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# Remedial Investigation
# Solid Waste Management Units 2, 5, 7, and 18

## Naval Weapons Station Seal Beach Detachment Concord
## Concord, California

***GSA.0129.0004***

## DRAFT FINAL

**June 14, 2004**

Naval Facilities Engineering Command

**Department of the Navy**
**Engineering Field Activity West**
**Daly City, California**

**TETRA TECH, INC.**

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Prepared for

NAVFAC
Naval Facilities Engineering Command

DEPARTMENT OF THE NAVY
Engineering Field Activity West
Daly City, California

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| µg/kg | Microgram per kilogram |
| µg/L | Microgram per liter |
| µg/m$^3$ | Microgram per cubic meter |
| APCL | Applied Physics & Chemistry Laboratory |
| AST | Aboveground storage tank |
| ASTM | American Society of Testing and Materials |
| ATSDR | Agency for Toxic Substances and Disease Registry |
| bgs | Below ground surface |
| CCCHSD | Contra Costa County Health Services Department |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| cm | Centimeter |
| COD | Chemical oxygen demand |
| COPC | Chemical of potential concern |
| COPEC | Chemical of potential ecological concern |
| CSM | Conceptual site model |
| DCA | Dichloroethane |
| DCE | Dichloroethene |
| DNAPL | Dense nonaqueous-phase liquid |
| DO | Dissolved oxygen |
| DQO | Data quality objective |
| DTSC | State of California Department of Toxic Substances Control |
| EPA | U.S. Environmental Protection Agency |
| FS | Feasibility study |
| FSP | Field sampling plan |
| HHRA | Human health risk assessment |
| HSP | Health and safety plan |
| IRP | Installation restoration program |
| LFR | LFR Levine-Fricke |
| MCL | Maximum contaminant level |
| MDEQ | Michigan Department of Environmental Quality |
| mg/kg | Milligram per kilogram |
| mg/L | Milligram per liter |
| mL | Milliliter |
| mph | Mile per hour |
| msl | Mean sea level |

| | |
|---|---|
| Navy | U.S. Navy |
| NCP | National Oil and Hazardous Substance Pollution Contingency Plan |
| ORP | Oxygen reduction potential |
| ORNL | Oak Ridge National Laboratory |
| PCE | Tetrachloroethene |
| 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 |
| RCRA | Resource Conservation and Recovery Act |
| Reidel | Reidel Environmental Services |
| RFA | RCRA facility assessment |
| RFACS | RCRA facility assessment confirmation study |
| RI | Remedial investigation |
| RPD | Relative percent difference |
| RPM | Remedial project manager |
| RTDF | Remediation Technologies Development Forum |
| RWQCB | State of California Regional Water Quality Control Board |
| SBD | Seal Beach Detachment |
| SI | Site investigation |
| SLERA | Screening level ecological risk assessment |
| SWMU | Solid waste management unit |
| TCA | Trichloroethane |
| TCE | Trichloroethene |
| TDS | Total dissolved solids |
| TPH | Total petroleum hydrocarbon |
| TPH-d | Total petroleum hydrocarbons as diesel |
| TPH-g | Total petroleum hydrocarbons as gasoline |
| TPH-mo | Total petroleum hydrocarbons as motor oil |
| TtEMI | Tetra Tech EM Inc. |
| USCS | Unified Soil Classification System |
| UST | Underground storage tank |
| VOC | Volatile organic compound |

## EXECUTIVE SUMMARY

This report presents the findings of the remedial investigation (RI) conducted in the vicinity of former Solid Waste Management Units (SWMU) 2, 5, 7, and 18 at Naval Weapons Station Seal Beach Detachment (SBD) Concord in Concord, California (hereafter referred to as "the site"). The U.S. Navy (Navy) conducted the RI under its Installation Restoration Program in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to determine the nature and extent of contamination at the site from past activities and site-related risks to human health and the environment.

The RI is one of a series of environmental investigation reports completed for the Inland Area at Naval Weapons Station SBD Concord. Other reports document investigation of a wide range of contaminants at a variety of sites. This RI report briefly summarizes pertinent conclusions and recommendations from prior investigations in the site area. These investigations recommended (1) additional focus and investigation of contaminants found to pose potential risk and (2) no further action for sites where risks were determined to be low. SWMUs 2, 5, 7, and 18 were recommended for further investigation because volatile organic compound (VOC) contamination was detected in groundwater samples obtained from these SWMUs. Although each SWMU was previously investigated for a variety of contaminants (such as metals, pesticides, polychlorinated biphenyls, and other contaminants) related to the SWMU's actual or suspected operating history, these other contaminants were not detected. Consequently, the former investigations recommended that future sampling concentrate only on characterization of the extent of VOC constituents in soil, groundwater, and soil gas.

Total petroleum hydrocarbons (TPH) were also detected in groundwater at the site, but TPH is evaluated separately under the Navy's underground storage tank (UST) program regulated by the State of California Regional Water Quality Control Board (RWQCB). In an effort to maximize efficiency between the CERCLA and UST programs, the RWQCB requested that supplemental analyses for TPH be conducted on selected soil and groundwater samples. Because the primary focus of this RI is potential sources of VOC contamination; however, sampling locations were selected to investigate the nature and extent of VOC constituents in soil, groundwater, and soil gas, and not potential TPH contamination.

Specific RI objectives for soil, groundwater, and soil gas sampling are as follows:

- Characterize the nature and extent of soil, soil gas, and groundwater contamination for the purpose of developing and evaluating effective remedial alternatives
- Identify potential contaminant migration pathways and receptors potentially exposed to contaminants at the site
- Evaluate and assess risk to human health using a screening-level human health risk assessment (HHRA) approach
- Collect data to support a feasibility study (FS) evaluation, if required

The RI approach, results, and conclusions and recommendations are summarized below.

## REMEDIAL INVESTIGATION APPROACH

The focus of this RI was to (1) define the nature and extent of VOCs consistently detected at concentrations exceeding screening criteria in groundwater monitoring wells at the site, (2) define the nature and extent of VOCs detected at concentrations exceeding screening criteria in soil gas, (3) investigate the source of the VOCs, and (4) adequately define the nature and extent of VOC-affected soil, if encountered. To evaluate potential source areas for the groundwater contamination, each SWMU's operating history and previous investigation results were evaluated, and soil gas and soil samples were collected and analyzed for VOCs.

The scope of work for this RI was based on sampling and analysis plans developed to determine the extent of VOCs in groundwater at concentrations exceeding state and federal maximum contaminant limits (MCL) for drinking water. The RI consisted of implementing a health and safety plan, a monitoring inspection and groundwater level survey, a field sampling program, and aquifer slug testing.

Soil and grab groundwater sampling locations were selected across and upgradient of the site to investigate potential sources and define the nature and extent of TPH and VOCs in impacted areas identified during previous investigations. The soil and groundwater samples were submitted to Applied Physics & Chemistry Laboratory of Chino, California, for VOC and TPH analysis. Laboratory analyses were conducted using U.S. Environmental Protection Agency (EPA)-approved methodologies. A total of 158 soil samples were collected from 39 soil boring locations; 40 grab groundwater samples (and duplicates) were collected from 32 soil boring locations; and 14 groundwater samples were collected from existing monitoring wells.

In addition, soil gas samples were collected to investigate potential source(s) of VOC contamination to groundwater. Soil gas samples were collected in the field on January 26 through 28, 2004, and at step-out locations on April 1, 2004. Soil gas samples from the first round of sampling were sent to an on-site mobile laboratory, Mobile Chem. Quality assurance confirmation samples were collected and sent to a conventional stationary laboratory, AIRTOX, to verify the mobile laboratory results. Thirty-nine samples were analyzed in the mobile laboratory, and six samples were analyzed in the stationary laboratory. After receipt and review of the results from the first soil gas sampling effort, step-out soil gas sampling locations were identified in consultation with the regulatory agencies, and five additional step-out soil gas sampling locations were sampled. Six samples were collected from the five step-out locations and analyzed at a stationary laboratory (AIRTOX).

## REMEDIAL INVESTIGATION RESULTS

VOCs were detected in groundwater, soil gas, and soil samples collected at the site. The highest VOC concentrations in groundwater were detected in samples collected from MW-10 and SB024 in SWMU 5. The highest concentration of tetrachloroethene (PCE) detected was 100 micrograms per liter (µg/L), and the highest concentration of trichloroethene (TCE) detected was

38 µg/L (see Figures 19 and 20). The source for this contamination apparently is a former waste oil UST on the south side of Building IA-12. Downgradient groundwater samples collected from SWMU 2 contained low but detectible concentrations of PCE (generally less than 10 µg/L) that exceed drinking water MCLs. Detected concentrations of VOCs in groundwater are consistent with concentrations detected during groundwater monitoring conducted in 1999.

In order to evaluate potential source areas, soil gas and soil samples were collected. Soil gas sample results generally did not exceed the RWQCB screening levels for indoor air except near the former waste oil UST, where PCE; TCE; and cis-1,2-dichloroethene (DCE) were detected at concentrations as high as 120,000 micrograms per cubic meter (µg/m$^3$).

Concentrations of VOCs in soil did not exceed residential preliminary remediation goals (PRG). Soil sample results do not suggest a concentrated source area that caused VOC contamination of groundwater.

TPH constituents were also detected in both soil and groundwater samples collected at the site. Concentrations of TPH as diesel (TPH-d) and TPH as motor oil (TPH-mo) greater than 500 milligrams per kilogram (mg/kg) were detected in only two soil samples. In general, TPH-impacted soil appears limited to the shallow subsurface. TPH as gasoline (TPH-g) was also detected in both soil and groundwater samples and was generally attributed to heavier hydrocarbons. Quantifiable concentrations of TPH-d were detected in four groundwater samples collected from SB015 (220 µg/L), MW-IA17 (350 µg/L), SB020 (370 µg/L), and SB018 (420 µg/L). Quantifiable concentrations of TPH-mo were detected in three groundwater samples collected from SB026 (760 µg/L), SB019 (860 µg/L), and SB033 (2,200 µg/L).

Groundwater flow rates were estimated based on results of aquifer slug tests conducted at seven existing monitoring wells across the site. Groundwater velocities at the site were estimated to range from approximately 22 to 49 feet per year.

The results of the qualitative HHRA indicate that groundwater concentrations exceed agency threshold levels of concern for drinking water. Concentrations of cis-1,2-DCE; PCE; and TCE exceeded the MCLs for drinking water. Concentrations of 1,2-dichloroethane (DCA); benzene; bromodichloromethane, chloroform, PCE; and TCE exceeded EPA Region 9 tap water PRGs. Although site groundwater is not currently used for domestic supply, it may be suitable for domestic supply in the future.

The screening level ecological risk assessment (SLERA) evaluated risk to ecological receptors based on soil and groundwater sampling results for samples collected at the site. Based on the results of the SLERA, chemicals in soil and groundwater at the site pose minimal risk to ecological receptors.

## CONCLUSIONS

Because this RI was conducted under CERCLA, conclusions and recommendations derived from this RI focus on the evaluation of VOC constituents at the site. RI conclusions are summarized below.

- Significant unidentified areas of VOC-impacted soil at the site do not appear to exist, and no apparent data gaps were identified.
- VOC concentrations in groundwater have remained relatively consistent at the site over time.
- The source of VOCs detected in groundwater at SWMU 2 appears to be associated with a location upgradient of the site.
- The qualitative HHRA indicates that chemicals of potential concern (COPC) maximum concentrations in groundwater exceed agency threshold levels of concern. Concentrations of cis-1,2-DCE; PCE; and TCE exceeded the MCLs for drinking water. Concentrations of 1,2-dichloroethane (DCA); benzene; bromodichloromethane, chloroform, PCE, and TCE exceeded EPA Region 9 tap water PRGs. No COPC maximum concentration in soil exceeded the residential PRG, and no COPC maximum concentration in groundwater exceeded the indirect exposure screening levels.
- COPECs in soil and groundwater at the site pose minimal risk to ecological receptors.
- The qualitative HHRA, along with additional evaluation using the State of California Department of Toxic Substances Control (DTSC)-modified Johnson and Ettinger vapor transport model and site-specific input parameters and assumptions, indicates that significant incremental risks (defined as greater than 1E-06) are associated only with potential exposure to PCE in indoor air under a future residential land-use scenario. The potential PCE-related incremental risks are driven by soil gas concentrations measured at two locations (SG25 and SG31) located immediately adjacent to the former waste oil UST; however, incremental risks associated with potential exposure to VOCs in indoor air are all less than 1E-06 (and considered insignificant) under a future industrial land-use scenario. Finally, hazard quotients associated with potential exposure to VOCs in indoor air are less than 1 (and considered insignificant) under both future residential and industrial land-use scenarios.

## RECOMMENDATIONS

The site is not currently used as a source of drinking water; however, because groundwater contaminant concentrations at the site exceed agency threshold levels of concern for drinking water, a focused FS is recommended.

Based on the qualitative HHRA, contaminant concentrations in soil and groundwater at the site are below published health-protective values developed considering direct exposure to soil and indirect exposure (by volatilization to air) to VOCs in groundwater.

There are no plans for development of the site for residential purposes in the future, and no significant incremental risks or hazard quotients were identified based on soil gas modeling results based on site-specific input parameters and the assumption of future industrial land use; however, because VOCs in soil gas may induce risk to human health exceeding the excess cancer risk threshold of 1E–06, a focused FS is recommended to evaluate remedial alternatives such as active remediation technologies and institutional controls.

Based on the SLERA, observed contaminant concentrations in soil and groundwater at the site pose minimal risk to ecological receptors.

Groundwater monitoring on an annual basis is recommended. This monitoring frequency is considered sufficient based on the relatively stable nature of VOC concentrations in groundwater over time and the relatively low levels of groundwater contaminants at the site. Monitoring wells MW-4 and MW-5 are damaged and should be abandoned.

## 1.0 INTRODUCTION

The U.S. Navy (Navy), Naval Facilities Engineering Command, Engineering Field Activity West, is conducting a remedial investigation (RI) in the vicinity of former Solid Waste Management Units (SWMU) 2, 5, 7, and 18 at the Naval Weapons Station Seal Beach Detachment (SBD) Concord in Concord, California (Figure 1). For the purpose of this RI, "the site" refers to the entire investigation area. The Navy has authorized Tetra Tech EM Inc. (TtEMI) to prepare this RI report under General Services Administration Contract No. GS-10F-0076K, Delivery Order No. N62474-03-F-4037, to present the results of groundwater, soil, and soil gas investigations at the site. These investigations were conducted to further evaluate areas where total petroleum hydrocarbons (TPH) and volatile organic compounds (VOC) were detected at concentrations above established screening criteria and to identify potential additional TPH and VOC sources.

The Navy previously completed an investigation of 24 SWMU sites documented in the report titled, "Final Report, RCRA Facility Assessment Confirmation Study, Naval Weapons Station Concord, California" (RFACS) (PRC Environmental Management Inc. [PRC] 1997). The RFACS included investigation of SWMUs 2, 5, 7, and 18, and other nearby SWMU sites. During the RFACS, each SWMU was sampled for contaminants that were likely to have been released. Based on the general nature of operations at a variety of the SWMUs, the list of potential contaminants at many SWMU sites covered all general classes of contaminants. Of these, several VOCs were consistently detected in groundwater at SWMUs 2, 5, 7, and 18, resulting in further investigation to determine the sources of the releases as well as to further define the nature and extent of the releases. TPH was also detected in groundwater in certain areas, but TPH contamination is not the focus of this RI because TPH will be dealt with under the Navy's underground storage tank (UST) program. Other threats to groundwater quality have not been identified, so sampling at the site has remained focused on VOCs. Groundwater samples submitted to the laboratory were also analyzed for TPH to provide data for the Navy's UST program.

Following completion of the RFACS, the Navy prepared a site investigation (SI) work plan (TtEMI 1998) and installed groundwater monitoring wells to continue evaluating the extent of groundwater contaminated with VOCs at the site. The SI confirmed the presence of VOCs in groundwater, and additional characterization of site conditions was deemed necessary. The Navy presented the results of the SI in an RI work plan document that also presents the Navy's plan for ongoing investigation of the site (TtEMI 2001a). The results of the RI are presented in the draft RI report (TtEMI 2002). The U.S. Environmental Protection Agency (EPA), the State of California Regional Water Quality Control Board (RWQCB), and the State of California Department of Toxic Substances Control (DTSC) provided comments on the draft RI report to the Navy. The comments requested additional site characterization information in the form of a soil gas survey and various other modifications and improvements to the draft RI report. The Navy prepared responses to agency comments (TtEMI 2003a) and a sampling and analysis plan for the soil gas characterization work (TtEMI 2003b). This draft final RI report incorporates the results of the soil gas characterization work and changes made to address agency comments.

The following sections discuss the purpose of the RI, the scope of work, data quality objectives (DQO), and the report organization.

## 1.1 PURPOSE

For the purposes of this RI, SWMUs 2, 5, 7, and 18 were grouped together based on their proximity and similar history of use and operations. Figure 2 shows the SWMU locations. This RI was conducted under the Installation Restoration Program (IRP) regulated by the federal government under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (EPA 1988).

The focus of this RI was to (1) define the nature and extent of VOCs consistently detected at concentrations exceeding screening criteria in groundwater monitoring wells at the site, (2) define the nature and extent of VOCs detected at concentrations exceeding screening criteria in soil gas, (3) investigate the source of the VOCs, and (4) adequately define the nature and extent of VOC-affected soil, if encountered.

The investigation of TPH constituents at the site is conducted separately under the Navy's UST program, which is regulated by the RWQCB. In an effort to maximize efficiency between the two programs, the RWQCB requested that supplemental analyses for TPH be conducted on selected soil and groundwater samples collected from the site. For this reason, sampling locations that could assist in the delineation of TPH contamination in other studies were additionally sampled for TPH as gasoline (TPH-g), TPH as diesel (TPH-d), and TPH as motor oil (TPH-mo). Because the primary focus of this RI report is on the investigation of potential sources of VOCs, however, sampling locations were distributed across the site to investigate the nature and extent of VOC constituents in soil and groundwater and not that of potential TPH contamination. Additionally, natural attenuation parameters were sampled for to provide an initial assessment of potential natural attenuation processes occurring at the site.

Current operations at the site have been scaled back considerably from previous use; however, the site still retains its military function and will continue to do so for the foreseeable future. Although future residential use of the site is unlikely, this RI uses residential screening criteria to add conservatism in the screening evaluation and as criteria for unrestricted future use. Screening criteria used in the human health risk assessment (HHRA) are based on residential soil preliminary remedial goals (PRG) promulgated by the EPA (EPA 2002a), and the groundwater screening levels are based on the protection of residential indoor air criteria (RWQCB 2003) and maximum contaminant levels (MCL) and tap water PRGs (EPA 2000 and 2002a). For purposes of the HHRA, maximum detections of VOC constituents were evaluated. Although TPH was not evaluated as part of the HHRA, screening criteria for TPH in soil and groundwater were used to assess the nature and extent of impacted soil and groundwater. Detectable concentrations of TPH compounds in soil samples were screened against the RWQCB risk-based screening levels for surface soil residential category (RWQCB 2003), and detectable concentrations of TPH compounds in groundwater samples were screened against RWQCB drinking water screening levels. Section 6.0 discusses screening criteria used in the HHRA. Screening levels for soil gas were based on screening criteria developed by the RWQCB for soil VOC emissions to indoor air

that conservatively assume site conditions include highly permeable sandy soils and residential exposure (RWQCB 2003).

## 1.2 SCOPE OF WORK

The scope of work for this RI is outlined in the draft final field sampling plan (FSP) (TtEMI 2001a), quality assurance project plan (QAPP) (TtEMI 2001b), and the addendum to the draft final FSP and QAPP (TtEMI 2001c). The FSP, QAPP, and addendum describe the installation of 32 soil borings using a direct-push method and the collection of soil samples and a grab groundwater sample at each soil boring location. Additionally, step-out soil borings (with grab groundwater sample collection) were to be drilled at locations determined based on initial laboratory analytical results.

