/20/95	E11MW002 2/20/95	E11MW003 3/27/95
VOCs (µg/L)														
1,2-Dichlorbenzene	---	..	..	---	---	..	..	---	..	..	..	---	---	---
1,3-Dichlorbenzene	---	..	..	---	---	..	..	---	..	..	..	---	---	---
1,4-Dichlorbenzene	---	..	..	---	---	..	..	---	..	..	..	---	---	---
Benzene	---	---	..	---	---	---	..	---	---	..	..	---	---	---
Chlorbenzene	---	..	..	---	---	..	..	---	..	..	..	---	---	---
Ethylbenzene	---	---	..	---	---	---	..	---	---	..	..	---	---	---
Toluene	---	---	..	---	---	---	..	---	---	..	..	---	---	---
Xylenes (total)	---	---	..	---	---	---	..	---	---	..	..	---	---	---
Petroleum Indicators (mg/L)														
Diesel	---	0.16	--- J	---	---	0.14	---	---	0.18	---	---	---	7.00 J	---
Kerosine	---	..	..	---	---	..	..	---		..	..	---	---	---
Motor Oil	---	0.18	--- J	---	---	0.10 J	---	---	0.17	---	---	---	---	0.72 J
Other Components	---	..	..	---	---	..		---		..	..	---	--- J	

Notes:

µg/L = micrograms per liter
mg/L = milligrams per liter
--- = not detected
.. = not analyzed

SWMU 37 - Geoprobe Grab Groundwater Data

NWS Concord Tidal Area

Analyte	S37-11	S37-12	S37-13
Metals (µg/L)			
Aluminum	733,000	177,000	..
Antimony	---	---	..
Arsenic	404.0	41.7	4.1
Barium	20,200	3,450	..
Beryllium	3.60	---	..
Cadmium	15.90	6.80	..
Calcium	1,330,000	1,640,000	..
Chromium	1,180	250	..
Cobalt	868	183	..
Copper	1,800	286	..
Iron		215,000	..
Lead	632.00	80.30	..
Magnesium	1,070,000	1,940,000	..
Manganese	62,600	53,000	..
Mercury	6.00	0.94	..
Molybdenum	---	48.60	..
Nickel	5,920	3,940	..
Potassium	155,000	72,000	..
Selenium	---	---	..
Silver	---	---	..
Sodium	2,270,000 J	4,990,000	..
Thallium	---	57.8	..
Vanadium	2,260	524	..
Zinc	3,220 J	627 J	..
Other Analytes			
Total Organic Carbon (mg/L)	9.3	14.7	..
pH	6.6 J	6.7 J	6.5
Salinity (parts per thousand)	..	..	7.30

Notes:

Analytical results are for unfiltered Geoprobe grab groundwater samples collected in 1995.

J = estimated concentration

.. = not analyzed

--- = not detected

mg/L = micrograms per liter

mg/L = micrograms per liter

LOW FLOW RATE SAMPLING STUDY GROUNDWATER DATA

NWS CONCORD TIDAL AREA

Point ID	FTW-2			FTW-2		
Sampling Technique	BAILED			LOW FLOW		
Matrix	WATER			WATER		
Sample Date	09/16/94			09/13/94		
	Result	**Det. Lim.**	**Qual.**	**Result**	**Det. Lim.**	**Qual.**
Total Metals (µg/L)						
ALUMINUM	ND	35.3	U	177		
ANTIMONY	ND	1.2	U	1.6		
ARSENIC	24.9			6.8		
BARIUM	460			415		
BERYLLIUM	ND	0.10	U	ND	0.10	U
CADMIUM	0.54			ND	0.20	U
CALCIUM	315,000			286,000		
CHROMIUM	ND	0.70	U	3.5		
COBALT	2.8			1.2		
COPPER	ND	1.7	U	ND	1.7	U
IRON	15,300			8,670		
LEAD	1.7			ND	1.0	U
MAGNESIUM	519,000			504,000		
MANGANESE	3,820			3,530		
MERCURY	ND	0.10	U	ND	0.10	U
MOLYBDENUM	3.4			1.9		
NICKEL	13.6			4.6		
POTASSIUM	281,000			298,000		
SELENIUM	3.4			ND	2.3	U
SILVER	ND	0.60	U	ND	0.60	U
SODIUM	4,180,000			4,240,000		
THALLIUM	ND	2.0	U	4.3		
VANADIUM	5.2			2.1		
ZINC	11.9			5.6		
Dissolved Metals (µg/L)						
ALUMINUM	ND	35.3	U	ND	35.3	U
ANTIMONY	7.2			7.6		
ARSENIC	24.9			2.1		
BARIUM	456			365		
BERYLLIUM	ND	0.10	U	ND	0.10	U
CADMIUM	0.51			ND	0.20	U
CALCIUM	320,000			297,000		
CHROMIUM	ND	0.70	U	ND	0.70	U
COBALT	2.9			0.89		
COPPER	ND	1.7	U	9.7		
IRON	14,700			41.6		
LEAD	ND	1.0	U	4.2		
MAGNESIUM	530,000			519,000		
MANGANESE	3,900			3,620		
MERCURY	ND	0.10	U	ND	0.10	U
MOLYBDENUM	3.7			2.3		
NICKEL	15.2			4.3		
POTASSIUM	294,000			310,000		
SELENIUM	ND	2.3	U	4.2		
SILVER	ND	0.60	U	ND	0.60	U
SODIUM	4,400,000			4,550,000		
THALLIUM	ND	2.0	U	4.5		
VANADIUM	4.8			ND	1.1	U
ZINC	9.6			ND	3.1	U