Comments by the EPA and RWQCB were an integral part of development of the sampling and analysis plans and agency comments and Navy responses helped shape the draft final FSP, QAPP, and addendum. The RWQCB issued comments on December 7, 2001. A memorandum dated December 17, 2001, from John Bosche, TtEMI project manager, to Laurent Meillier, RWQCB, describes modifications to the scope of work made to address RWQCB comments (TtEMI 2001d).

The draft RI included installation of a total of 39 soil borings and the collection of soil and grab groundwater samples from each boring. Additionally, existing groundwater monitoring wells at the site and downgradient from SWMU 1 were sampled. Aquifer slug testing was completed at monitoring wells MW-2, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-13. Table 1 summarizes analytical methods used.

In response to agency comments, the Navy agreed to conduct a soil gas survey to further evaluate the site with respect to contaminant source(s). To plan the soil gas survey investigation, the Navy prepared draft and draft final versions of a sampling and analysis plan. The draft final version of the plan (TtEMI 2003b) was approved by EPA prior to the start of the field work.

## 1.3 DATA QUALITY OBJECTIVES

Table 2 presents the DQO identification process developed in 2001 prior to collection of soil and groundwater samples, and Table 3 presents the DQO process developed in 2003 prior to collection of soil gas samples. Specific RI objectives for soil, groundwater (TtEMI 2001a), and soil gas sampling (TtEMI 2003b) are as follows:

- Characterize the nature and extent of soil, soil gas, and groundwater contamination for the purpose of developing and evaluating effective remedial alternatives
- Identify potential contaminant migration pathways and receptors potentially exposed to contaminants at the site
- Evaluate and assess risk to human health using a screening-level HHRA approach

- Collect data to support a feasibility study (FS) evaluation, if required

The RI field investigation was conducted in accordance with the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and EPA guidance for conducting an RI/FS under CERCLA. Data gathered during an RI are generally used to evaluate whether affected areas at a site pose risk to human health or the environment. If risk is posed, RI data are usually used in an FS process to evaluate remedial alternatives.

## 1.4 REPORT ORGANIZATION

This report is organized into the sections below.

- Section 1.0 discusses the purpose, scope of work, DQOs, and organization of this RI report.
- Section 2.0 presents the site background, including operating history, previous site investigations, and regional geology and hydrology.
- Section 3.0 discusses the RI approach, including survey, sampling, and testing methods.
- Section 4.0 presents the RI results.
- Section 5.0 presents the conceptual site model (CSM), which incorporates elements of the site history and characteristics with the RI results.
- Section 6.0 presents a qualitative HHRA.
- Section 7.0 presents a screening level ecological risk assessment (SLERA).
- Section 8.0 presents the data quality assessment.
- Section 9.0 presents a summary, conclusions, and recommendations derived from this RI.
- Section 10.0 lists references used to prepare this RI report.

Figures and tables are presented after Section 10.0.

Appendices accompanying this RI include a summary of analytical results (Appendix A), lithologic logs (Appendix B), water quality data sheets (Appendix C), aquifer slug testing procedures and results (Appendix D), quality assurance and quality control (QA/QC) data results (Appendix E), soil gas vapor transport evaluation calculations (Appendix F), data quality control summary report (Appendix G) and Navy responses to regulatory agency comments on draft remedial investigation (Appendix H).

## 2.0 SITE DESCRIPTION AND BACKGROUND

The following subsections discuss the site location and description, land use, climate, site history, current and former operations, previous investigations, regional setting, and regional geology and hydrology.

### 2.1 SITE LOCATION AND DESCRIPTION

Naval Weapons Station SBD Concord is a major naval munitions transport and shipment facility located in the north-central portion of Contra Costa County, California, about 30 miles northeast of San Francisco. The facility encompasses approximately 13,000 acres and is bounded by Suisun Bay to the north and the city of Concord to the south and west (Figure 1). Currently, the facility includes two principal areas, the Tidal Area and the Inland Area (Figure 1); this RI focuses on SWMUs 2, 5, 7, and 18 (Figure 2) in the Inland Area.

Access to the Inland Area is through a guarded gate off the Port Chicago Highway east of the main entrance to the Tidal Area. Public access is restricted.

The SWMU site is located on gently sloping terrain between the hills to the east and Seal Creek to the west. Seal Creek is about 2,000 feet south-southwest of the toe of the hills and is 60 feet lower in elevation than the hills. The ground from the toe of the hills to Seal Creek slopes at approximately 3 percent. Seal Creek is about 130 to 1,200 feet from the SWMU site (Figure 2). The SWMU site slopes westward from the hills to the creek roughly parallel to the creek at an approximate grade of 1.25 percent.

### 2.2 LAND USE

Land in the vicinity of Naval Weapons Station SBD Concord is used for a mixture of industrial, residential, agricultural, and open space purposes. The Los Mendanos Hills separate the Tidal and Inland Areas of the facility. A portion of the intervening land is privately owned and is leased to the Pacific Gas and Electric Company for storing natural gas by deep-well gas injection. The land is also used for cattle grazing.

Naval Weapons Station SBD Concord is bordered on the south by residential sections of the City of Concord. These neighborhoods are made up of single-family, medium-density housing. Most of the housing dates from the mid-1950s. In addition, seven public schools and several parks are adjacent to the Navy property line.

The Diablo Creek Golf Course occupies a 162-acre triangle of land between State Route 4, the Port Chicago Highway, and the Inland Area of Naval Weapons Station SBD Concord. The City of Concord operates a large water treatment plant and the Mallard Reservoir just west of the Port Chicago Highway.

North of State Route 4 and west of Naval Weapons Station SBD Concord, the land is zoned for industrial development and is occupied by many industries, including Phillips Refining, Marketing & Transportation, and Monsanto Chemical Company on Solano Way near Waterfront Road.

At Naval Weapons Station SBD Concord, ammunition storage was once the largest single land use within the Inland Area. Various portions of the SWMU site included production facilities for the inspection and maintenance of ordnance. Most of the Inland Area consists of open space, much of which has been and continues to be leased for cattle grazing. The Navy's industrial operations have essentially stopped within the Inland Area. The Tidal Area is still an active facility operated by the U.S. Army, for weapons storage and transshipments.

## 2.3 CLIMATE

Prevailing winds blow from the west through the wind gap in the hills formed by the Carquinez Strait. As a result, the Pacific Ocean and Suisun Bay have a significant impact 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. Occasionally, the late spring and summer weather is influenced by a high-pressure ridge over the interior of California, with resulting high temperatures. Contra Costa County normally experiences dry, warm summers and moderately rainy winters. Wind direction and speed are monitored at a Pacific Gas and Electric power plant in Pittsburg a few miles east of the facility. Velocity measurements are taken at 33 feet above ground surface. The wind blows southwest to west-northwest at a mean wind speed of 12 miles per hour (mph) 65 percent of the time. Wind speeds exceeding 25 mph occur only 0.5 percent of the time, or about 44 hours per year. Ground-level wind velocities at the site are generally 15 to 30 percent less than those measured at the power plant.

The mean annual precipitation for Naval Weapons Station SBD Concord is 14 inches. As in most of northern California, about 84 percent of the rainfall occurs from November through March. Regionally, rainfall may vary from 13 inches in the eastern portion of Contra Costa County to over 30 inches on the upper slopes of Mount Diablo. Snow falls occasionally on Mount Diablo, but the accumulation is small and lasts only a few days. Continuous rainfall records are available for Martinez, which is about 10 miles west of Naval Weapons Station SBD Concord. Short duration rainfall events and peak watershed discharges can be estimated for the site by multiplying Martinez precipitation data by a factor of 0.72; this factor represents the ratio of 1-day precipitation at Port Chicago to 1-day precipitation at Martinez (Lee and others 1986). The average local temperature varies from 45 degrees Fahrenheit in January to 75 degrees Fahrenheit in August.

## 2.4 SITE HISTORY

Facilities located in the greater Inland Area of the Naval Weapons Station SBD Concord are mostly nonoperational. These areas were formerly dedicated to ordnance operations. The SWMU site is located on the original property of the Naval Magazine, Port Chicago, acquired by the Navy in 1942.

Most Naval Weapons Station SBD Concord operations currently take place in the Tidal Area. Operations were formerly centered in the Inland Area. Ammunition storage in the Inland Area was the largest single land use at Naval Weapons Station SBD Concord. Ammunition storage was maintained in five magazine groups and two groups of barricaded railroad sidings. Support facilities for the inspection and maintenance of ordnance were located throughout the Inland Area.

Construction of the waterfront handling facilities began in January 1942, and the facility was commissioned as the Naval Magazine Port Chicago in April 1942. Around this time, the original name was changed from Bay Point to Port Chicago. The Inland Area, located in the Diablo Creek Valley, was subsequently acquired and linked to the Tidal Area by the Port Chicago and Clayton Railroads. In 1963, the base was officially renamed Naval Weapons Station Concord. In April 1998, the base became the Naval Weapons Station SDB Concord.

Naval Weapons Station SDB Concord was added to the National Priority List (that is, became a Superfund site) on December 16, 1994. The Navy and EPA signed a Federal Facilities agreement in June 2001.

## 2.5 CURRENT AND FORMER OPERATIONS

Naval Weapons Station SBD Concord is the major naval explosive ordnance transshipment facility on the West Coast. The facility provides storage, maintenance, and technical support for ordnance operations. Although daily operation of the facility has been reduced to a minimum, responsibility for environmental cleanup will remain with the Navy into the future.

Interviews with Naval Weapons Station SBD Concord personnel were held during a visit on January 23, 1998, to obtain information on current building uses as well as historical site uses (Pieper 1998). This section and the following subsections summarize information obtained from previous investigations and interviews with Naval Weapons Station SBD Concord personnel.

The site is associated with buildings originally constructed to support operations and maintenance of the Inland Area facilities and vehicles, including base motor pool and locomotives, and is located within the Operations Area of the Inland Area of Naval Weapons Station SBD Concord. A wide variety of operations were conducted in the vicinity of SWMUs 2, 5, 7, and 18. The following subsections discuss operations at the operations area and each SWMU as well as for areas upgradient from the site. Figure 3 shows the locations and primary uses of all buildings in the vicinity of SWMUs 2, 5, 7, and 18 and in the areas upgradient from these SWMUs.

### 2.5.1 Operations Area

Since 1998, when the interviews were conducted, the level of activity in the Inland Area has been vastly reduced, and many structures are no longer used. In 2003, Mr. Amado Andal provided information on past site operations. Figure 3 is based on information provided by Mr. Andal and in the draft environmental baseline survey (CDM Federal Programs Corporation 2003). Figure 3 lists the names and former uses of nearly all buildings in the industrial portion of the Inland Area of Naval Weapons Station SBD Concord.

In general, the buildings at the site remain almost unchanged from when the facility was first opened in the mid-1940s. Changes to the area include demolition of the locomotive turntable and steam cleaning station southeast of and inside Building IA-51 and construction of a Steam Cleaning Pad known as Building 269. In 1998, the Locomotive/Heavy Equipment Shop (Building IA-12) and the Public Works/Combined Shops (Building IA-15) still operated for their original intended purposes; however, the levels of activity in these shops greatly diminished over the past 10 to 15 years, and the buildings are not significantly used at present (Pieper 1998).

According to Naval Weapons Station SBD Concord personnel, chemicals used in the Operations Area were purchased from suppliers in bulk in 55-gallon drums from the early 1940s through the late 1960s in accordance with military specifications. During this period, chemicals were used directly from the drum or were transferred to smaller containers. The types of chemicals used in the Operations Area included paint, paint solvents, automotive and machine cutting coolants, solvents for parts cleaning, and oils and lubricants for machine and automotive maintenance. Wastes generated at these locations included paint, spent paint and machine solvents, waste oil, and oily sludge (Pieper 1998).

In the mid-1970s, Naval Weapons Station SBD Concord began purchasing commercially available chemicals. Most chemicals were purchased in smaller containers and were used directly from the supply containers. Chemicals needed in larger quantities were purchased in 55-gallon drums from commercial suppliers and were also used directly from the supply containers. Except for automotive antifreeze, there were no significant changes in the types of materials purchased. Glycol-based coolants were phased out of use in the late 1970s or early 1980s (Pieper 1998).

### 2.5.2 SWMUs 1, 2, 5, 7, 16, and 18

Operations at SWMUs 2, 5, 7, and 18 are the primary areas under consideration and each is discussed below. Operations at SWMU 1 and 16 are discussed separately in Section 2.5.2.5. SWMU 1 is discussed because it is downgradient from the site, and monitoring wells within this SWMU were used to assess the potential downgradient extent of TPH and VOCs. SWMU 16 is discussed because it is upgradient of the other SWMUs and contaminated soils were discovered and remediated at SWMU 16. Section 2.6 discusses previous investigations conducted at each SWMU in detail.

#### 2.5.2.1 SWMU 2 – Building IA-7

SWMU 2 is located at Naval Weapons Station SBD Concord fire department. SWMU 2 consists of Building IA-7, which was constructed in the mid-1940s as a fire station for the Inland Area. Fire department personnel indicate that outdoor burning of "red rags" was conducted routinely within a drum (Pieper 1988). The rags, which contained oils and solvents, were handled separately due to the risk of spontaneous combustion. Fire logs from 1965 indicate the transport of the red rags from Building IA-38. The rags were burned when they wore out.

Fuel oil and napalm were burned in a shallow pit area located south of the fire station (Figure 2) as part of the fire-fighting training activities conducted between 1969 and 1973. Extinguisher chemicals used included potassium chloride, sodium chloride, ammonium phosphate, and potassium carbonate. Between 1969 and 1973, residues of these chemicals were reported to have been scraped off the ground and disposed of in the bed of Seal Creek just south of the fire station.

Since 1973, practice burns were conducted in shallow metal pans at Building IA-7. Chemical residues remaining in the pans were disposed of at approved sites as reported in the Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) report (DTSC 1992). The description of reported burning and disposal activities in the RFA report is limited, and the Navy has not discovered additional specific information. Investigation of the general SWMU area was conducted in 1997 during the RFACS (PRC 1997) as summarized in Section 2.6 of this report. The area was sampled, but significant contamination related to the alleged burning and disposal activities were not discovered (PRC 1997).

A satellite hazardous waste storage area located south of Building IA-7 (Figure 2) consists of a metal shed that temporarily houses 55-gallon drums until they are moved to the hazardous waste storage facility at Building 433.

#### 2.5.2.2 SWMU 5 – Buildings IA-12 and 269

SWMU 5 consists of Buildings IA-12 and 269. Building IA-12 was constructed in the mid-1940s and is the main industrial complex of Naval Weapons Station SBD Concord (Figure 2). The building is no longer used for any industrial activity. The building housed the locomotive repair shop where approximately 1,100 pieces of railway, automotive, construction, and weight-handling equipment were maintained. During the 1998 site visit, this building was used for locomotive repair. Aboveground oil supply tanks are located on the south side of the building, and a waste oil sump was located at the northwest end of the subgrade corridor (PRC 1997). In 2002 and 2003, the building was steam cleaned and equipment was removed.

Battery maintenance and recharging was conducted at the northeast corner of Building IA-12 until 1992. Batteries were stored in a satellite accumulation point on the north side of Building IA-12. Approximately 49 automotive batteries were recycled annually. Approximately 24 locomotive batteries were also recycled at this location prior to 1997. Battery acids were drained and sent to Mare Island Naval Shipyard for recycling. Battery casings were rinsed and

neutralized prior to recycling. A grease and sand trap is located along the northwest interior wall of Building IA-12.

A 6,000-gallon capacity waste oil UST installed in the mid-1970s was used to store waste oil generated from locomotives. The UST was removed from the south side of Building IA-12 on November 4, 1994, as part of the RCRA closure. This UST was located between the existing oil tank containment area on the western end of the building and the dock on the eastern end of the building. Inspection of the tank at the time of its removal indicated no visible leakage. Six soil samples were collected from the tank excavation, and total recoverable petroleum hydrocarbons as motor oil were detected at a maximum concentration of 230 milligrams per kilogram (mg/kg). As a result, 35 cubic yards of contaminated soil was excavated for off-site disposal. VOCs; polynuclear aromatic hydrocarbons; TPH-d; and benzene, toluene, ethylbenzene, and total xylenes were not detected. Case closure approval for the UST removal was obtained from the DTSC in March 1995 (PRC 1997).

Waste was generated and accumulated at various locations around Building IA-12. Stained asphalt was observed at various locations along the northeast and southeast walls of Building IA-12.

Building 269, the locomotive and rail car steam cleaning facility, is located approximately 60 feet west of Building IA-12. Navy records indicate that the steam cleaning area was constructed in 1976 to collect oily wastes for processing through an oil-water separator located about 5 feet west of the steam cleaning area. The present configuration of the steam cleaning pad was constructed in 1995. According to Naval Weapons Station SBD Concord personnel, the 1995 construction work involved repair of the cracked concrete pad and the installation of a cover that complies with current facility storm water permit provisions. The oil-water separator was a single-walled, 6-inch-thick concrete sump with a 200-gallon capacity measuring about 4 feet wide, 9 feet long, and 7 feet deep. The oil-water separator was also known as Sump Container No. IA-12B. A contractor removed the sump contents annually and cleaned the sump. The oil-water separator was inspected biannually. Water from the oil-water separator discharged to the sanitary sewer (PRC 1997).

#### *2.5.2.3 SWMU 7 – Buildings IA-15 and IA-16*

SWMU 7 consists of Buildings IA-15 and IA-16. According to a 1944 floor plan, Building IA-15 included a metals shop, machine shop, weld shop, forge shop, offices, and tool storage area in the east portion of the building and an automotive repair shop at the western end. The building configuration and activities remain unchanged at the present time. Sanitary sinks are located in both the weld and forge shops. A sump is located in the southeast corner of the automotive shop. This sump has been backfilled.

Building IA-16 was the paint shop where maintenance crews staged painting jobs for Naval Weapons Station SBD Concord. By the early 1940s, a crew of approximately 20 painters worked in this building. By 1960, the crew at the paint shop had been reduced to three painters responsible for touch-up, repair, and minor interior finishing work. Much of the paint used was oil-based. Furthermore, much of the exterior paint was lead-based. Before 1970s, all waste paint, thinners, and cans were likely disposed of in the Tidal Area Landfill (Installation

Restoration Site 1). Paint usage was estimated at 700 gallons per year, generating approximately three drums of solid waste per year. Major finishing projects are now performed by contractors who are also responsible for the cleanup and disposal of their materials.

A paint shop, storage shed, and paint locker are located northeast of Building IA-16. A satellite accumulation area for waste paints and thinners is located near the storage shed northeast of the building. Empty paint cans are allowed to dry and then are disposed of as nonhazardous waste at a municipal trash bin.

Four 11,500-gallon USTs were located beneath the paved area between Buildings IA-16 and IA-12, two gasoline USTs and two diesel USTs. Three of the USTs are located adjacent to the southeast corner of Building IA-16 (northwest corner of Building IA-17), and the fourth was located off the northwest corner of Building IA-12 (south of Building IA-16). In January 1999, the four USTs were removed; a formal report detailing the tank removals was issued in September 1999 (Niccum 1999). Based on observations and confirmation sampling, all contamination was removed at three of the four tanks, however, a small amount of visibly stained soil was left in place at one tank that formerly contained diesel fuel. Access to the residual soil was obstructed by utilities, a railroad track, and the building foundation of Building IA-12 (Niccum 1999).

#### *2.5.2.4 SWMU 18 – Building IA-51 and Locomotive Turntable*

SWMU 18 consists of Building IA-51 and a locomotive turntable. Building IA-51 was constructed in the 1940s and is located in the main industrial complex. Railroad tracks run east to west along the north and south sides of the building. The railroad tracks are currently used primarily as holding areas for several boxcars. A 40-foot-long splash wall is located approximately 20 feet east of the building.

The building was used as a steam cleaning facility for locomotives, trucks, and other vehicles, and as tire maintenance shop. The steam cleaning facility was deactivated in the mid-1970s when the steam cleaning facility at Building 269 west of Building IA-12 became operational. Oily waste generated by the steam cleaning operations drained directly into a sump (Container No. IA-51). The oil was pumped out by a contractor, and the sump was periodically cleaned by the contractor. The former sump was installed in 1945, 12 feet east of the splash wall. The sump is made of concrete 6 inches thick and had a capacity of 40 gallons. Sump Container No. IA-51was filled with concrete when the steam-cleaning unit was deactivated.

Before the early 1960s, a zinc chromate rust inhibitor was added to motor antifreeze and waste antifreeze was disposed of by a contractor. After the early 1960s, the antifreeze, which was believed to be free of chromates, was typically discharged to the ground and into storm drains. According to the 1997 RFACS, chromates were detected in Seal Creek in 1978 (PRC 1997). The SWMU 18 sump evidently drained to the storm drain system, which in turn drained to Seal Creek. The location of existing storm drains and the discharge location to Seal Creek is illustrated on Figure 7. SWMU 18 was the suspected source of the chromates detected in Seal Creek. The source of this information is not referenced in the DTSC RFA report (DTSC 1992),

and additional information regarding the location of samples and concentrations detected has not been identified. When it was discovered that the new antifreeze contained zinc chromate, the type of antifreeze was changed, and biodegradable rust and scale inhibitor was added.

Aerial photographs show that a turntable for locomotives approximately 44 feet in diameter existed 100 feet east of Building IA-51 until at least 1969. A semicircular crack in the asphalt indicates where the turntable was located. The turntable is not present in the 1976 aerial photograph. Although the exact nature of activities occurring in the vicinity of the former turntable is not evident from the aerial photograph, base personnel who work at Building IA-51 say that an incinerator used to destroy classified documents was present in the excavation for the former turntable in 1976. A drop pit (another sump) to collect steam-cleaning water was formerly located 10 feet north of the turntable. The drop pit was destroyed when the turntable was demolished.

#### *2.5.2.5 SWMUs 1 and 16*

The area of Building IA-6 was designated as SWMU 1 during the RFA (DTSC 1992). Building IA-6 was constructed in the 1940s and housed three steam boilers: two powered by natural gas and one powered by diesel fuel oil. USTs located south of Building IA-6 were removed in 1989, and Building IA-6 was demolished in the late 1990s. Six groundwater-monitoring wells, MW-1 through MW-6, were installed at SWMU 1 (Figure 4) in conjunction with the removal of the USTs. In April 1998, Reidel Environmental Services (Reidel) of Richmond, California, installed MW-1 immediately west (downgradient) of the former USTs. In July 1989, Reidel installed MW-2 and MW-3 west and south of the former USTs, respectively. In September 1990, PRC of San Francisco, California, installed MW-4, and in September 1993, Furgo West Inc. of Ventura, California, installed MW-5 and MW-6 (Cal, Inc. 1996). The monitoring wells were installed to evaluate the lateral and vertical extent of petroleum hydrocarbons in groundwater. MW-2, MW-3, and MW-6 are accessible at the present time. Naval Weapons Station SBD Concord hired Cal, Inc., to excavate contaminated soil surrounding the former USTs, and MW-1 was abandoned as a result of the excavation. MW-4 and MW-5 have been filled with unknown materials and are presently unusable.

SWMU 16, which is located by Building IA-46, consists of a public works maintenance storage building and a storage shed where pesticides were mixed prior to application. Pesticides were detected in soil at the former pesticide storage building at concentrations considered to pose a potential threat to human health. As a result, the Navy conducted an interim RCRA corrective action at the area that consisted of excavating pesticide-contaminated soil and disposing of the soil off site at an appropriately permitted landfill. Confirmation soil samples were collected from the base of the excavation and at the excavation perimeter. A closure report was prepared (CH2M Hill 1997), and the area was recommended for no further action (PRC 1997).

### 2.5.3 Areas Upgradient from SWMUs 2, 5, 7, and 18

Buildings located hydraulically upgradient (east) from the SWMU site were assessed to evaluate their potential contribution to groundwater contamination. The information summarized below

was gathered from the Draft Environmental Baseline Survey (CDM Federal Programs Corporation 2003).

- Buildings 185, 186, and 398: These buildings consist of a former Marine barracks and dining facility. An oil-water separator was present in one of these buildings.
- Building 252: This building is a former Navy exchange storehouse.
- Building 395: This building was an administration building. A 3,000-gallon UST was removed in 1997. The Contra Costa County Health Services Department (CCCHSD) granted case closure for this UST.
- Building IA-10: This building was a former Marine barracks later converted to an administration building. A 2,100-gallon UST was removed in 1997.
- Building IA-18 (includes wings IA-18A through IA-18D): IA-18A was a former office building. IA-18B was a former clinic and included a permitted photochemical treatment facility. A closure report for the treatment facility was submitted to DTSC in March 2002. IA-18C is a former administration building. IA-18D is a former industrial relations office building. A 110-gallon diesel UST was removed from Building IA-18 in 1990. The CCCHSD granted case closure for the UST in 1994. Closure of the case was confirmed by the RWQCB on September 5, 2000. Fire log entries indicate several incidents of personal vehicles that leaked gasoline in the parking lot of the building in the 1960s.
- Building IA-49: This building was used for pesticides storage, asbestos-containing materials storage, and fluorescent light disposal. A RCRA corrective action was completed at the site in 1996 to excavate soil affected with pesticides (CH2M Hill 1997).
- Building IA-52: This building was a gymnasium.
- Building 193: This building was an Auto Hobby Shop at least 200 to 300 feet east of Building IA-52. Potential contaminants include petroleum hydrocarbons and solvents.

## 2.6 PREVIOUS INVESTIGATIONS

The DTSC performed an RFA at Naval Weapons Station SBD Concord in June 1992 to evaluate the potential for release of hazardous substances from 49 SWMUs (DTSC 1992). In 1996, the Navy performed an RFACS to further evaluate the DTSC RFA findings. The RFACS included collection of soil, surface water, groundwater, and septic tank samples; laboratory analysis of the samples; and evaluation of the analytical results. Recommendations resulting from the RFACS included the transfer of TPH-impacted sites to the Navy's UST program designed to address the petroleum hydrocarbon contamination. Sites where low levels of VOCs had been detected were recommended for evaluation under the CERCLA IRP (PRC 1997). The primary investigative focus of this RI is to assess the nature and extent of VOCs in groundwater and to provide supplemental data on the nature and extent of TPH-impacted soil and

groundwater at the site. The following discussion of the RFACS and CERCLA site investigations focuses on these constituents.

### 2.6.1 Resource Conservation and Recovery Act Facility Assessment Confirmation Study

The Navy conducted the RFACS in 1996 to further evaluate findings from the RFA. The RFACS consisted of the installation of 53 soil borings within SWMUs 1, 2, 5, 7, and 18; the collection of nine grab groundwater samples; and the collection of groundwater samples from existing monitoring wells MW-1 through MW-6.

The following subsections present the results of the TPH and VOC investigation conducted as part of the RFACS for SWMUs 1, 2, 5, 7, and 18. The last subsection describes work conducted at SWMU 16 associated with an interim RCRA corrective action conducted to remove pesticide-contaminated soil. Unless otherwise indicated, all information in the following subsections was obtained from the RFACS report (PRC 1997).

#### *2.6.1.1 SWMU 1*

SWMU 1 was investigated as part of the RFACS to evaluate the potential impact of hydrocarbons associated with a former UST, purge water holding tank, grease and sand trap, and former diesel fuel spill. VOCs were included in the investigation based on the results of previous groundwater analytical data. TPH-d and TPH-mo were detected in soil samples in the vicinity of the former UST. TPH-d and TPH-mo were also detected in groundwater samples from wells MW-1 and MW-5 downgradient from the former UST.

Tetrachloroethene (PCE) was the only VOC detected in the groundwater samples collected from monitoring wells MW-1 through MW-6. The PCE concentrations were consistently detected at low estimated ("J"-qualified) concentrations of 5 to 6 micrograms per liter (µg/L). Although the PCE concentrations are considered to be very low, they are equal to or greater than the state and federal MCL for PCE of 5.0 µg/L. Based on the presence of PCE at these low levels in all wells located in SWMU 1 (including the upgradient well MW-2) during the 1996 sampling event, it was concluded that the source of the PCE was upgradient from SWMU 1. SWMU 1 was subsequently transferred to the Navy's UST program.

#### *2.6.1.2 SWMU 2*

The RFACS for SWMU 2 included investigation of soil and groundwater in the vicinity of the alleged former burn area and along the drainage path to Seal Creek to evaluate the potential release of hazardous constituents caused by former fire-fighting practices and potential spills of hazardous materials from the hazardous materials storage area.

The maximum concentration of TPH detected in soil at SWMU 2 was 3,400 milligrams per kilogram (mg/kg) as TPH-mo, and the maximum concentration of TPH detected in grab groundwater samples was 130 micrograms per kilogram (µg/kg). Although TPH was

detected in soil and grab groundwater samples collected at the SWMU 2, the TPH was not detected at concentrations that could threaten human health or the environment. No known USTs or aboveground storage tanks (AST) are associated with SWMU 2, and the previous alleged burn pit activities at SWMU 2 did not release TPH to soil at concentrations requiring remediation. VOCs were not detected in either soil or groundwater samples collected from SWMU 2.

#### *2.6.1.3 SWMU 5*

The RFACS for SWMU 5 included investigation of soil in the vicinity of Buildings IA-12, and 269 to evaluate potential releases of hazardous constituents at five areas where hazardous wastes (primarily paints) were stored or surface staining was observed.

The soil sampling results indicate low concentrations of 1,1,1-trichloroethane (TCA) (estimated at 0.003 mg/kg) in the vicinity of Building IA-12. Oil and TPH-g at concentrations not exceeding 100 mg/kg were detected in several samples collected from borings adjacent to a grease and sand trap northwest of Building IA-12 and near the edge of an oil-water separator north of Building IA-43 at the steam cleaning facility (Building 269). Based on the soil sampling results, the RFACS concluded that significant organic or inorganic contamination was not present in soil at SWMU 5.

VOCs were detected at very low concentrations in grab groundwater samples collected at SWMU 5. Detected VOCs included 1,1,1-TCA; trichloroethene (TCE); 1,1-dichloroethane (DCA); and 1,2-dichloroethene (DCE). The source of the VOCs in groundwater was not determined but may be attributable to minor surface spills and storage of solvents at the locomotive maintenance area (Building IA-12) and the steam cleaning area. SWMU 5 was recommended for further investigation under the CERCLA IRP together with SWMUs 2, 7, and 18 to establish the location of any potential VOC sources and to determine whether contaminants were migrating through soil.

#### *2.6.1.4 SWMU 7*

The RFACS for SWMU 7 included investigation of an area east of Building IA-15 to evaluate potential releases of hazardous constituents at areas where hazardous wastes were stored and where surface staining was observed. Soil samples from six borings were analyzed for VOCs, and no VOCs were detected.

Soil borings were also installed in the vicinity of the four former 11,500-gallon USTs and north of the former USTs. TPH-d was detected in several soil samples; however, during removal of the USTs, the impacted soil was excavated and disposed of off site (Niccum 1999).

Groundwater samples collected in 1995 throughout SWMU 7 contained petroleum hydrocarbons. Two groundwater samples collected immediately east and west of the former USTs contained 130,000 and 25,000 µg/L of TPH-d, respectively. One groundwater sample

collected east of the former USTs contained 2 µg/L of 1,2-DCA. No other VOCs were detected in any of the groundwater samples.

Because of the presence of USTs and petroleum hydrocarbons in soil, SWMU 7 was transferred to the Navy's UST program so that TPH soil contamination could be addressed.

#### *2.6.1.5 SWMU 18*

The soil and groundwater investigation for the RFACS for SWMU 18 included evaluation of nine soil boring and two grab groundwater samples. The objective of soil sampling at SWMU 18 was to investigate the presence of hydrocarbons in the vicinity of the oil sump, vehicle maintenance area, locomotive steam cleaning area, and railroad turntable, and to investigate the storm drainage outfall for residual contamination from surface discharges in the area.

One soil boring was advanced to 15.5 feet below ground surface (bgs) adjacent to the former sump east of Building IA-51, and another was advanced near the former turntable. Soil samples from both borings were analyzed for TPH-d and TPH-mo. Soil samples from the boring near the former locomotive turntable were also analyzed for VOCs. Neither soil boring contained detectable concentrations of TPH-d or VOCs. TPH-mo was detected at a concentration of 1,100 mg/kg near the locomotive turntable at a depth of 5 feet bgs. Eight step-out soil borings were installed surrounding the turntable and sampled for TPH-mo. Soil samples from four of the eight borings contained TPH-mo at concentrations ranging from 340 to 9,700 mg/kg at depths of 1.5 to 2.5 feet bgs.

TPH-mo was also detected in two grab groundwater samples collected from the original two borings at a concentration of 740 µg/L near the sump and at a concentration of 540 µg/L near the turntable. The RFACS recommended a groundwater investigation to evaluate the TPH detected in groundwater at SWMU 18.

#### *2.6.1.6 SWMU 16*

An interim RCRA corrective action was conducted at SWMU 16 in 1996 to remove pesticide-contaminated soil. The results of confirmation sampling of the area are included in the RFACS report. SWMU 16 was used to store paints, solvents, thinners, and boiler chemicals. SWMU 16 also includes an area where florescent light bulb tubes were crushed, so the area was investigated for potential mercury contamination. The former hazardous waste storage area at SWMU 16 also stored asbestos-containing materials. The area was therefore also sampled for asbestos during the RFACS. Based on the soil removal and lack of mercury and asbestos contamination, SWMU 16 was recommended for no further action.

### 2.6.2 Comprehensive Environmental Response, Compensation, and Liability Act Investigations

Following the RFACS, the Navy conducted follow-up CERCLA investigation activities at SWMUs 2, 5, 7, and 18 to confirm the presence, levels, and potential sources of contaminants to

soil and groundwater as well as to determine the need for additional RI and abatement activities. In January 1999, six groundwater-monitoring wells, MW-07, MW -08, MW-09, MW-10, MW-11, and MW-12, were installed at SWMUs 1, 2, 5, 7, and 18 to evaluate potential sources of VOCs in groundwater in this area. Figure 4 shows the locations of these wells. Additionally, one upgradient monitoring well (MW-13) and one downgradient monitoring well (MW-14) were installed to delineate the extent of VOCs in groundwater. The monitoring well locations were selected to close data gaps, verify results of groundwater sampling conducted during the RFACS, and identify potential sources. Following installation of the monitoring wells, four quarters of groundwater sampling were conducted (TtEMI 2001a). Appendix A presents groundwater sampling results for these four quarters.

Samples from MW-10 in SWMU 5 contained the highest concentrations of VOCs detected during the four quarters of sampling in 1999. PCE was detected in all four quarterly groundwater samples collected from MW-10 at concentrations ranging from 62 to 72 µg/L. TCE was also detected in all four quarterly groundwater samples collected from MW-10 at concentrations ranging from 19 to 22 µg/L. Detectable concentrations of cis-1,2-DCE and trans-1,2-DCE were reported for the second quarter sampling event (April 1999) at 4 and 2 µg/L, respectively (TtEMI 2001a).

PCE was also detected during all four quarters of groundwater sampling in samples collected from MW-11 and MW-14 at estimated concentrations between 2 and 7 µg/L. TCE was detected during all four quarters of sampling in samples collected from MW-8 and MW-12 at estimated concentrations between 1 µg/L and 2 µg/L. TCE was also detected during the second (April 1999) and third quarters (July 1999) of groundwater sampling in samples collected from MW-9 at an estimated concentration of 0.6 µg/L for both quarters. VOCs were not detected in any of the soil samples collected during installation of the monitoring wells (TtEMI 2001a).

## 2.7 REGIONAL SETTING

Land use in the vicinity of the Naval Weapons Station SBD Concord is diverse and includes industrial and residential properties, range land, and open space. Residential development is located in the Town of Clyde west and slightly north of SWMUs 2, 5, 7, and 18. Residential areas of the City of Concord located closest to SWMUs 2, 5, 7, and 18 are south of State Route 4. Railroad land holdings and utility easements cross through the Inland Area. The Los Medanos Hills separate the Tidal and Inland Areas of Naval Weapons Station SBD Concord. The Los Medanos Hills are privately owned and leased to Pacific Gas and Electric Company and to local ranchers for cattle grazing. Land north of State Route 4 and west of Naval Weapons Station SBD Concord is zoned for industrial development. The City of Concord operates the Diablo Creek Golf Course west of SWMUs 2, 5, 7, and 18.

## 2.8 REGIONAL GEOLOGY AND HYDROGEOLOGY

This section presents an overview of the regional geologic and hydrogeologic conditions as well as the groundwater basin plan and drinking water supply at Naval Weapons Station SBD Concord.

### 2.8.1 Regional Geology

Naval Weapons Station SBD Concord is located in the Sacramento-San Joaquin Delta area of the great Valley Geologic Province. The regional geologic features include several northwest-trending fault systems that divide Contra Costa County into large tectonic blocks. Broad lowlands are underlain by thick, unconsolidated, Pleistocene-aged alluvial sediments eroded from up-thrown blocks. The Concord and Clayton Faults are two major faults known to exist in the vicinity of Naval Weapons Station SBD Concord. The Concord Fault passes approximately 2 miles south of Naval Weapons Station SBD Concord and is classified as an active, right-lateral, strike-slip fault. The Clayton Fault lies at the base of Los Medanos Hills as it passes through Naval Weapons Station SBD Concord. The Clayton Fault is classified as active or potentially active (PRC 1997).

The surficial geology of the Inland Area consists of two alluvial areas. The first area comprises alluvial deposits derived from erosion of the geologic units of the Los Medanos Hills. The second consists of alluvial deposits associated with the low and gently sloping hills to the southwest. The Seal Creek drainage area separates these two geologic areas (PRC 1997). The site is located on the northeast side of Seal Creek in the Inland Area.

Alluvium in the Inland Area consists of beds of sandy, silty, and clayey soils. Silty soils appear to predominate. An approximately 3-foot-thick layer of dark brown or gray, clayey soil generally overlies the alluvium throughout the region (PRC 1997).

### 2.8.2 Regional Hydrology

The Diablo Range intercoastal highlands include both smooth rolling hills and relatively rugged mountains, ranging in elevation from 100 feet above mean seal level (msl) along the San Francisco Bay to 3,849 feet above msl at Mount Diablo. The intermountain valleys and San Francisco Bay consist of 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. Drainage from Naval Weapons Station SBD Concord is exclusively into Suisun Bay.

Locally, the Naval Weapons Station SBD Concord lies within the Mount Diablo/Seal Creek Watershed, which drains an area of about 36 square miles. This watershed is bounded to the south by the northern peak of Mount Diablo and to the north by Suisun Bay. Streams that drain the watershed have their headwaters on the slopes of Mount Diablo and flow through Mount Diablo Creek through Clayton Valley and Naval Weapons Station SBD Concord to Hastings Slough in the tidal waters of Suisun Bay. Mount Diablo Creek becomes Seal Creek after entering Naval Weapons Station SBD Concord (PRC 1997). Suisan Bay is approximately 4 miles downstream from the site.

The Navy formerly owned and operated three wells along Kinne Boulevard. Figure 5 shows the current and former locations of wells in the vicinity of Naval Weapons Station SBD Concord. These wells were drilled in 1928 and were used until the 1960s, when they were abandoned but not closed. The wells were eventually drilled as deep as possible and grouted and in accordance with the well closure requirements of the CCHSD's Environmental Health Division (PRC 1995).