µg/L = Micrograms per liter, mg/L = Milligrams per liter

ND; U = Not detected, J = Estimated value, Det. Lim. = Detection Limit, Qual. = Validation Qualifier

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

LOW FLOW RATE SAMPLING STUDY GROUNDWATER DATA

NWS CONCORD TIDAL AREA

Point ID	RDW-5			RDW-5		
Sampling Technique	BAILED			LOW FLOW		
Matrix	WATER			WATER		
Sample Date	09/16/94			09/16/94		
	Result	**Det. Lim.**	**Qual.**	**Result**	**Det. Lim.**	**Qual.**
Total Metals (μg/L)						
ALUMINUM	1,500			7,140		
ANTIMONY	1.2			ND	1.2	U
ARSENIC	59.6			65.2		
BARIUM	642			630		
BERYLLIUM	ND	0.10	U	0.13		
CADMIUM	1.9			4.3		
CALCIUM	1,070,000			1,010,000		
CHROMIUM	13.8			39.4		
COBALT	3.4			7.4		
COPPER	ND	1.7	U	36.0		
IRON	22,800			45,600		
LEAD	2.6			6.5		
MAGNESIUM	1,810,000			1,730,000		
MANGANESE	10,900			10,900		
MERCURY	ND	0.10	U	ND	0.10	U
MOLYBDENUM	8.0			6.3		
NICKEL	21.2			38.2		
POTASSIUM	180,000			198,000		
SELENIUM	4.1			2.8		
SILVER	ND	0.60	U	ND	0.60	U
SODIUM	6,530,000			7,280,000		
THALLIUM	6.5			ND	2.0	U
VANADIUM	19.8			37.8		
ZINC	18.4			166		
Dissolved Metals (μg/L)						
ALUMINUM	ND	35.3	U	ND	35.3	U
ANTIMONY	3.7			5.6		
ARSENIC	50.5			41.4		
BARIUM	605			585		
BERYLLIUM	ND	0.10	U	ND	0.10	U
CADMIUM	1.2			0.98		
CALCIUM	945,000			905,000		
CHROMIUM	4.4			2.5		
COBALT	2.3			1.6		
COPPER	ND	1.7	U	ND	1.7	U
IRON	17,500			15,400		
LEAD	ND	1.0	U	ND	1.0	U
MAGNESIUM	1,610,000			1,600,000		
MANGANESE	10,300			9,920		
MERCURY	ND	0.10	U	ND	0.10	U
MOLYBDENUM	7.3			7.6		
NICKEL	10.2			6.3		
POTASSIUM	180,000			203,000		
SELENIUM	4.8			5.1		
SILVER	ND	0.60	U	ND	0.60	U
SODIUM	6,600,000			8,070,000		
THALLIUM	7.0			6.7		
VANADIUM	14.5			11.9		
ZINC	ND	3.1	U	ND	3.1	U

μg/L = Micrograms per liter, mg/L = Milligrams per liter

ND; U = Not detected, J = Estimated value, Det. Lim. = Detection Limit, Qual. = Validation Qualifier