The Contra Costa County Water District operates a number of drinking water supply wells that surround Mallard Reservoir. These wells augment aqueduct supplies of drinking water to Mallard Reservoir during times of drought (DTSC 1992).

One irrigation water supply well is located within the Diablo Creek Golf Course next to the site. According to Rod Kilcoyne of the Diablo Creek Golf Course, the irrigation well operates every day in the summer and constitutes the sole source of irrigation water for the golf course. An estimated 750,000 gallons per day of water is pumped from the well during the hottest days of summer. In order to keep up with that demand, the well operates approximately 24 hours per day. The well was constructed in March 1977 and was originally drilled to a depth of 350 feet bgs. The well is fitted with a 20-inch-diameter steel casing to a depth of 260 feet bgs. The well casing is perforated at 70 to 85, 100 to 155, 165 to 200, and 225 to 250 feet bgs. The well pumps to a holding lake, where irrigation water is extracted by pumps. The well is not used for drinking water. The golf course pro shop is connected to water supplied by the Contra Costa County Water District (Kilcoyne 2003).

A well known as the Conco well is located across Port Chicago Highway from the golf course. Another water supply well located adjacent to Naval Weapons Station SBD Concord property formerly served the Town of Clyde. The well is reportedly no longer in use, and the Navy is unaware of the closure status of the well. Additional wells may be located in the industrial area west of the site and in the Town of Clyde. Locations and details of other wells are unknown to the Navy.

### 2.8.3 Groundwater Basin Plan and Drinking Water Supply

The Naval Weapons Station SBD Concord is located within the Clayton Groundwater Basin as identified in the water quality control plan for the San Francisco Bay region (RWQCB 1995) and associated amendments (RWQCB 2000). This plan, referred to as the "basin plan," identifies the Clayton Basin as a potentially significant groundwater basin within the San Francisco Bay Region. For basin planning purposes, the term "groundwater" is defined to include all subsurface waters, whether or not these waters meet the classic definition of an aquifer or occur within identified groundwater basins. Unless specifically exempted, a groundwater basin or portion thereof is designated as potentially suitable for municipal and domestic water supply (RWQCB 2000).

Groundwater in the area meets the federal definition of a potential drinking water supply (Class II groundwater [EPA 1986]) based on several factors. The first of these factors is the presence of one or more operating drinking water wells within 2 miles of the site (known as the Classification Review Area). The second factor is that the total dissolved solids (TDS) concentrations of the

groundwater are significantly lower than EPA's 10,000-milligram-per-liter (mg/L) threshold. Third, although well yield has not been determined at the site itself, it likely exceeds the EPA minimum threshold yield of 150 gallons per day. Because the groundwater meets these conditions, it is considered Class II groundwater according to the EPA criteria.

## 2.9 CONCEPTUAL SITE MODEL FRAMEWORK

The conceptual site model was developed to represent geological and hydrogeologic conditions and the occurrence and relative distribution of chemicals in soil and groundwater. The conceptual site model was developed using available data and new data obtained during implementation of this RI. The site conceptual model compiles a variety of site and vicinity information, including the potential sources and distribution of chemicals, likely migration pathways, and potential receptors. The conceptual site model developed for this RI is presented in Figure 6.

To establish the framework for the conceptual site model, information regarding the site geology and hydrology and information on both current and past site activities was examined. Geologic information was gathered from reported information in the literature, previously published environmental reports, and the field activities for this RI. Information on past activities was obtained from Navy maps, aerial photographs, and previously published environmental reports. This section summarizes the framework for the conceptual site model. A more detailed discussion of the conceptual site model that identifies data obtained during this RI and includes fate and transport processes associated with natural attenuation is presented in Section 5.0 of this RI.

As previously noted, daily operation of the facility currently has been reduced to a minimum. Buildings associated with the Site were originally constructed to support operations and maintenance of the Inland Area facilities and vehicles, including base motor pool and locomotives. The Site is located on gently sloping terrain lying between steep hills to the east and Seal Creek to the west. Soils at the Site consist primarily of clays and silts with intercalated sands. Much of the Site is covered by pavement; however, there are extensive open and unpaved areas both within the SWMUs and in surrounding areas. Site surface drainage is to the southwest towards Seal Creek, while groundwater flow is generally to the west. Section 4.1 presents a more detailed discussion of the site geologic and hydrogeologic conditions.

Potential sources of contamination at the Site are associated with previous site operations such as spills from areas of paint storage and mixing, petroleum product storage in drums and USTs and ASTs, use and storage of chlorinated solvents, and transfer of waste oil products. Specifically, USTs removed from within SWMUs 5 and 7 were used for storage of motor oil, diesel, and gasoline, posing a likely source for TPH contaminants. SWMU 2 contained a hazardous waste storage shed and a burn pit adjacent to Building IA-7. A former locomotive turntable and steam cleaning facility were present in SWMU 18. Building 193, a former auto hobby shop, housed potential contaminants such as TPH-g, TPH-mo, and solvents.

Contaminants from a surface release could potentially flow through drainages to Seal Creek and thus to Suisun Bay. Direct release into the subsurface can occur from USTs and associated piping. Areas of exposed ground near the potential source areas may provide migration pathways for contaminant infiltration to the subsurface. Underground utilities, sewer and storm drains, drainage ditches, and railroad spurs may provide additional contaminant migration pathways. The location of buried utilities and storm drain outfalls is illustrated on Figure 7.

## 3.0 REMEDIAL INVESTIGATION APPROACH

The Navy prepared a draft FSP and QAPP for the RI at SWMUs 2, 5, 7, and 18 for regulatory agency review and comment on May 31, 2000. EPA prepared two sets of comments on the drafts dated June 16, 2000, and July 20, 2000. RWQCB's comments are dated August 28, 2000. EPA's comments include both FSP and QAPP comments regarding some of the Navy's standard methodologies for accomplishing environmental field work. Because such comments could potentially affect field work for many jobs, the Navy's QA officer and EPA QA program personnel participated in addressing these issues. DTSC did not submit comments on the draft FSP.

The Navy prepared a draft final FSP and QAPP dated January 23, 2001. EPA entered into dispute with the Navy after the Navy issued the draft final FSP and QAPP. The Navy received comments on the draft final FSP and QAPP from EPA on March 13, 2001, and comments from RWQCB on March 14, 2001. The Navy prepared responses to comments dated August 25, 2001. On October 1, 2001, the Navy met with EPA and RWQCB remedial project managers (RPM) to resolve the dispute and establish the required scope of the RI field investigation. Based on discussions with the EPA and RWQCB RPMs, it was mutually agreed that the Navy should prepare an addendum to the FSP and QAPP rather than revise and reissue the full documents. The Navy's addendum is dated November 8, 2001. On January 15, 2002, the EPA issued a letter approving the work plan addendum.

After completion of the field work and laboratory analysis, the Navy completed a Draft Remedial Investigation (RI) for Solid Waste Management Units 2, 5, 7, and 18, dated October 18, 2002. The U.S. Environmental Protection Agency (EPA); California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region; and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) each reviewed the RI and each agency issued comments. The Navy received the comments from EPA on December 17, 2002; from RWQCB on November 12, 2002; and from DTSC on December 18, 2002. The Navy prepared responses to agency comments that are reproduced in this document in Appendix H.

One of the key agency comments was a request for additional site characterization in the form of a soil gas survey. As a result of the agencies' request, the Navy prepared a draft sampling and analysis plan addendum consisting of a field sampling plan and quality assurance project plan for the soil gas investigation at SWMU Sites 1, 2, 5, 7, and 18. The draft plan was dated June 6, 2003.

The EPA and the RWQCB reviewed the Draft Addendum Sampling and Analysis Plan and issued comments. The EPA's comments were dated August 14, 2003 and the RWQCB comments were dated July 30, 2003. The Navy prepared responses to comments dated October 7, 2003 and prepared a draft final addendum sampling and analysis plan also dated October 7, 2003.

After meeting with the EPA and the RWQCB, the Navy implemented the soil gas survey, conducted the analysis, and prepared this draft final RI.

Work performed to complete this RI consisted of implementing a health and safety plan (HSP), a monitoring inspection and groundwater level survey, a field sampling program, aquifer slug testing, and soil gas sampling. Each RI component is discussed below.

## 3.1 HEALTH AND SAFETY PLAN

Before initiation of RI field work, a site-specific HSP (TtEMI 1999) was prepared to address hazards associated with implementing the work described in the FSP. The HSP identifies and describes potentially hazardous substances, specifies personal protective equipment, and outlines measures to be taken in the event of an emergency. Field sampling activities were conducted in accordance with the procedures described in the draft final FSP (TtEMI 2001a) and QAPP (TtEMI 2001b). The FSP describes the locations, analyses, and field procedures for soil, and groundwater sampling, groundwater level measurement, and surveying. The QAPP describes the project organization, DQOs, data requirements, and QA/QC measures.

## 3.2 MONITORING WELL INSPECTION AND GROUNDWATER LEVEL SURVEY

Water level measurements were collected on February 11, 2002, at the site and at SWMU 1. Figure 4 shows the monitoring well locations, and Table 4 summarizes the construction details for existing monitoring wells. All wells are located at the site except MW-1 at SWMU 1. MW-1 was abandoned during the demolition of Building IA-6 and removal of a diesel UST (Cal, Inc. 1996). Currently, gravel fill has been placed where MW-1 was once situated. MW-4 and MW-5 were found without any surface protection and filled with debris to approximately 5 feet from top of casing.

Depth to water in existing monitoring wells ranged from 6.8 feet bgs in MW-3 to 16.6 feet bgs in MW-7. Table 5 summarizes water level measurements and other details. Well MW-13 is a flowing artesian well. In other words, when the watertight well cap is removed, water flows slowly out of the well without pumping onto the ground surface. The static groundwater level at MW-13 rises above the ground surface when the well is fitted with a watertight riser pipe. The artesian condition occurs at MW-13 because the groundwater aquifer is covered with a cap of relatively impervious clay. Because the water cannot escape the clay cap easily, the confining clay layer enables the water pressure to build up.

## 3.3 FIELD SAMPLING PROGRAM

Soil and grab groundwater sampling locations were selected across and upgradient of the site to investigate potential sources and define the nature and extent of TPH and VOCs in impacted areas identified during previous investigations. Initially, 32 soil borings were installed to collect soil and grab groundwater samples and lithologic information. Based on observed site conditions, photoionization detector (PID) readings from collected soil samples, and preliminary soil sample analytical results, seven additional step-out soil borings were installed. Figure 4 shows the monitoring well and soil boring locations. Appendix B presents the lithologic logs for the soil borings.

The soil and groundwater samples were submitted to Applied Physics & Chemistry Laboratory (APCL) of Chino, California, for VOC and TPH analysis. Laboratory analyses were conducted using EPA-approved methodologies. Table 1 summarizes the analytical methods. Table 6 summarizes specific laboratory analytical tests conducted on each sample. A total of 158 soil samples were collected from 39 soil boring locations; 40 grab groundwater samples (and duplicates) were collected from 32 soil boring locations; and 14 groundwater samples were collected from existing monitoring wells. Soil borings were logged in the field using the Unified Soil Classification System (USCS). Appendix C provides water quality sampling data sheets and related information for the groundwater sampling effort.

In addition, soil gas samples were collected to evaluate potential source areas for groundwater contamination previously detected at the site. Soil gas samples were collected in the field on January 26 through 28, 2004, and at step-out locations on April 1, 2004. Soil gas samples from the first round of sampling were sent to an on-site mobile laboratory, Mobile Chem. QA confirmation samples were collected and sent to a conventional stationary laboratory, AIRTOX, to verify the mobile laboratory results. Thirty-nine samples were analyzed in the mobile laboratory, and six samples were analyzed in the stationary laboratory. After receipt and review of the results from the first soil gas sampling effort, step-out soil gas sampling locations were identified in consultation with the regulatory agencies, and five additional step-out soil gas sampling locations were sampled. Six samples were collected from the five step-out locations and analyzed at a stationary laboratory (AIRTOX).

The following subsections describe soil, groundwater, and soil gas sampling in more detail as well as QA/QC sampling and deviations from the proposed sampling program.

### 3.3.1 Soil Sample Collection

In February 2002, a direct-push Geoprobe sampler was used to collect soil samples from the vadose zone at about 2, 6, 10, and 14 feet bgs at each sampling location (Figure 4). The soil sample from 2 feet bgs was collected to evaluate the potential volatilization pathway for the risk assessment. The soil sample from 14 feet bgs was collected to represent *in situ* soil just above the water table.

Soil samples submitted for TPH analysis were collected in acetate liners using the Geoprobe soil sampler. Samples collected for VOC analysis were obtained using EnCore™ samplers that were pushed into the core of samples collected using the Geoprobe soil sampler. Section 4.3 of the FSP presents details regarding the collection of soil samples using EnCore™ samplers (TtEMI 2001a). Soil samples designated for laboratory analysis were labeled and placed in an insulated ice-chilled cooler and shipped to the analytical laboratory following strict chain-of-custody protocol.

### 3.3.2 Groundwater Sample Collection

The following subsections discuss in detail the procedures used to collect grab groundwater and monitoring well samples. Grab groundwater sample results were used as a screening tool to delineate the extent of TPH- and VOC-contaminated groundwater at the site.

#### *3.3.2.1 Grab Groundwater Sample Collection*

Grab groundwater samples were collected from 32 temporary casings installed in the soil borings (including step-out locations) using a direct-push Geoprobe rig. Temporary casings consisted of 1.0-inch-interior-diameter Schedule-40 polyvinyl chloride (PVC) piping with 0.020-inch slotted screen. Grab groundwater samples were collected following EPA guidance for low-flow (minimal draw-down) groundwater sampling (Puls and Barcelona 1996)

Groundwater samples were collected using a low-flow peristaltic pump at least 1 foot below the groundwater level installed midway through the screened interval in each temporary casing. The pumping rate was set to 100 milliliters (mL) per minute. During purging, water-quality parameters (pH, temperature, specific conductance, and turbidity) were measured for approximately every 200-mL volume of groundwater purged. Approximately 2 gallons of water were purged from each boring. Each grab groundwater sample was submitted to the analytical laboratory for VOC analysis. Additionally, 22 grab groundwater samples from 19 soil borings were analyzed for TPH. Grab groundwater samples from three locations were also analyzed for natural attenuation parameters. Duplicate samples were collected at some locations for QC purposes. Samples designated for laboratory analysis were collected in appropriate laboratory-supplied containers, labeled, placed in an insulated ice-chilled cooler, and shipped to the analytical laboratory following strict chain-of-custody protocol.

#### *3.3.2.2 Monitoring Well Groundwater Sample Collection*

Existing monitoring wells MW-2, MW-3, MW-6 through MW-14, MWIA-17, GCW-1 (golf course well), and MW-178-5 (located west of Building 178) were purged and sampled. Groundwater samples were collected following EPA guidance for low-flow (minimal draw-down) groundwater sampling (Puls and Barcelona 1996).

Groundwater samples were collected using a low-flow peristaltic pump installed midway through the screened interval in each monitoring well. The pumping rate was set to 100 mL per minute. During purging, water-quality parameters (pH, temperature, specific conductance, and

turbidity) were measured every 2 to 3 minutes or after approximately every 200-mL volume of groundwater was purged until each parameter stabilized to within 10 percent for two to three successive measurements.

Irrigation well GCW-1 is located west of the site on the adjacent golf course property. The property was accessed with the permission of the golf course maintenance facility manager. Because of the nature and construction of the well, it was necessary for the facility manager to assist field staff in collecting a representative water sample. The facility manager initiated the well pump, which quickly purged a large volume of water from the well into the adjacent collection pond. Well GWC-1 recovered quickly to static water level, at which time a representative groundwater sample was collected using a low-flow peristaltic pump.

All groundwater samples collected were analyzed for VOCs. The sample from MWIA-17 was analyzed for TPH-g and TPH-d. Samples from MW-2, MW7, MW8, MW10, MW13, and MW14 were analyzed for natural attenuation parameters. Samples designated for laboratory analysis were collected in appropriate laboratory-supplied containers, labeled, placed in an insulated ice-chilled cooler, and shipped to the analytical laboratory following strict chain-of-custody protocol.

### 3.3.3 Soil Gas Sample Collection

A direct-push sampling probe with a slotted screen-point sampling tip was used to obtain soil gas samples in accordance with TtEMI standard operating procedures as described in the SAP (TtEMI 2003b). Soil gas samples were collected in 500-cubic-centimeter Tedlar bags for mobile laboratory analysis and 6-liter SUMMA canisters for low-level confirmation analysis. All samples were collected through Tygon tubing from the tip section of the direct-push probe to the sampling containers. Hydrated bentonite was used to seal around the drive rod at the ground surface to prevent ambient air intrusion.

Soil gas samples were analyzed for VOCs following EPA Method TO-14 for mobile laboratory analysis and EPA Method TO-15 for low-level confirmation sample analysis (EPA 1999). Five confirmation samples were collected and sent to a stationary laboratory for low-level analysis.

Duplicate samples were analyzed for every 10 samples collected during this investigation. Duplicate soil gas samples were collected using a “Y” splitter attached to two separate 6-liter SUMMA canisters or Tedlar bags. Duplicates were assigned sample identification numbers that did not indicate that the samples were duplicates for submittal to the laboratory. Seven confirmation samples were collected and sent to a fixed laboratory for low-level analysis.

Results from the fixed laboratory were compared to those of the mobile laboratory, and an acceptance criterion of 50 percent relative percent difference (RPD) was assigned to the confirmation analysis. Because the stationary laboratory followed a promulgated EPA air sample analytical method, results from the stationary laboratory were considered of the highest quality. RPD was calculated using the following equation:

$$RPD = \frac{|A - B|}{(A + B)/2} \times 100\%$$

where:

A = Stationary laboratory concentration

B = Mobile laboratory concentration

Of the seven samples submitted to the stationary laboratory for confirmation analysis, only samples 324SG018 and 324SG025 contained detectable concentrations of PCE and TCE. The highest RPD calculated for PCE or TCE was 42 percent, which indicates a high degree of comparability between the results submitted by the stationary and mobile laboratories.

### 3.3.4 QA/QC Sample Collection

To evaluate sampling and analytical precision and representativeness and to evaluate the quality of the collected field data, QA/QC samples were collected and submitted to the analytical laboratory for analysis of the same constituents as the field samples. Samples of water used for final rinsing of all sampling equipment during decontamination activities were also collected and analyzed. In addition, equipment rinsate blanks were collected. The collection of these QA/QC samples is consistent with guidelines presented in the Naval Weapons Station SBD Concord FSP (TtEMI 2001a). The field QA/QC samples were collected in laboratory-provided, certified clean containers of appropriate size and were submitted to APCL. The samples were labeled, placed in an insulated ice-chilled cooler, and shipped to the analytical laboratory following strict chain-of-custody protocol.

In addition to the field QA/QC samples, laboratory QA/QC samples were also analyzed in accordance with analytical methods and protocols described in the Naval Weapons Station SBD Concord FSP (TtEMI 2001a) to ensure that laboratory procedures and analyses were properly performed. Appendix E presents the analytical results for both field and laboratory QA/QC samples.

### 3.3.5 Deviations from the Proposed Sampling Program

Although all proposed soil boring locations were designated before the beginning of fieldwork, site access and utility clearance issues resulted in the relocation of some borings. Proposed sample depths were approximate and adjusted as needed during the field investigation. Adjustment to sampling intervals were made based on PID readings, difficulties with sample recovery, or Geoprobe refusal when hard materials were encountered before the proposed sampling depth was reached. The difficulties associated with achieving desired depths because of refusal were overcome by assigning a larger, more powerful Geoprobe rig to advance the soil borings.

Grab groundwater samples were not collected from soil borings SB008 and SB017 because groundwater was not produced after more than 24 hours. To collect a representative grab groundwater sample at SB014 (located half way between SB008 and SB017), the soil boring was advanced to 31 feet bgs (9 feet deeper than planned), and a groundwater sample was collected.

Several locations for the soil gas sampling were incorrectly located in the field. The discrepancies were immediately brought to the attention of the EPA project manger and the RWQCB project manager in the field prior to the completion of the field investigation. Subsequent soil gas boring locations were adjusted to achieve appropriate coverage throughout potential source areas and to avoid physical obstructions in the area.

## 3.4 AQUIFER SLUG TESTING

Aquifer slug tests were performed on seven existing monitoring wells at the site to obtain estimates of the hydraulic conductivity of the materials beneath the site. Section 4.3 discusses the aquifer slug testing results, and Appendix D present aquifer slug testing procedures and graphical results. Slug tests were conducted at monitoring wells MW-2, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-13. For this investigation, the test involved an instantaneous withdrawal of a mechanical slug (weighted bailer) from each well and monitoring water level changes in each well using a pressure transducer and data logger. In addition, water levels were measured manually to provide a QC check on the automated measurement system.

Static water level measurements and total well depth measurements were obtained before the start of each test at each monitoring well using a manual water level meter. The height of the water column in each well was calculated to determine the maximum slug length that could be inserted into the well. The pressure transducer was installed approximately 1 foot above the bottom of each well. Once the pressure transducer was installed, static readings of the height of water above the transducer were monitored as the mechanical slug was lowered into the well.

The mechanical slugs consisted of either a 10-foot or 12-foot-long weighted PVC pipe. The slugs were open at the top to allow water to enter. After static water levels were measured, the slug was lowered into the well, and pressure transducer readings were obtained until static water levels had recovered. The data logger, programmed to collect measurements on a log scale, was turned on, and the slug was removed from each well as quickly as possible. The data logger recorded the change in head above the transducer over time while manual measurements were taken as quickly as possible.

Because monitoring well MW-13 is a flowing artesian well, a 3-foot riser pipe was attached to the top of the well casing so static conditions could be measured. All measurements for this monitoring well are referenced to the top of the riser pipe.

All equipment was decontaminated after each test using an Alconox solution and deionized water rinse. The data logger readings were converted to text data files for data analysis using AQTESOLV™ (HydroSOLV, Inc. 1998), a software program designed to analyze aquifer pump and slug test data.

# 4.0 REMEDIAL INVESTIGATION RESULTS

This section describes the results of the site-specific physical characterization, analytical sampling results, and results of the aquifer slug tests conducted at the site.

## 4.1 RESULTS OF SITE-SPECIFIC PHYSICAL CHARACTERIZATION

The following subsections discuss the site geology and groundwater flow and hydraulic gradients at the site based on the results of the site-specific physical characterization.

### 4.1.1 Site Geology

Each soil boring installed at the site was logged in accordance with the USCS to provide adequate and consistent descriptions of soil encountered. Appendix B presents the lithologic logs for the soil boring logs. The soil borings were advanced to just below the groundwater table, and depths ranged from 16 feet bgs in SB011 to 58 feet bgs in SB030. The depth of the groundwater at the time of drilling is indicated on the lithologic logs. Groundwater samples were collected at least 1 foot below the depth of the groundwater indicated on the water quality data sheets, presented in Appendix C. Up to 3 feet of fill material was encountered in some borings. The fill material encountered consisted of a heterogeneous mixture of sand, silt, clay, and gravel, with sparse organic debris.

Soils in the north-central portion of Naval Weapons Station SBD Concord consist largely of clay-rich alluvium derived from the nearby hills. Intercalated layers of well-sorted (poorly graded), silty sands to pebbly alluvium were encountered in the vicinity of Seal Creek and are most likely derived from upstream areas. Soils in the central and western portions of the site toward Seal Creek tend to be coarser at shallower depths but are graded comparatively finer than soils in the north-central area. In both areas, soil consistency became stiff to very stiff with depth, and in some cases, auger refusal occurred. These lithologic conditions are consistent with the regional geology.

Three hydrogeologic cross sections were developed using available data to illustrate subsurface conditions at the site. Figure 8 depicts the locations of these three cross sections, and Figures 9 through 11, respectively, show cross sections A-A', B-B', and C-C'. Cross Section A-A' is oriented east to west to correspond approximately to the predominant direction of groundwater flow, and Cross Sections B-B' and C-C' illustrate cross-gradient hydrogeologic conditions. As the cross sections show, the upper 5 to 10 feet of site materials generally consists of finer materials such as clays and silts that grade to coarser sandy silts and sands with depth in the central and eastern portions of the site. As described in the boring logs, the upper-most native soils consist of inorganic clays of low to medium plasticity that grade to sandy and silty clays with depth. Interbedded lenses of coarser, sandier materials occur with depth and are 1 foot to several feet thick. Coarser, sandier material becomes less evident towards the northwest. Zones of black clayey material were encountered in several borings, indicating the presence of organic material deposited during sedimentation. In general, soil color ranged from black to brown and

tan, depending on the amount of organic material within the soils and on the geochemical environment.

### 4.1.2 Groundwater Flow and Hydraulic Gradients

Water levels were measured in existing monitoring wells at the site on February 11, 2002, and on March 5 and 6, 2002. Water level elevations for the monitoring wells are based on the 1929 National Geodetic Vertical Datum. As Table 5 shows, the static depths to groundwater measured on March 5 and 6, 2002, ranged from 6.36 feet bgs in MW-14 to 16.63 feet bgs in MWIA-17. The water level in monitoring well MW-13, an artesian well, was above the ground surface.

Figures 12 through 15 show the potentiometric surface contours generated from the groundwater level data collected on February 5, 1999; April 30, 1999; July 27, 1999; and March 5, 2002, respectively. As indicated on Figures 12 through 15, groundwater generally flows westward under an average hydraulic gradient of 0.005 foot per foot. Based on groundwater levels collected in monitoring wells at the site, the groundwater elevation ranges from approximately 45 feet above msl in the eastern part of the site to approximately 37 feet above msl in the western part of the site. Local variations in groundwater-flow direction occur because of manmade structures and natural variations in local surface and subsurface features.

The water level measurement from monitoring well MW-13 was not used to generate the potentiometric surface map because the water level in this well most likely represents a different water-bearing zone that should not be compared to the water table aquifer.

## 4.2 ANALYTICAL RESULTS

The following subsections discuss the analytical results of the most recent soil and groundwater sampling for the RI activities conducted in February and March 2002 and the soil gas sampling conducted in January and April 2004. The soil sampling depths ranged from approximately 2 to 14 feet bgs. Soil and groundwater samples were analyzed for one or more of the following: TPH extractables and purgeables (EPA Method 8015), VOCs (EPA Method 8260B), and natural attenuation parameters, including metals (EPA Methods 300.0 and 200.7). Tables 1 and 6, respectively, present a complete list of analytical methods used and a list of each analytical method used for each sample.

PCE and TCE are the VOCs with the highest detectable concentrations at the site and are therefore the primary focus of the discussion regarding VOC analytical results presented in this RI report. Additionally, cis- and trans-1,2-DCE, which often develop as a result of the degradation of PCE and TCE, are included in the discussion of analytical results for VOCs.

Analytical results for TPH and VOCs in soil and groundwater are summarized in Sections 4.2.1 and 4.2.2, respectively, and soil gas analytical results for VOCs are summarized in Section 4.2.3. Groundwater samples were also analyzed for natural attenuation parameters (see Section 4.2.2.3). Concentrations of these compounds detected below the laboratory method reporting limit are

considered estimated and are distinguished in tables and figures with a "J" after the respective value.

Appendix A includes a complete set of validated analytical results for soil, groundwater, and soil gas samples. Section 6.0 discusses the application of these results to human health in the qualitative HHRA.

### 4.2.1 Soil Sample Results

A total of 158 soil samples collected from 39 different locations were analyzed for VOCs, and 134 samples collected from 37 locations were analyzed for TPH. VOCs were reported in 2 of the 158 soil samples, and detectible concentrations of TPH were reported in 37 of the 134 soil samples. Tables 7 and 8 summarize the detected TPH and VOC concentrations, respectively. Table 9 presents a statistical summary of all detected soil samples compounds at the site. Figures 16 and 17, respectively, show soil sampling location VOC and TPH results. The following subsections discuss VOCs and TPH detected during the RI in soil samples.

#### *4.2.1.1 Volatile Organic Compounds in Soil*

TCE and PCE were detected at estimated concentrations of 0.002 and 0.001 mg/kg, respectively, in the sample collected from 28 feet bgs from soil boring SB018. SB018 is located at the western end of the locomotive steam-cleaning area Building 269. TCE was detected at an estimated concentration of 0.0006 mg/kg in the sample collected from 6 feet bgs from soil boring SB024. SB024 is located near the southwest corner of Building IA-12. The concentrations reported for these samples are near the laboratory method detection limits and are therefore considered estimated. VOCs were not detected above screening level criteria in any of the soil samples collected from the site. Based on the results of the soil investigation and the RFACS soil investigation conducted in 1996 (Section 2.6.1), VOCs have not significantly impacted soil at the site.

#### *4.2.1.2 Total Petroleum Hydrocarbons in Soil*

The TPH concentrations in the samples discussed below are primarily associated with samples collected from shallow depths from SWMU 5 near Building 269 and the railroad spurs (Figure 17). TPH-mo was the predominant TPH constituent detected at the site. The sample results discussed below do not appear to be related to releases from USTs or other large abandoned sources.

TPH-g was detected at concentrations of 960 mg/kg and 830 mg/kg in two samples collected from soil boring SB020 at 6 feet bgs. The laboratory reported that heavier hydrocarbons contributed to the reported concentration in the first sample analyzed (960 mg/kg); therefore, the second sample from the same location was also analyzed. The TPH-g detected in this sample was also attributed to a contribution from heavier hydrocarbons and confirmed the first result. TPH-g was not reported at detectable concentrations in any other soil sample collected from the site.

TPH-d was detected at concentrations above the laboratory detection limit in 6 soil samples, and concentrations below the laboratory reporting limit were estimated for 13 additional samples. The highest TPH-d concentration of 1,700 mg/kg was detected in the sample collected from SB020 at 6 feet bgs. Reported TPH-d concentrations in the remaining samples ranged from 4 mg/kg (estimated in two samples collected from SB001 at 6 and 9.5 feet bgs) to 20 mg/kg (detected in the sample collected from SB022 at 9.5 feet bgs).

TPH-mo was also detected at concentrations above the laboratory detection limit in 13 soil samples, and concentrations below the laboratory reporting limit were estimated in 9 additional samples. The highest TPH-mo concentration of 750 mg/kg was detected in the sample collected from SB024 at 1.5 feet bgs. TPH-mo concentrations equal to or greater than 100 mg/kg were detected in shallow soil samples collected at approximately 1.5 feet bgs in SB033 (100 mg/kg), SB005 (120 mg/kg), SB012 (120 mg/kg), SB019 (360 mg/kg), and SB024 (750 mg/kg).

TPH-mo was detected in shallow soil samples at concentrations ranging from 5 mg/kg in the sample collected from SB001 at 1.5 feet bgs to 73 mg/kg in the sample collected from SB003 also at 1.5 feet bgs. Low concentrations of TPH-mo were also detected in deeper samples collected from SB006, SB029, SB033, SB034, and SB035.

### 4.2.2 Groundwater Sample Results

Because the primary focus of this RI is to determine the nature and extent of VOCs in groundwater and to identify potential source areas of contaminant release, results for the grab groundwater and monitoring well samples are discussed together in the following discussion. Both types of sampling were intended to be biased toward potential source areas. Although the analytical results for these samples are presented together and considered of like data quality, the data may not actually be of like data quality.

The samples were collected from 14 existing groundwater monitoring wells and 32 grab groundwater sampling locations. A total of 48 samples were collected and analyzed for VOCs, and 21 groundwater samples were collected and analyzed for TPH constituents. Samples for TPH and VOC analysis were collected from near potential source areas. VOC analyses were also performed for samples collected from a larger area in accordance with the work plan because of the propensity for VOCs to have increased mobility and persistence in groundwater relative to TPH constituents. MWIA-17 was the only monitoring well selected for TPH analysis; all other TPH results for groundwater are from the grab groundwater samples.

Tables 10 and 11 summarize detected concentrations of TPH and VOCs, and Table 12 presents a statistical summary of all detected compounds in the groundwater samples. Figures 18 through 21 present groundwater sampling locations and results for samples with detectable concentration of VOCs and TPH. Appendix A presents the complete data set, including historical data. The following subsections discuss VOCs and TPH detected during the RI in groundwater samples and the natural attenuation parameters for groundwater.

#### 4.2.2.1 Volatile Organic Compounds in Groundwater

Figures 19 and 20 are simplified presentations of the analytical data depicting sampling locations and ranges of concentrations of PCE and TCE, respectively. PCE, TCE, and cis- and trans-1,2-DCE were detected in samples collected from 10 monitoring wells and from 21 grab groundwater sampling locations in February and March 2002. PCE and TCE were generally detected at relatively higher concentrations than cis- and trans-1,2-DCE.

The sample collected from MW-10 downgradient of the locomotive steam cleaning facility contained the highest PCE concentration detected at the site (100 µg/L). The grab groundwater sample from boring SB024 downgradient of the former waste oil tank at Building IA-12 contained the second highest PCE concentration of 86 µg/L. PCE was generally detected in groundwater at concentrations between 30 and 50 µg/L at locations in the immediate area of the highest detections downgradient from MW-10 and SB024. Relatively low concentrations of PCE were detected in samples collected from sampling locations in SMWU 2 south of Kinne Boulevard (Figure 19). PCE was not detected in samples collected from locations upgradient of SWMU 5.

Based on Figures 16 and 19, PCE concentrations attenuate with distance from MW-10 and boring SB024. Boring SB009 is located about 50 feet downgradient from MW-10. The PCE concentration of the sample collected from SB009 was 43 µg/L, down from 100 µg/L at MW-10. Boring SB004 is approximately 300 feet downgradient from MW-10. At that location, the groundwater sample contained 33 µg/L of PCE. Approximately 600 feet downgradient from MW-10, the groundwater sample from MW-2 contained 5 µg/L PCE. The monitoring well farthest to the west is MW-14. MW-14 is located approximately 1,100 feet from MW-10, and the groundwater sample from MW-14 contained 3 µg/L. Although PCE was detected in the groundwater monitoring wells, it was not detected in the Diablo Creek Golf Course irrigation supply well located west of MW-10.

For evaluation purposes, the PCE concentrations presented in Figure 19 were divided into four general categories as presented in the table below.

| PCE Concentration Range | Number of Samples |
|---|---|
| Not Detected | 22 |
| Less Than 5 µg/L | 11 |
| 5 µg/L to 10 µg/L | 6 |
| 10 µg/L and above | 6 |

Many of the nondetected concentrations are located in upgradient and cross-gradient areas. Results for the upgradient samples indicate that upgradient sources are not present. PCE results for all samples collected from the investigation boundaries were either nondetected or less than 5 µg/L.

The distribution of TCE was similar to that of PCE within SWMU 5 (Figures 16 and 20), except the detected TCE concentrations were generally lower than the PCE concentrations. The groundwater sample from soil boring SB024 contained the maximum TCE concentration of 38 µg/L. SB024 is located near the west corner and downgradient of Building IA-12. SB024 is the same location where the second highest concentration of PCE was detected. The sample from MW-10 downgradient from Building 269 contained the second highest TCE concentration of 29 µg/L MW-10 is the location where the highest PCE concentration was detected in groundwater. TCE was not detected in samples collected from locations in SMWU 2 but was detected at low or estimated concentrations of 0.9 to 2 µg/L from samples collected from locations upgradient of SWMU 5.

For relative evaluation purposes, the TCE concentrations presented in Figure 20 were divided into four general categories as presented in the table below.

| TCE Concentration Range | Number of Samples |
|---|---|
| Not Detected | 22 |
| Less Than 5 µg/L | 17 |
| 5 µg/L to 10 µg/L | 0 |
| 10 µg/L and above | 6 |

Cis-1,2-DCE was detected in samples collected from nine locations at an estimated concentration of 0.8 µg/L to the maximum quantifiable concentration of 7 µg/L. Cis-1,2-DCE was only detected in samples collected from locations within SWMUs 5 and 7 and from downgradient sampling location SB004. Trans-1,2-DCE was detected in samples collected from seven sampling locations at an estimated concentration of 0.9 µg/L to the quantifiable concentration of 4 µg/L. Trans-1,2-DCE was also only detected in samples collected from locations within SWMUs 5 and 7 and from downgradient sampling location SB004.

The detected VOC concentrations discussed above are from samples collected in SWMU 5 and 7 near Building 269, the locomotive cleaning area. These samples are also located downgradient of a former waste oil UST is located upgradient on the southern side of Building IA-12.

#### *4.2.2.2 Total Petroleum Hydrocarbons in Groundwater*

The concentrations of TPH in the groundwater samples were primarily associated with samples collected in SWMU 5 near Building 269 and downgradient from the former fuel and waste oil USTs (Figure 21). Four groundwater samples contained TPH-d from SB015 (220 µg/L), MW-IA17 (350 µg/L), SB020 (370 µg/L), and SB018 (420 µg/L). These samples were collected in the general vicinity of Building 269 in SWMU 5. MW-IA17 is downgradient from four former fuel USTs south of Building IA-16, and SB020 is downgradient from the former waste oil UST located south of Building IA-12. In addition to the quantifiable concentrations, four estimated concentrations of TPH-d between 50 µg/L and 60 µg/L were reported in grab

groundwater samples collected in SWMUs 5 and 18. One estimated concentration of TPH-d was detected in a sample from upgradient monitoring well SB031 near Building 193.

Quantifiable concentrations of TPH-mo were detected in three groundwater samples collected from SB026 (760 µg/L), SB019 (860 µg/L), and SB033 (2,200 µg/L). Grab groundwater sampling locations SB019 and SB033 are located in the general vicinity of Building 269 in SWMU 5 and are downgradient from the four former fuel USTs, south of Building IA-16. Grab groundwater sampling location SB026 is located downgradient from a former sump pit associated with Building IA-51. An estimated TPH-mo concentration of 60 µg/L was detected in the groundwater sample from SB027.

TPH-g was reported in only one groundwater sample collected from SB024 at 100 µg/L. In addition to the detected TPH-g in SB024, estimated concentrations of TPH-g were detected in the sample collected from SB001 at 50 µg/L and from SB020 at 30 µg/L. An examination of the chromatograph for the sample collected from SB020 indicates that the pattern does not resemble that of a TPH fuel pattern, although individual peaks fall within the TPH-g range. Heavier hydrocarbons quantified as TPH-d range hydrocarbons were detected in this sample.

#### *4.2.2.3 Natural Attenuation Parameters for Groundwater*

Groundwater samples from existing monitoring wells and selected grab groundwater samples were collected for laboratory and field analysis for natural attenuation parameters. Groundwater samples were collected from six existing monitoring wells and three soil boring locations for analysis of alkalinity, chemical oxygen demand (COD), TDS, hardness, chloride, methane, nitrate, nitrite, and sulfate. Field-measured parameters included dissolved oxygen (DO), dissolved ferrous iron, hydrogen sulfide, pH, and oxygen reduction potential (ORP). Figure 22, Table 13, and Appendix A present groundwater analytical results for inorganic and natural attenuation parameters. Table A-3 in Appendix A presents results for alkalinity, hardness, chloride, methane, and nitrate.