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

LOW FLOW RATE SAMPLING STUDY GROUNDWATER DATA

NWS CONCORD TIDAL AREA

Point ID	TLW-3			TLW-3		
Sampling Technique	BAILED			LOW FLOW		
Matrix	WATER			WATER		
Sample Date	09/16/94			09/15/94		
	Result	**Det. Lim.**	**Qual.**	**Result**	**Det. Lim.**	**Qual.**
Total Metals (μg/L)						
ALUMINUM	72.3			ND	35.3	U
ANTIMONY	ND	1.2	U	2.4		
ARSENIC	8.1			44.5		
BARIUM	41.2			99.7		
BERYLLIUM	ND	0.10	U	ND	0.10	U
CADMIUM	1.1			0.54		
CALCIUM	316,000			466,000		
CHROMIUM	56.6			257		
COBALT	1.9			2.2		
COPPER	ND	1.7	U	ND	1.7	U
IRON	6,130			5,960		
LEAD	ND	1.0	U	ND	1.0	U
MAGNESIUM	2,110,000			2,110,000		
MANGANESE	1,330			3,510		
MERCURY	ND	0.10	U	ND	0.10	U
MOLYBDENUM	7.4			0.80		
NICKEL	15.7			32.4		
POTASSIUM	679,000			598,000		
SELENIUM	2.3			3.3		
SILVER	ND	0.60	U	ND	0.60	U
SODIUM	16,400,000			18,200,000		
THALLIUM	ND	2.0	U	3.6		
VANADIUM	ND	1.1	U	2.8		
ZINC	ND	3.1	U	39.3		
Dissolved Metals (μg/L)						
ALUMINUM	ND	35.3	U	ND	35.3	U
ANTIMONY	3.5			10.6		
ARSENIC	12.6			47.2		
BARIUM	46.2			96.7		
BERYLLIUM	ND	0.10	U	ND	0.10	U
CADMIUM	0.30			ND	0.20	U
CALCIUM	267,000			481,000		
CHROMIUM	11.1			76.4		
COBALT	1.1			ND	0.70	U
COPPER	ND	1.7	U	ND	1.7	U
IRON	1,330			36.4		
LEAD	ND	1.0	U	ND	1.0	U
MAGNESIUM	2,000,000			2,510,000		
MANGANESE	1,570			3,630		
MERCURY	ND	0.10	U	ND	0.10	U
MOLYBDENUM	6.3			1.1		
NICKEL	9.3			5.6		
POTASSIUM	708,000			635,000		
SELENIUM	3.8			4.3		
SILVER	ND	0.60	U	ND	0.60	U
SODIUM	18,200,000			18,000,000		
THALLIUM	ND	2.0	U	2.5		
VANADIUM	ND	1.1	U	1.2		
ZINC	ND	3.1	U	ND	3.1	U

μg/L = Micrograms per liter, mg/L = Milligrams per liter

ND; U = Not detected, J = Estimated value, Det. Lim. = Detection Limit, Qual. = Validation Qualifier

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.

LOW FLOW RATE SAMPLING STUDY GROUNDWATER DATA

NWS CONCORD TIDAL AREA

Point ID	WHW-4			WHW-4		
Sampling Technique	BAILED			LOW FLOW		
Matrix	WATER			WATER		
Sample Date	09/15/94			09/14/94		
	Result	**Det. Lim.**	**Qual.**	**Result**	**Det. Lim.**	**Qual.**
Total Metals (µg/L)						
ALUMINUM	108			ND	35.3	U
ANTIMONY	1.9			1.2		
ARSENIC	6.4			1.7		
BARIUM	1,380			375		
BERYLLIUM	ND	0.10	U	ND	0.10	U
CADMIUM	3.1			ND	0.20	U
CALCIUM	1,960,000			822,000		
CHROMIUM	21.1			90.6		
COBALT	6.6			ND	0.70	U
COPPER	ND	1.7	U	ND	1.7	U
IRON	53,100			1,050		
LEAD	3.8			ND	1.0	U
MAGNESIUM	967,000			1,610,000		
MANGANESE	13,000			599		
MERCURY	ND	0.10	U	ND	0.10	U
MOLYBDENUM	3.2			1.2		
NICKEL	8.7			3.3		
POTASSIUM	124,000			330,000		
SELENIUM	4.9			2.9		
SILVER	ND	0.60	U	ND	0.60	U
SODIUM	7,380,000			11,800,000		
THALLIUM	2.4			ND	2.0	U
VANADIUM	1.1			2.2		
ZINC	8.1			ND	3.1	U
Dissolved Metals (µg/L)						
ALUMINUM	ND	35.3	U	ND	35.3	U
ANTIMONY	5.9			4.5		
ARSENIC	6.0			2.0		
BARIUM	1,490			388		
BERYLLIUM	ND	0.10	U	ND	0.10	U
CADMIUM	3.4			ND	0.20	U
CALCIUM	1,600,000			834,000		
CHROMIUM	ND	0.70	U	67.4		
COBALT	6.6			0.91		
COPPER	ND	1.7	U	ND	1.7	U
IRON	55,300			179		
LEAD	4.4			ND	1.0	U
MAGNESIUM	969,000			1,590,000		
MANGANESE	13,300			590		
MERCURY	ND	0.10	U	ND	0.10	U
MOLYBDENUM	3.4			1.3		
NICKEL	9.3			4.2		
POTASSIUM	117,000			302,000		
SELENIUM	4.0			ND	2.3	U
SILVER	ND	0.60	U	ND	0.60	U
SODIUM	6,940,000			11,100,000		
THALLIUM	5.4			3.1		
VANADIUM	ND	1.1	U	2.2		
ZINC	49.0			ND	3.1	U

µg/L = Micrograms per liter, mg/L = Milligrams per liter

ND; U = Not detected, J = Estimated value, Det. Lim. = Detection Limit, Qual. = Validation Qualifier

Inorganic results less than 10 are reported to two significant figures and results greater than 10 are reported to three significant figures.