Biodegradation can occur by several processes under both aerobic and anaerobic conditions. The two common biodegradation pathways are (1) mineralization, where an organic compound is directly used as a growth substrate (food source) and broken down to inorganic molecules, such as carbon dioxide, water, and, if chlorinated, chlorine; and (2) co-metabolism, where a compound is consumed and converted to other compounds incidentally during microbial consumption of other compounds.

Petroleum hydrocarbons can serve as substrates for microbial growth and are therefore commonly biodegraded through direct mineralization. On the other hand, only specific chlorinated solvents (for example, vinyl chloride, dichloromethane, and chloroethane) can be directly mineralized. Instead, most chlorinated solvents are co-metabolically biodegraded. In aerobic environments (in the presence of oxygen), chlorinated solvents are co-metabolized by nonspecific microbial oxygenase enzymes produced by microorganisms to metabolize other growth substrates (for example, methane, propane, toluene, ammonia, ethene, and ethane). In anaerobic environments, chlorinated solvents act as electron acceptors in a process called

reductive dechlorination, where hydrogen atoms replace chlorine atoms on the chlorinated solvent molecule. Other carbon substrates (for example, hydrocarbons) serve as electron donors in these reactions (Remediation Technologies Development Forum [RTDF] 1996).

Data suggest that aerobic conditions are present at the site. DO was detected in all groundwater samples generally exceeding 3 mg/L and as high as 8 mg/L. The positive ORP readings, nondetectable methane gas, substantial sulfate concentrations, and the absence of dissolved iron indicate oxidizing conditions for all but three samples. Lower ORP readings from grab groundwater samples collected from SB030, SB031, and SB032 are not consistent with either DO or dissolved iron results. Samples collected from monitoring wells are considered more representative of ambient conditions than those collected from soil borings. It should also be noted that SB030, SB031, and SB032 are located at relatively higher elevations upgradient from the SWMUs.

The following is a summary of natural attenuation processes that are likely occurring at the site. First, the preponderance of attenuation parameter data is indicative of an aerobic environment in the area of the Site. Reductive dechlorination, which is the primary degradation pathway for PCE and TCE, is unlikely to occur under aerobic conditions. Therefore, the most significant natural attenuation mechanisms for these compounds are likely to be advection, dispersion, and sorption.

The microorganisms that mediate the biodegradation reactions described above are generally thought to be ubiquitous in subsurface environments. Because site conditions and interactions between different groups of microorganisms participating in biodegradation reactions will differ from site to site, patterns and completeness of intrinsic biodegradation will also differ from site to site (RTDF 1996). The kinetics of the biodegradation process and long-term concentration trends are difficult to predict on the basis of the limited sampling conducted.

#### 4.2.3 Soil Gas Sample Results

As discussed in Section 3.3, soil gas samples were initially collected in January 2004. Based on a review of analytical results for the initial soil gas samples, additional soil gas samples were collected at five step-out locations. Tables 14 and 15 present analytical results for soil gas samples analyzed at the mobile laboratory (Mobile Chem) and the stationary laboratory (AIRTOX), respectively. Figure 23 shows the soil gas sampling locations and results. Most soil gas samples were collected from 5 feet bgs; however, one sample was collected from 6.5 feet, and at SG8, SG10, SG15, SG24, SG29, and SG32, a second soil gas sample was collected from 10 feet bgs.

Of the 34 sampling locations from which initial soil gas samples were collected, only four contained VOCs at concentrations exceeding the RWQCB screening levels for intrusion of soil gas to indoor air under a residential scenario. Each of these samples was collected from near the former waste oil tank. The proximity of the former waste oil tank suggests that leakage from the tank was responsible for the detected VOC contamination. Analytical results for samples from SG18, SG25, SG31, and SG33 exceeded the RWQCB screening criteria. The maximum

concentration of VOCs was detected at SG31 in a sample from 5 feet bgs. The soil gas sample from that location also contained cis-1,2-DCE at 8,100 micrograms per cubic meter (µg/m$^3$); TCE at 19,000 µg/m$^3$; and PCE at 120,000 µg/m$^3$. The RWQCB screening levels for these constituents are 7,300; 1,200; and 410 µg/m$^3$, respectively (RWQCB 2003). Only three other sampling locations yielded soil gas samples whose results exceeded the RWQCB criteria; the maximum detected concentration of cis-1,2-DCE; TCE; and PCE at these locations was about 1 to 2 orders of magnitude lower than the maximum concentration detected in the sample collected from SG31.

The second soil gas sampling event at the five step-out locations was conducted to investigate other potential source areas and to encircle the area of the former waste oil tank. Although VOCs were commonly detected at low concentrations in the step-out samples, none of the sample results exceeded the RWQCB screening criteria (RWQCB 2003). Analytical results from the field laboratory and the stationary laboratory compare favorably.

Soil gas sampling results indicate that the former waste oil tank is the likely source of VOC contamination at the site. Soil gas samples collected from upgradient and downgradient of the former waste oil tank did not contain VOCs at concentrations exceeding the RWQCB screening criteria.

## 4.3 AQUIFER SLUG TESTING RESULTS

Aquifer slug testing was conducted at monitoring wells MW-2, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-13 to obtain estimates of the hydraulic conductivity of the materials beneath the site. Table 16 summarizes the slug test results, including the monitoring well construction details and the lithology of the screened intervals, estimated values of hydraulic conductivity for those lithologies, test details, and test results. As discussed in Section 4.1, the geology beneath the site consists of silty, sandy, and clayey alluvial materials. MW-8, MW-9, MW-10, and MW-13 are screened within sandy materials that contain varying amounts of silt and clay. Monitoring wells MW-7 and MW-11 are screened in clays and silts. Table 16 presents published values for the range in hydraulic conductivity for each of these material types (U.S. Department of the Interior 1991; Fetter 1988).

The height of the water column in the wells ranged from 11.7 to 17 feet except at MW-13, which is a flowing artesian well. The height of the water column in monitoring well MW-13 rose up to 28.92 feet. The ratio of the head displacement volume to the total volume of water in the well bore (including the monitoring well and the surrounding filter pack), expressed as a percentage, was calculated to aid in the determination of whether enough water was removed and/or displaced during each slug test to adequately induce flow from the native materials into the well. Approximately 3 to 6 percent of the volume of water in the well and surrounding filter pack was displaced from each well during the testing. According to the American Society of Testing and Materials (ASTM) standard test method for slug testing, there is no fixed requirement for the magnitude of change in water level or well bore water volume for slug testing. According to the ASTM standard, it is generally accepted that a head change of approximately 1 to 3 feet is adequate for slug testing monitoring wells in most shallow

hydrogeologic regimes (ASTM 1996). Although guidelines for the adequacy of slug tests are not included in the ASTM standard, the volume of water removed during a slug test relative to the volume of water in a well and well bore is generally a good measure of the test adequacy. The slug tests performed at the site resulted in head changes ranging from approximately 3.5 to 9 feet. These head changes, in conjunction with the percentages of the volume of water removed from the well bore, indicate that most of the tests resulted in the removal of adequate volumes of water and/or displacement due to a response from the native material.

The slug test data were analyzed using AQTESOLV™ (HydroSOLV, Inc. 1998), an aquifer testing data analysis software package, and the Hvorslev and the Bouwer and Rice tests were used to evaluate the data. Input parameters for slug test data analysis using AQTESOLV™ include aquifer saturated thickness, aquifer anisotropy (ratio of vertical to horizontal hydraulic conductivity), the saturated thickness that each monitoring well screen intersects, well and well bore radii, and the effective porosity of the filter pack. For all tests, the saturated thickness of the aquifer was calculated by assuming an aquitard was present at 50 feet bgs. Additionally, for each test, anisotropy was assumed to be 0.1, and the effective porosity of the filter pack was assigned as 0.35. Appendix D presents the AQTESOLV™ graphs and test summaries.

Both tests analyze water level recovery over time plotted as a semilog plot. For both tests, the earliest part of the displacement plot was not analyzed because this portion of the curve likely represents recharge of water into the well from the filter pack. The late-time data are likely more representative of recharge from the native material. The displacement plots for MW-7 and MW-11 do not display a similar response as the other wells; rather, the water levels in these wells reached static levels in less than 1 minute. Additionally, the water level recovery curves for these two wells do not exhibit a separate steep linear portion in the early portion of the test, further suggesting that the entire test denotes only filter pack dewatering. Because the wells tested are screened within the clayey and silty materials at the site, it is likely that flow from the native material was not induced, and the results shown are not valid because they are representative of the well filter pack material.

The estimated hydraulic conductivity values calculated from all valid slug test data from MW-2, MW-8, MW-9, MW10, and MW-13 range from approximately 1 to 9 feet per day for both test methods. The results from the Hvorslev tests are consistently higher than those obtained using the Bouwer and Rice test. Omitting the skewed results from MW-7 and MW-11, the geometric mean hydraulic conductivity from all other tests is 3 feet per day as calculated from the Bouwer and Rice test and 4 feet per day as calculated from the Hvorslev test. All geometric mean values for hydraulic conductivity fall within the expected range of published values for these materials (0.0001 to 1 foot per day for clayey or silty materials and 0.001 to 50 feet per day for sandier materials).

Groundwater flow velocities were estimated using the unskewed geometric mean hydraulic conductivity values of 3 and 4 feet per day, the calculated hydraulic gradient for the site of 0.005 foot per foot, and an assumed effective porosity range of 0.15 to 0.25 (the representative range for clays and silts up to sands). Based on these values, the calculated groundwater velocities at the site range from approximately 22 to 49 feet per year.

## 5.0 CONCEPTUAL SITE MODEL

A CSM was developed to summarize potential contaminant sources, release mechanisms, migration pathways, and exposure routes. Figure 6 presents the CSM. This model was prepared for the site based on available and new RI data regarding current and historic land use and operations, the distribution of contaminants in soil and groundwater, and site geologic and hydrogeologic data. Geologic information was gathered from available literature, previously published environmental reports, and the RI. Information on past land use and operations was obtained from Navy maps, aerial photographs, and previously published environmental reports.

Daily operation of the Naval Weapons Station SBD Concord currently has been reduced to a minimum. Buildings associated with the site were originally constructed to support operations and maintenance of the Inland Area facilities and vehicles, including the base motor pool and locomotives. The site is located on gently sloping terrain between steep hills to the east and Seal Creek to the west. Soils at the site consist primarily of clays and silts with intercalated sands. Much of the site is covered by pavement; however, extensive open and unpaved areas are present both within the SWMUs and in surrounding areas. Site surface drainage is southwest toward Seal Creek, and groundwater flow is generally west. Section 4.1 presents a more detailed discussion of site geologic and hydrogeologic conditions.

The subsections below discuss the following CSM components: potential sources of VOCs and TPH at the site, potential migration pathways, fate and transport processes, and a contaminant fate and transport evaluation.

### 5.1 POTENTIAL SOURCES OF VOLATILE ORGANIC COMPOUNDS AND TOTAL PETROLEUM HYDROCARBONS

Potential sources of contamination are associated with previous site operations such as spills from paint storage and mixing areas; petroleum product storage in drums, USTs, and ASTs; use and storage of chlorinated solvents; and transfer of waste oil products.

SWMU 2 contained a hazardous waste storage metal shed and a burn pit adjacent to Building IA-7 that are potential sources of TPH and/or VOC contamination. Potential sources of TPH within SWMU 5 are a former 6,000-gallon waste oil UST. Other potential sources of TPH and/or VOCs at SWMU 5 are the steam cleaning and hazardous waste storage area at the locomotive steam cleaning facility, Building 269. At SWMU 7, four former gasoline and diesel USTs west of Building IA-15 and a former waste oil UST immediately south of Building IA-12 are potential sources of TPH contamination. The likely sources of TPH and/or VOC contamination at SWMU 18 are the former sump pit east of Building IA-51 used to collect oily waste generated by steam cleaning operations in conjunction with activities involving the former locomotive turntable.

During the RFACS, VOCs were not detected in soil samples at any location with concentrations exceeding screening criteria. The localized concentrations of VOCs in soil gas surrounding the former waste oil tank and the near total absence of VOCs in soil gas at other locations strongly

suggests that the former waste oil tank is the principal and only significant source of PCE and TCE groundwater contamination at the site.

Former pesticides mixing and storage operations were conducted in the vicinity of Building IA-49 upgradient of the site. Pesticides were detected in soil samples collected from the area, and a RCRA corrective action was performed to remove the contamination. Although pesticides were detected and cleaned up, the area is a suspected source of VOC and/or TPH contamination.

Building 193, a former Auto Hobby Shop is located upgradient from SWMU 18, stored potential contaminants such as TPH-g, TPH-mo, and solvents; however, investigation of the area as a part of the RI indicates that no significant releases of contaminants have occurred from Building 193 to the environment.

An additional potential source of contamination that does not specifically relate to any SWMU is the railroad tracks that cross the site from the west. The railroad spur, which is located primarily within SWMUs 5 and 7, has been historically used to transport munitions into and out of the Operations Area of the Naval Weapons Station SBD Concord.

## 5.2 POTENTIAL MIGRATION PATHWAYS

The primary contaminant migration pathways at the site were identified based on the principal site contaminants and the CSM. Primary migration pathways from the sources include the following:

- Migration of contaminants from soil or groundwater to the atmosphere or indoor air through volatilization (for VOCs)
- Vertical migration of contaminants from soil to groundwater through surface infiltration and percolation through the vadose zone
- Migration of contaminants from the source to soil and groundwater through sewer lines or utility corridor backfill material
- Downgradient advective migration of contaminants in groundwater

Each migration pathway is discussed below.

### 5.2.1 Volatilization of Contaminants to the Atmosphere or Indoor Air

Contaminants detected in soil and groundwater at the site could volatilize, migrate through the vadose zone, and vent to the atmosphere or potentially to indoor air within buildings. Volatilization is considered a potential active transport pathway in this investigation.

As discussed in Section 4.2.3, various volatile contaminants were detected in soil gas collected from the vadose zone. In order to evaluate (1) the potential for VOCs to migrate through the

vadose zone and enter the indoor air in overlying buildings through cracks in the buildings' walls, foundations, and floors, and (2) the magnitude of potential exposure, risks, and hazards to human receptors within these buildings, the Johnson and Ettinger vapor transport model was used (Johnson and Ettinger 1991). This model considers both diffusive and convective flow of subsurface vapors into buildings. Evaluating soil gas results directly in this manner precluded the need to evaluate the potential for VOCs to migrate from groundwater into buildings. Finally, the potential for VOCs detected in soil to migrate into the atmosphere was evaluated by comparing the detected concentrations to residential soil PRGs (EPA 2002a).

### 5.2.2 Surface Infiltration and Percolation of Contaminants in Groundwater

The surface infiltration transport pathway consists of the dissolution of contaminants adsorbed onto soils into infiltrating waters and subsequent percolation of these waters through the vadose (or unsaturated) zone to the fully saturated zone (that is, the groundwater table). Rainwater, irrigation water, and wash water can migrate to the subsurface through cracks in the pavement, direct infiltration in unpaved areas, and leaks in the subsurface storm drain system. This pathway is potentially transporting contaminants through the vadose zone to the saturated groundwater zone. Based on the depth to groundwater and detected concentrations of constituents in both soil and groundwater samples, constituents have migrated from soil to groundwater. TPH and VOCs have been detected in both soil and groundwater samples collected from SWMUs 5 and 7, supporting the theory that contaminants have migrated and are migrating to groundwater.

### 5.2.3 Migration of Contaminants through Sewer Lines and Utility Corridors

Figure 7 shows the locations of buried storm sewer and sanitary sewer lines in the vicinity of Building 269 and IA-12. Sewer lines and utility corridors may provide preferential pathways for contaminants dissolved in groundwater, facilitating lateral spreading of these contaminants away from the release source. This pathway can be active in the transport of the more mobile contaminants at the site such as solvents, certain petroleum products, and impacted waters. Sewer lines and utilities are located at 3 to 4 feet bgs at the site, whereas groundwater at the site is located at about 13 to 17 feet bgs (depending on the location, season, and year). Because utility trenches do not extend to the depth of groundwater, it is not possible for buried utility trenches to act as a preferential pathway for groundwater.

Subsurface utilities located in the vadose zone (above the water table) could act as a preferential pathway for spilled VOCs, however this migration pathway is not likely unless large volumes of liquid are spilled and the waste follows sand or gravel that was placed as bedding material for the pipeline or fractures and or leaky joints in gravity flow sewers. Such waste flow would preferentially migrate in the utility trench backfill because the imported bedding materials are typically much more permeable than the clays and silts which make up the bulk of the natural soils at the site. The possibility of significant lateral migration in utility trench backfill appears unlikely at this site because the overall groundwater concentrations are not particularly high when compared to sites where bulk storage USTs containing only VOCs have developed significant leaks.

The pattern of detectable VOCs in soil gas and soil samples collected at the site indicates a limited potential for lateral migration because of clayey subsurface conditions. Also, as discussed above, buried utilities at the site do not extend to the depth of groundwater. For these reasons, buried utilities do not offer a significant preferential pathway for contaminant migration.

### 5.2.4 Downgradient Migration of Contaminants

The downgradient migration of contaminants consists of the advective and dispersive movement of dissolved constituents in groundwater within the porous and permeable media of the saturated zone. The distribution of detected constituents in groundwater samples collected downgradient of the potential source areas in SMWUs 5 and 7 suggest downgradient migration as a likely mechanism for contaminant transport in groundwater. This pathway is therefore considered active and significant in the transport of contaminants detected in groundwater at the site. This observation supports the theory that migration of contaminants occurs within the porous and permeable media of the saturated zone.

## 5.3 FATE AND TRANSPORT PROCESSES

This section discusses the fate and transport processes that affect the mass transport and distribution of constituents in groundwater. These processes include advection, dispersion, sorption and retardation, biological and chemical degradation, and volatilization or migration of VOCs to air.

### 5.3.1 Advection

Advection is the mechanism whereby contaminants are transported by the horizontal movement of a mass of fluid (that is, groundwater flow). For groundwater, the advective velocity of a solute is a function of the hydraulic conductivity and porosity of the formation (Freeze and Cherry 1979). Advective groundwater flow is controlled by the hydraulic gradient and properties of the aquifer (hydraulic conductivity and effective porosity) and is independent of the properties of specific compounds.

### 5.3.2 Dispersion

Hydrodynamic dispersion is defined as the combined effect of mechanical dispersion and molecular diffusion. For groundwater systems, the degree of hydrodynamic dispersion is a function of groundwater velocity and the heterogeneity of the porous media.

Mechanical dispersion occurs as a result of macroscopic and microscopic variations in the aquifer materials that affect the flow path, such as pore geometries and tortuosity. Mechanical dispersion results in concentrations of contaminants decreasing as distance, a function of travel, increases. Although mechanical dispersion occurs in three dimensions, it is most significant along the longitudinal direction of groundwater flow (Sudicky 1986).

Molecular diffusion describes the movement of molecules or ions in the direction of a concentration gradient. Diffusion occurs even in the absence of any bulk hydraulic movement of the solution and ceases only when a system achieves a uniform concentration (Freeze and Cherry 1979). Diffusion in solutions is a relatively slow process compared to advection and is generally insignificant except at very low flow velocities (Huyakorn and others 1984). Molecular diffusion also controls the movement of vapors through the unsaturated zone.

### 5.3.3 Sorption and Retardation

Processes of sorption and retardation work in opposition to mass transport mechanisms. Sorption describes the affinity for a solute to adsorb or absorb onto soils without reference to a specific mechanism. Sorption includes the processes whereby an organic contaminant bonds to the surface of a medium (adsorption) and/or is taken up and held within the bulk or interior of a medium (absorption). The reduced mobility caused by sorption lowers the rate of migration of dissolved contaminants at the site relative to the groundwater velocity. The degree of sorption in the subsurface depends on the chemical and physical properties of (1) the dissolved contaminant, (2) the porous media, and (3) the aqueous solution. The degree of diminished mobility is referred to as the retardation factor.

Studies suggest that sorption from dilute solutions is primarily a function of a contaminant's solubility (or hydrophobicity) and the more sorptive nature of organic carbon in the porous media (Pankow and Cherry 1996). The presence of clay minerals is another factor that increases sorption by providing sites with high ion exchange capacities to which metallic ions may be held by electrostatic forces.

### 5.3.4 Biological and Chemical Degradation

Natural attenuation of contaminants involves many different and complex processes, both biological and abiotic, that depend on a broad range of chemical properties. These processes may degrade one contaminant into another, alter the physical state of a contaminant, or cause a contaminant to combine with other contaminants or constituents of a medium.

Biodegradation refers to the transformation of a contaminant into simpler products through biologically mediated reactions. These reactions typically transform or otherwise decrease the mass of a contaminant; however, the reaction products are not necessarily less toxic than the reactant. The presence or absence of oxygen in soil or groundwater impacts the process and the rate of biodegradation. Biodegradation reactions that may occur include oxidation, reduction, and dehydrohalogenation. Complete biodegradation of organic compounds (mineralization) results in the production of water and carbon dioxide. The rates of biodegradation vary widely depending on the specific chemical compound, pH, DO content, availability of nutrients, temperature, and type and abundance of microorganisms present. Biologically mediated oxidation of organic compounds in the subsurface may proceed rapidly in soils and groundwater.

In addition to biodegradation, natural attenuation of constituents also occurs abiotically. Chemical and physical natural attenuation processes can reduce the concentrations of various contaminants in soil and groundwater. These processes include, but are not limited to, hydrolysis, oxidation-reduction, dissolution, precipitation, complexation, adsorption, ion exchange, and volatilization.

### 5.3.5 Volatilization or Migration of VOCs to Air

Volatilization or migration of VOCs to air at the site can occur through dispersion in the vadose zone from groundwater or from soil gas within the vadose zone. The depth of groundwater and the relatively low concentrations of VOCs in groundwater suggest that direct volatilization from groundwater is unlikely. Furthermore, the potential for migration of VOCs in groundwater was indirectly evaluated by comparing the concentrations of contaminants detected in soil gas to residential soil gas screening levels (RWQCB 2003).

## 5.4 CONTAMINANT FATE AND TRANSPORT EVALUATION

This section discusses the fate and transport of constituents identified as chemicals of potential concern (COPC) in the qualitative HHRA (Section 6.0). This section is divided into two subsections that address the fate and transport of TPH and VOC COPCs at the site. Although many mechanisms and processes affect the fate and transport of constituents at the site, this section focuses only on the mechanisms and process that are likely the most significant.

### 5.4.1 Fate and Transport of Total Petroleum Hydrocarbons

TPH-d and TPH-mo were detected in both soil and groundwater samples collected from the site at concentrations exceeding screening levels. TPH-g detected in two soil samples and one groundwater sample at the site were attributed to contributions from heavier hydrocarbons. The grab groundwater sample collected from SB024 contained the only unqualified detected concentration of TPH-g at the site; therefore, the discussion below focuses on TPH-d and TPH-mo.

TPH-d was detected at a concentration exceeding its screening criterion in one soil sample collected from SB020 from about 6 feet bgs. Because no other soil samples from the surrounding soil borings contained detectable levels of TPH-d, a source for this detection has not been determined. The highest detected concentration of TPH-d in groundwater came from a sample collected downgradient from the four former fuel USTs (two diesel and two gasoline) in SWMU 7, suggesting that the USTs are the likely source of TPH-d in groundwater.

TPH-mo was detected in soil samples collected from 1.5 to 2 feet bgs in the vicinity of Building 269 and northwest of Building IA-12. The area of TPH-mo-affected groundwater corresponds approximately to the area of affected soil except at sampling location SB024, where the shallow soil sample contained the highest detected TPH-mo concentration of 750 mg/kg. Concentrations in the corresponding grab groundwater sample were below laboratory method detection limits.

The major components of TPH-mo and TPH-d are long-chain hydrocarbons that fall in the $C_{10}$ to $C_{20}$ range and have a strong tendency to adsorb to the surface of soil and organic matter in soil. The fate of these contaminants in soil is expected to be controlled by (1) adsorption processes between contaminants and soil mineral surfaces or soil organic matter, (2) volatilization to the atmosphere, (3) partitioning to groundwater, and (4) microbial degradation. Heavier long-chain hydrocarbons such as those in the motor oil-range, tend to be more strongly attached to soil organic material and clay particles; thus, TPH-mo is generally less volatile, less water soluble, and less mobile in soil and groundwater than TPH-d.

Based on the amount of clays and fines observed at the site (soils at the site consist primarily of clays and silts with some intercalated sands) and the detected concentrations, TPH-mo would be expected to remain relatively immobile in soils at the site. The area of distribution, shallow depth of the samples containing TPH-mo collected from SWMUs 5 and 7, and general proximity of detected TPH in soil samples to railroad spurs and the steam cleaning pad (Building 269) suggest that incidental surface releases are a potential source mechanism.

TPH-mo was not detected in the grab groundwater sample collected from SB024. Because SB024 is the closest downgradient sampling location to the waste oil UST adjacent to Building IA-12, the UST does not appear to be a source of TPH-mo-impacted groundwater at the site. Based on current data, groundwater possibly has been impacted by TPH-mo resulting from a surface release combined with a fast flow pathway through soil.

Concentrations of aqueous-phase TPH in groundwater are expected to diminish over time as a result of natural attenuation processes. Qualitatively, the fate of TPH-mo and TPH-d in groundwater is expected to be a strong tendency to adsorb to soil mineral surfaces and soil organic matter in the water-bearing zone. The concentrations of TPH contaminants in groundwater are expected to diminish over time as a result of natural attenuation processes such as chemical and biological degradation, sorption, and dispersion.

### 5.4.2 Fate and Transport of Volatile Organic Compounds

Volatile contaminants consistently detected in groundwater at the site include PCE and TCE, which are chlorinated solvents. Chlorinated solvents were detected in groundwater samples collected from the central portion of SWMUs 5 and 7. The highest concentrations of these VOCs in groundwater were detected in samples collected in the vicinity of Building 269, where the steam cleaning and hazardous waste storage area are located, and near the southwest corner of Building IA-12, downgradient from the former waste oil UST. PCE was detected at relatively low concentrations in samples collected from monitoring wells downgradient of SWMUs 5 and 7, but TCE as well as cis- and trans-1,2-DCE were not detected at concentrations above laboratory reporting limits. Based on the range in detected concentrations of chlorinated solvents at the site, there is no evidence suggesting the presence of a dense nonaqueous-phase liquid (DNAPL) at the site.

When VOCs undergo anaerobic biodegradation in groundwater, successive dechlorination occurs so that degradation products are generated along a predicted "degradation pathway." Three possible isomers are produced by the degradation of PCE and TCE: 1,1-DCE; cis-1,2-DCE; and trans-1,2-DCE. Of these three isomers, 1,1-DCE is the least significant intermediate, and cis-1,2-DCE generally predominates over trans-1,2-DCE. The last chlorinated solvent that can result from degradation is vinyl chloride. As degradation progresses, PCE and TCE concentrations tend to decrease while the presence and concentrations of the degradation daughter products (for example, cis- and trans-1,2-DCE) tend to increase.

At SWMUs 5 and 7, cis- and trans-1,2-DCE were detected in groundwater samples. The detected concentrations of these potential daughter products were consistently lower than PCE and TCE concentrations. Vinyl chloride was not detected in any samples collected during this RI. The presence of cis- and trans-1,2-DCE in SWMUs 5 and 7 in groundwater indicates that degradation is occurring. These daughter products were not detected in samples collected from downgradient monitoring wells.

Natural attenuation through degradation coupled with advection and dispersion can result in decreasing concentrations of chlorinated solvents in groundwater as the chemicals migrate downgradient. Based on the detection of VOCs (specifically PCE) in downgradient monitoring wells, downgradient migration of VOCs is apparently occurring at the site.

Significant volatilization or migration of VOCs to the atmosphere from groundwater is unlikely based on the depth of groundwater and relatively low concentrations of VOCs detected in groundwater samples. Also, any VOCs released into the atmosphere would be significantly dispersed; however, the potential may exist for VOCs present in vadose zone soil gas to migrate into indoor air within overlying buildings through cracks in walls, floors, and foundations. As discussed in Section 6.4, the maximum detected soil gas concentration of three VOCs (cis-1,2-DCE; TCE; and PCE) at four soil gas sampling locations near the former waste oil UST at SWMU 7 exceeded RWQCB screening criteria for protection of indoor air based on the "lowest residential" exposure scenario (RWQCB 2003). It should be noted that the RWQCB soil gas screening criteria are based on the assumption that site soils consist of permeable sands (RWQCB 2003); however, as noted in Figures 9 through 11, the vadose zone at the site consists almost exclusively of silty clays.

Section 6.5 discusses the evaluation of the potential dispersion of soil gas to indoor air using the Johnson and Ettinger vapor transport model.

## 6.0 QUALITATIVE HUMAN HEALTH RISK ASSESSMENT

A qualitative HHRA was performed to assess the potential for exposure to residual chemicals at concentrations that may cause adverse health effects. The goal of the HHRA was to identify COPCs that could be present at concentrations associated with adverse health effects. The HHRA considered current and potential future site uses, identified potential human receptors, and identified potentially complete exposure pathways to affected media.

The site is currently used for military purposes and will continue to be used for this purpose for the foreseeable future. Although it is highly unlikely that the site will ever be developed for residential housing, residential screening values were used in order to evaluate the most conservative unrestricted future land-use scenario.

The following steps were performed to complete the HHRA:

- Evaluate soil, groundwater, and soil gas data quality, and select data that met EPA risk assessment data quality standards (EPA 1989)
- Identify the maximum concentration of each chemical detected in soil, groundwater, and soil gas
- Identify complete exposure pathways
- For COPCs in soil, perform a screening evaluation comparing maximum detected concentrations with residential soil PRGs (EPA 2002a)
- For COPCs in groundwater, perform a screening evaluation comparing maximum detected concentrations with groundwater screening levels for the protection of residential indoor air (RWQCB 2003), California Department of Health Services MCLs (California Department of Health Services 2000), and tap water PRGs (EPA 2002)
- For COPCs in soil gas, perform a screening evaluation comparing the maximum detected soil gas concentrations to soil gas screening levels for the protection of residential indoor air (RWQCB 2003), and further evaluate the potential migration of soil gas contaminants to indoor air using the Johnson and Ettinger vapor transport model and site-specific input parameters and assumptions as necessary

Each activity is summarized below, followed by a discussion of screening results.

## 6.1 EVALUATE SOIL AND GROUNDWATER DATA QUALITY, AND SELECT DATA FOR QUALITATIVE HHRA

Tables 7 through 9, respectively, summarize the TPH and VOC analytical results and statistical summary for soil samples, and Tables 10 through 12, respectively, summarize the TPH and VOC analytical results and statistical summary for groundwater samples. Table 13 summarizes the analytical results for groundwater samples analyzed for natural attenuation parameters. All data quality objectives were met for data that was used in the HHRA.

Soil and groundwater samples collected by LFR Levine-Fricke (LFR) as part of the RI process during the February and March 2002 sampling events were analyzed for TPH and VOC constituents as well as natural attenuation parameters. Daily field blanks were collected during the sampling event for data quality assessment. As shown in Table 17, the source and equipment water field blanks collected during the February 20, 2002, sampling event contained VOCs at concentrations ranging from 0.6 to 60 µg/L. VOC concentrations of 0.4 to 3 µg/L were reported for the two groundwater field samples collected on February 20, 2002, from SB005 and SB006. The February 20 field blanks were the only field blanks collected that contained detectible VOC concentrations. It should be noted that neither PCE nor TCE was detected in the source water and equipment field blanks, but PCE and TCE were detected at low concentrations (3 and 0.5 µg/L) in the grab groundwater sample from SB006. The detection of PCE and TCE in the sample from SB006 is consistent with expectations for detections of potential contaminants at the site. To be consistent with EPA data validation protocol, however, groundwater results from samples collected on February 20, 2002, were rejected for not meeting QC criteria (EPA 1994c).

## 6.2 IDENTIFY MAXIMUM CONCENTRATION OF EACH CHEMICAL DETECTED IN SOIL, GROUNDWATER, AND SOIL GAS

Tables 9, 12, 14, and 15 summarize all detected chemicals and/or their maximum concentrations for soil, groundwater and soil gas, excluding results for the water samples collected on February 20, 2002.

## 6.3 IDENTIFY COMPLETE EXPOSURE PATHWAYS

EPA and DTSC human health risk guidance documents were used to identify relevant exposure pathways. The exposure pathways consist of four necessary elements (EPA 1989):

- Source and mechanism of chemical release
- Retention or transport medium (or media in cases involving media transfer)
- Point of potential human contact with the contaminated medium
- Exposure route (for example, ingestion) at the exposure point

A pathway is considered “complete” only if these four conditions are applicable.

The potential exposure pathways and routes evaluated include the following:

- Incidental ingestion of soil
- Direct dermal contact with soil
- Inhalation of particulate emissions from soil
- Inhalation of vapors in indoor air (derived from soil gas or groundwater)
- Ingestion of groundwater
- Dermal contact with groundwater

The exposure pathways identified above are considered complete and were evaluated qualitatively for the potentially exposed populations and land-use scenarios identified. The currently known and identified affected media are soil, groundwater, and soil gas. The exposure routes are defined as the physical ways in which chemicals may enter the human body (for example, through ingestion, inhalation, and dermal absorption).

Groundwater at the site is not currently used as a drinking water source; therefore, no current pathway exists for human ingestion of groundwater or dermal contact with groundwater. Although groundwater at the site is not currently used as a source of drinking water, groundwater data were conservatively screened against drinking water criteria following guidance in the basin plan (RWQCB 1995) and amendments (RWQCB 2000). The basin plan and amendments define all subsurface waters as potential sources for municipal and residential uses.

## 6.4 PERFORM A SCREENING EVALUATION

Screening values were selected that accurately and conservatively represent each complete exposure pathway. The site is currently used for military purposes. To date, no redevelopment plans have been proposed, and it is highly unlikely that the site will ever be developed for residential housing; therefore, the current site use also represents future site use. Screening levels for soil, groundwater, and soil gas are discussed below.

### 6.4.1 Soil Screening Levels

For soil, residential PRGs were used as the screening criteria (EPA 2002a). Residential PRGs were selected instead of industrial PRGs to evaluate unrestricted land use under the most conservative land use scenario. Table 18 summarizes the maximum concentrations of contaminants detected in soil and the PRGs used for the HHRA.

### 6.4.2 Groundwater Screening Levels

For indirect exposure to groundwater contamination, residential groundwater screening levels for protection of indoor air quality (RWQCB 2003) were selected. Table 19 summarizes the maximum concentrations of contaminants detected in groundwater and indirect exposure to

groundwater screening levels used for the HHRA. These screening values were developed using the Johnson and Ettinger vapor transport model (Johnson and Ettinger 1991). This model considers both diffusive and convective flow of subsurface vapors into buildings. This model typically overestimates vapor migration and is considered to be protective of human health. No maximum detected groundwater contaminant concentration exceeded its indirect exposure screening criterion.

For ingestion of and dermal contact with groundwater, the California-promulgated drinking water standards (referred to as MCLs) (California Department of Health Services 2000) and residential tap water PRGs (California Department of Health Services 2000 and EPA 2002a) were used. Table 19 summarizes the groundwater MCLs and tap water PRGs used for the HHRA. MCLs are the enforced drinking water standards. Tap water PRGs are human health risk-based goals for domestic water. Domestic water at the site is currently municipally supplied; therefore, there is no current pathway for ingestion of or dermal contact with groundwater.

### 6.4.3 Soil Gas Screening Levels

For indirect exposure to contaminants in soil gas, residential soil gas screening levels for protection of indoor air quality (RWQCB 2003) were selected. These screening values were developed using the Johnson and Ettinger vapor transport model (Johnson and Ettinger 1991). This model considers both diffusive and convective flow of soil gas vapors into buildings. As is frequently the case with indirect exposure to vapors from groundwater, this model typically overestimates vapor migration from soil gas to indoor air and is therefore considered protective of human health. All concentrations of contaminants detected in soil gas at concentrations exceeding the screening criteria are presented in Figure 23. The soil gas screening levels are presented in Tables 14 and 15 are used for the HHRA.

As noted in Tables 14 and 15, cis-1,2-DCE; TCE; and PCE were detected in soil gas samples collected at four locations at maximum concentrations exceeding residential soil gas screening levels as follows:

- SG18 – PCE (1,000 $\mu g/m^3$)
- SG25 – TCE (2,400 $\mu g/m^3$) and PCE (15,000 $\mu g/m^3$)
- SG31 – cis-1,2-DCE (8,100 $\mu g/m^3$); TCE (19,000 $\mu g/m^3$); and PCE (120,000 $\mu g/m^3$)
- SG33 – PCE (730 $\mu g/m^3$)

The residential soil gas screening levels were developed by RWQCB using the Johnson and Ettinger vapor transport model assuming that the vadose zone consists of highly permeable sand (RWQCB 2003). In fact, the vadose zone at the site consists of silty-clay, which is less permeable than sand (see Figure 9 through 11). The maximum detected soil gas concentrations of cis-1,2-DCE; TCE; and PCE were further evaluated using the Johnson and Ettinger vapor transport model, site-specific input parameters, and the model-specific assumptions summarized below.

- Depth below grade to bottom of enclosed space floor (LF), 15 centimeters (cm). It was assumed that all future construction was slab-on-grade.
- Soil gas sampling depth below grade (LS), 152.4 cm. This is the Johnson and Ettinger model's default assumption. It is also the depth from which all but one of the soil gas samples considered in this analysis were collected. (Note: The step-out sample from SG38 was collected from 6.5 feet bgs.)
- Vadose zone USCS soil type – As noted in Figures 9 through 11, the soil type within the vadose zone at the site is primarily silty clay. For the purpose of this evaluation, the impact of considering the vadose zone USCS soil type as either silty clay or clay was evaluated. It was determined that the assumption of clay as the vadose zone USCS soil type produced slightly higher (more conservative) risk and hazard results (see Appendix F); therefore, for remaining soil gas modeling, it was assumed that the vadose zone USCS soil type was clay.
- Vadose zone soil dry bulk density, total porosity, and water-filled porosity values for clay were obtained from the model's lookup tables.

Appendix F summarizes the soil gas vapor transport evaluation calculations.

As shown in the table below, the estimated incremental risk from vapor intrusion to indoor air exceeded 1E-06 for TCE (1.6E-06) and PCE (2.8E-05); cis-1,2-DCE is not considered a potential carcinogen, and the hazard quotients for all three compounds are less than 0.1.

**INCREMENTAL RISKS AND HAZARD QUOTIENTS ASSOCIATED WITH MAXIMUM DETECTED SOIL GAS CONCENTRATIONS**

| Compound | Maximum Detected Soil Gas Concentration ($\mu g/m^3$) | Incremental Risk | Hazard Quotient |
|---|---|---|---|
| cis-1,2-DCE | 8,100 | Not applicable | 2.1E-02 |
| TCE | 19,000 | 1.6E-06 | 3.0E-03 |
| PCE | 120,000 | 2.8E-05 | 3.1E-01 |

Based on maximum detected soil gas concentrations, incremental risks associated with TCE and PCE were further evaluated (see Section 6.5). Cis-1,2-DCE presents no incremental risk and an insignificant hazard quotient under site-specific conditions.

## 6.5 SCREENING RESULTS

The results of the qualitative HHRA screening indicate that maximum concentrations of COPCs do not exceed residential PRGs. In addition, COPC maximum concentrations in groundwater samples did not exceed the indoor air inhalation exposure screening levels.

The on-site maximum detected concentrations in groundwater for cis-1,2-DCE; PCE; and TCE were above their respective MCLs (California Department of Health Services 2000). All other groundwater COPC concentrations were below MCLs. The tap water PRGs (EPA 2002) for benzene; bromodichloromethane; chloroform, 1,2-DCA; PCE; and TCE were also exceeded. Although the site is not currently used as a source of drinking water, a conservative screening against drinking water criteria was performed following guidance in the basin plan (RWQCB 1995) and amendments (RWQCB 2000) described in Section 2.8.3.

The results of the qualitative HHRA indicate that groundwater contaminant concentrations exceed agency threshold levels of concern for drinking water. Residual contaminant concentrations in soil and groundwater samples are below published health-protective values developed considering direct exposure to soil and indirect exposure to VOCs in groundwater.

For calculating potential incremental risks and hazard quotients, the Johnson and Ettinger vapor transport model assumes the presence of a residential building measuring 10 by 10 meter (approximately 33 by 33 feet); therefore, the indoor air quality within this residential building is unlikely contain only VOCs migrating into the building from the maximum detected soil gas sampling location. Instead, indoor air concentrations are likely the cumulative result of VOCs migrating from soil gas beneath the entire building footprint.

In order to assess the incremental risks and hazard quotients associated with soil gas beneath a residential building, a box was drawn around soil gas sampling locations close to the former waste oil UST and surrounding the two locations (SG25 and SG31) at which the highest soil gas concentrations were detected. This box measures about 33 by 46 feet and encompasses eight soil gas sampling locations (SG25, SG28, SG29, SG31, SG32, SG36, SG37, and SG38). The table below summarizes sample-specific soil gas concentrations and overall detection frequencies and arithmetic average concentrations (calculated assuming a value equal to one-half the detection limit for nondetect results reported as "U") for TCE and PCE.

## SAMPLE-SPECIFIC SOIL-GAS CONCENTRATIONS AND OVERALL DETECTION FREQUENCIES AND ARITHMETIC AVERAGE SOIL GAS CONCENTRATIONS

| Soil Gas Sampling Location | TCE ($\mu g/m^3$) | PCE ($\mu g/m^3$) |
|---|---|---|
| 34SG25 | 2,400 (M) | 15,000 (S) |
| 34SG28 | 50 U (M) | 50 U (M) |
| 34SG29 | 50 U (M) | 50 U (M) |
| 34SG31 | 19,000 (M) | 120,000 (M) |
| 34SG32 | 50 U (M) | 75 (M) |
| 34SG36 | 26.2 (S) | 40.7 (S) |
| 34SG37 | 7.1 (S) | 16.6 (S) |
| 34SG38 | 12.6 (S) | 66.9 (S) |
| Detection Frequency | 5/8 (62.5 percent) | 6/8 (75 percent) |
| Arithmetic Average Concentration | 2,690 | 16,906 |

Notes: M Analyzed by mobile laboratory S Analyzed by stationary laboratory U Not detected

Based on the arithmetic average soil gas concentrations, the incremental risk for PCE (3.9E-06) exceeds 1E-06, while the incremental risk for TCE (2.2E-07) is less than 1E-06 (see Appendix F, Tables F-5 and F-6).

Back-calculating from the PCE results ([16,906 µg/m$^3$ x 1E-06]/3.9E-06) indicates that a PCE soil gas concentration of 4,286 µg/m$^3$ is associated with an incremental risk of 1E-06. PCE was detected at concentrations exceeding this concentration only at sampling locations SG25 and SG31. Coincidentally, the maximum detected concentrations of cis-1,2-DCE and TCE were also measured at these same locations.

Finally, incremental risk associated with potential exposure to PCE in indoor air was further evaluated assuming future industrial rather than residential land use. Industrial land-use calculations were performed using EPA's SG-ADV model modified to reflect DTSC's toxicity factor values (EPA 2003; DTSC 2003). The same model assumptions used to assess residential risk were applied for the industrial risk assessment with the exceptions listed below.

- Averaging time for noncarcinogens was modified from 30 to 25 years.
- Exposure duration was modified from 30 to 25 years.
- Exposure frequency was modified from 350 to 250 days per year.
- The commercial building footprint was modified to 1,056 by 1,056 centimeter (cm) and a ceiling height of 244 cm (Michigan Department of Environmental Quality [MDEQ] 2001).
- Indoor air exchange rate was increased from 0.45 per hour to 2 per hour (MDEQ 2001).
- As shown in Appendix F, using an average PCE soil gas concentration of 16,906 µg/m$^3$, the incremental risk associated with potential exposure to PCE under a future industrial scenario is 3.5E-08. This result does not exceed the target risk of 1E-06.

## 7.0 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

A SLERA was conducted to assess the potential risks to ecological receptors associated with exposure to chemicals of potential ecological concern (COPEC) in soil and groundwater at the site. All work related to this SLERA was conducted in accordance with guidance from the EPA (EPA 1997) and the Navy (Navy 1999).

This screening-level approach used conservative assumptions and available scientific literature to evaluate ecological risk in an approach consistent with steps 1 and 2 of the eight-step process described in EPA guidance (EPA 1997). The SLERA has four primary phases: (1) problem formulation, (2) exposure estimation, (3) evaluation of ecological effects, and (4) risk characterization. An ecological CSM was developed for exposure pathways at the site, and assessment and measurement endpoints were selected during the problem formulation phase.

Exposure parameters were established for representative receptors identified during the problem formulation and exposure estimation phases. Contaminant exposure levels that represent conservative thresholds for adverse ecological effects were identified during the evaluation of ecological effects. Finally, the potential risks to selected assessment endpoints associated with the site were conservatively estimated during the risk characterization phase.

In accordance with EPA guidance (EPA 1997), after this assessment is complete, risk managers should determine which of the following descriptions apply to the information gathered on preliminary risks associated with exposure to COPECs:

- Adequate to conclude that ecological risks are negligible; therefore, no remediation is necessary
- Inadequate to make a decision; therefore, a site-specific baseline ecological risk assessment should be conducted to refine risk estimates and reduce uncertainty associated with the SLERA
- Adequate to indicate a potential for adverse ecological effects; therefore, a site-specific baseline ERA should be conducted to refine risk estimates and reduce uncertainty associated with the SLERA

The primary goal of the problem formulation phase is to develop an ecological CSM and to identify the following:

- Environmental setting and chemicals known or suspected to exist at the site
- Chemical fate and transport mechanisms that might occur at the site
- Mechanisms of ecotoxicity associated with chemicals and likely categories of receptors that could be affected
- Complete exposure pathways that might exist at the site
  (Note: A complete exposure pathway exists when the chemical can be traced or expected to travel from the source to a receptor)
- Selection of assessment and measurement endpoints to focus the assessment

Information on ecological resources at Naval Weapons Station SBD Concord was obtained from previous ecological surveys conducted for the Inland Area (Downard and others 1999) and site observations. The site consists of active industrial areas with no significant ecological habitat. Most of the ground surface at the site is paved; however, some unpaved areas exist. These areas are predominately bare ground, although some non-native annual grasses are present. No surface water is present except sheet runoff during storm events. No special status plants or animals are known to occur at the site.

Seal Creek is an ephemeral creek located approximately 300 feet southwest of SWMU 2. No fish or aquatic invertebrate surveys have been conducted at Seal Creek. Because Seal Creek is a

natural stream that flows during much of the winter, the creek may support both fish and aquatic invertebrate communities. Fish and aquatic invertebrates are assumed to be present within Seal Creek for this SLERA because it is a conservative and realistic assumption.

As noted in the Section 7.1, there is no pathway for exposure of animals to groundwater in the immediate vicinity of the site. The only potential exposure pathway for ecological receptors to groundwater contamination is through discharge from groundwater to Seal Creek, which is at least several hundred feet from any significant groundwater contamination.

Groundwater and soil data collected from the site as part of the RI were used to support the SLERA. Because most of the site is paved, ecological receptors are not exposed to soil at most of the site. Because ecological receptors are exposed primarily to surface soil, all VOCs detected in surface soil were included as soil COPECs; benzene and toluene are the only two VOCs detected in surface soil. All VOCs detected in groundwater were considered groundwater COPECs. Table 20 lists groundwater COPECs for the site.

The entire area near the former waste oil tank is paved. Because soil gas samples with detectible VOCs were collected from paved areas, there is no complete pathway for exposure of ecological receptors to VOC-contaminated soil gas.

The following subsections discuss the ecological CSM, risk to plants, risk to terrestrial invertebrates, risk to herbivorous mammals, risk to fish and aquatic invertebrates, uncertainties related to the SLERA, and SLERA summary and conclusions.

## 7.1 ECOLOGICAL CONCEPTUAL SITE MODEL

All organic chemicals detected in groundwater were considered COPECs and potentially available to ecological receptors. Toluene and xylene, the only organic chemicals detected in on-site surface soil, were the only COPECs for soil.

Site conditions and physical and chemical properties of the COPECs were evaluated to develop an ecological CSM. Physical fate processes of concern include transport to surface water and volatilization to air. Potentially complete exposure pathways to ecological receptors were evaluated based on the fate and transport processes associated with each COPEC. A COPEC must be able to travel from the source to the representative receptor and must be taken up by the receptor through one or more exposure routes for an exposure pathway to be considered complete. Thus, these pathways present the greatest potential risk of adverse effects to receptors of concern. The CSM for ecological receptors at the site is based on site media, potential transport pathways, assessment endpoints for the site, and measurement endpoints associated with the assessment endpoints.

Figure 24 presents the CSM for ecological receptors, which is described below, including site-specific assumptions on potential transport mechanisms used to establish the presence or absence of complete exposure pathways at the site.

Limited direct exposure of ecological receptors to chemicals in soil was assumed to occur at the site because most of the site area is paved. Ecological receptors are also assumed to be exposed to COPECs in surface soil only (0 to 3 feet bgs).

Groundwater levels are sufficiently deep over most of the site (approximately 10 to 15 feet bgs) to preclude a direct exposure pathway from groundwater to on-site ecological receptors. Groundwater movement from the source area; however, is generally west toward Seal Creek (Figures 12 through 15); consequently, physical transport could result in a pathway for COPECs to impact surface water near the site in Seal Creek.

Because the most of the site is paved and site COPECs are volatile when exposed to air, the surface water runoff pathway was considered minimal.

Because site COPECs (VOCs) are not known to bioaccumulate up the food chain, transfer up the food chain is unlikely (American Society for Toxic Substances and Disease Registry [ATSDR] 1994a, 1994b, 1995a, 1995b, 1996a, 1996b, 1997a, 1997b, 1997c, and 1997d). Food-chain exposure was not considered a complete exposure pathway for higher trophic-level consumers that may reside at the site.

The air exposure pathway was considered complete for inhalation of contaminated vapors because the volatility of the COPECs is high; however, limited data are available in the ecotoxicological literature to allow a sufficient evaluation of this pathway to receptors.

Because the soil and groundwater COPECs are all volatile when exposed to air, no chronic exposure is expected from these chemicals to ecological receptors.

EPA defines an assessment endpoint as an "explicit expression of an environmental value to be protected" (EPA 1997). Various definitions of valuable ecological resources include those without which ecosystem function would be significantly impaired; those that provide critical resources, such as habitat or fisheries; and those perceived by humans as valuable, such as endangered species and other species addressed by legislation. Useful assessment endpoints define both the valuable ecological entities at the site and a characteristic of the entity to protect, such as reproductive success or production per unit area.

The assessment endpoints used to evaluate the potential ecological risk at the sites are summarized below.

- **Sufficient rates of survival, growth, and reproduction to protect plant populations.** The plant community forms the basis of the food chain at the site, and adverse effects on the plant community could reduce the amount of food available to higher trophic-level consumers. The health of the community was considered an ecological value to be protected.

- **Sufficient rates of survival, growth, and reproduction to protect fish and aquatic invertebrate populations.** The fish and aquatic invertebrate community provides food for higher trophic-level consumers; therefore, adverse effects on the fish and aquatic invertebrate community could reduce the amount of food available to higher trophic-level consumers. The health of the community was considered an ecological value to be protected.

- **Sufficient rates of survival, growth, and reproduction to protect terrestrial invertebrate populations.** The terrestrial invertebrate community forms the basis of the food chain at the site, and adverse effects on the invertebrate community could reduce the amount of food available to higher trophic-level consumers. The health of the community was considered an ecological value to be protected.

- Sufficient rates of survival, growth, and reproduction to protect populations of herbivorous mammal populations typical to the area. Herbivorous mammals provide a major source of food for higher trophic-level consumers. Adverse effects on the populations of these primary consumers could reduce the amount of food available to higher trophic-level consumers. Protection of populations of herbivorous mammals was considered an ecological value to be protected.

Assessment endpoints are usually not amenable to direct measurement; therefore, measurement endpoints related to the assessment endpoints were identified. EPA defines a measurement endpoint as "a measurable ecological characteristic that is related to the valued characteristic chosen as the assessment endpoint and is a measure of biological effects (such as mortality, reproduction, or growth)" (EPA 1997). Measurement endpoints can include measures of exposure or effect and are frequently numerical expressions of observations. The measurement endpoint correlates directly with the assessment endpoint and was based on available literature regarding toxicity mechanisms.

The measurement endpoints were selected based on the species or communities potentially present at the site, the adequacy of the information on the endpoint based on literature research, and the ability of the endpoint to suggest information about the related assessment endpoints. The measurement endpoints summarized below were selected.

- **For plants, comparison of COPEC concentrations in surface soil to toxicity benchmarks for plants.** COPEC concentrations in soil were compared with Oak Ridge National Laboratory (ORNL) benchmarks for plants (Efroymson and others 1997a). When no benchmark was available, effects on plants were evaluated qualitatively based on available toxicological literature.

- **For terrestrial invertebrates, comparison of COPEC concentrations in surface soil to toxicity benchmarks for invertebrates.** COPEC concentrations in soil were compared with ORNL benchmarks for effects on invertebrates in soil and litter and heterotrophic processes (Efroymson and others 1997b). Any benchmark exceeded indicated potential risk to terrestrial invertebrates.

- **For herbivorous small mammals, comparison of COPEC concentrations in surface soil to toxicity benchmarks for mice.** Mice and ground squirrels may occur on the portions of the site that are not paved; therefore, COPEC concentrations in soil were compared with toxicity benchmarks for mice. No food-chain modeling was conducted because site COPECs are not expected to accumulate in plants. COPECs that lack existing benchmarks were evaluated qualitatively.

- For fish and aquatic invertebrates, comparison of COPEC concentrations in groundwater to toxicity benchmarks for fish and aquatic invertebrates. COPEC concentrations in groundwater were compared with EPA and RWQCB benchmarks for aquatic biota (RWQCB 2001; EPA 1993; Suter and Tsao 1996). When COPEC concentrations in groundwater exceeded benchmarks, potential risk to fish and aquatic invertebrates is indicated. If COPEC concentrations in groundwater are below benchmarks, groundwater was considered protective of fish and aquatic invertebrates.

Risks to each measurement endpoint are discussed in Sections 7.2 through 7.5 below.

## 7.2 RISK TO PLANTS

The effect of chemicals on plant populations was evaluated using the following lines of evidence:

- Comparison of COPEC concentrations in surface soil that exceed background concentrations to ORNL toxicity-based benchmarks for plants

- Qualitative evaluation of toxicity based on a review of primary literature

Toluene and xylene were the only two VOCs detected in on-site surface soil. The maximum concentration of toluene in surface soil was 0.003 mg/kg, which is well below the ORNL plant screening value of 200 mg/kg (Efroymoson and others 1997a). Because no ORNL screening values are available for xylenes, the risk from xylenes to plants was evaluated qualitatively.

Little information was found in the literature to allow sufficient evaluation of the effects of xylenes on plants (ATSDR 1995b). In surface soils, the major fate process for xylenes is volatilization to air. Of the little that does not volatilize to air or leach into soil, photo-induced oxidation is a significant transformation process for xylenes. The maximum concentration of xylenes in site surface soil was 0.001 mg/kg. Effects on beet roots were observed from beets exposed to 500 parts per million xylene (Allen and others 1961). Because the maximum concentration of xylenes measured in surface soil at the site is well below effects levels reported in the literature, risk posed to plants from xylenes in surface soil at the site was considered minimal.

## 7.3 RISK TO TERRESTRIAL INVERTEBRATES

The effect of chemicals on terrestrial invertebrate populations was evaluated using the following lines of evidence:

- Comparison of COPEC concentrations in surface soil that exceed background concentrations to ORNL toxicity-based benchmarks for terrestrial invertebrates
- Qualitative evaluation of toxicity based on a review of primary literature

The maximum concentration for each soil COPEC was compared with toxicological benchmarks for effects on soil and litter invertebrates and heterotrophic processes to identify the chemicals that may pose risk to invertebrates (Efroymson and others 1997b). Benchmarks that were exceeded indicate potential risk to invertebrates.

The maximum concentration of toluene in surface soil was 0.003 mg/kg, which is well below the ORNL lowest observed effects concentration screening value of 200 mg/kg trinitrotoluene (Efroymoson and others 1997). No ORNL screening values are available for xylenes. In addition, no information was found on the effects of xylenes on terrestrial invertebrates in EPA's ECOTOX database or other sources. Xylenes rapidly volatilize in surface soils; therefore, no chronic exposures are expected to terrestrial invertebrates.

Because the maximum toluene concentration detected is below effects levels reported in the literature, toluene is considered to pose minimal risk to terrestrial invertebrates at the site. No toxicological information is available in the literature to sufficiently evaluate the effects of xylenes on terrestrial invertebrates; therefore, any response actions taken at the site should be based on more complete estimates of risk that have been obtained for higher level organisms.

## 7.4 RISK TO HERBIVOROUS MAMMALS

Toluene and xylenes were the only two VOCs detected in on-site surface soil. The maximum concentration of toluene in surface soil was 0.003 mg/kg. No reproductive effects were observed in mice exposed to 26 mg/kg per day of toluene during a critical life stage (Sample and others 1996). The maximum concentration of xylenes in surface soil was 0.001 mg/kg. In a study where mice were exposed to xylenes during a critical life stage, no effects were observed at a dose of 2.1 mg/kg per day (Sample and others 1996).

Because maximum concentrations of toluene and xylenes at the site are well below effects levels for small herbivorous mammals, risk to herbivorous mammals from toluene and xylenes is considered minimal.

## 7.5 RISK TO FISH AND AQUATIC INVERTEBRATES

All organic chemicals detected in groundwater at the site were evaluated as COPECs for fish and aquatic invertebrates. COPEC data were compared with available benchmarks from the ecotoxicological literature to identify chemicals that may pose unacceptable risk to fish and aquatic invertebrates. COPEC concentrations were therefore compared with lowest observed effects levels for aquatic organisms developed by EPA and RWQCB (EPA 1993; RWQCB 2001; Suter and Tsao 1996). Table 20 summarizes the results of this comparison.

Because concentrations of COPECs in Seal Creek have not been measured, the maximum concentration of a COPEC detected in groundwater was used as a conservative estimate of surface water concentrations in Seal Creek. This estimate is highly conservative for three reasons. First, the maximum concentration is unlikely to occur at the surface because the general trend of COPEC concentrations in groundwater shows a decrease downgradient, toward Seal Creek. Second, groundwater migration and dilution would likely reduce the COPEC concentrations measured in surface water relative to groundwater. Third, measurable concentrations of COPECs in surface water are likely to be reduced compared to groundwater concentrations because of the volatility of the COPECs.

COPECs were considered to pose potential risk if the maximum concentration at the site exceeded the toxicity benchmarks. All COPEC concentrations were well below toxicity benchmarks for protection of fish and aquatic invertebrates; therefore, the level of risk posed to ecological receptors from COPECs in groundwater at the site is considered minimal.

## 7.6 UNCERTAINTIES

Uncertainty plays an important role in risk-based decision-making and is therefore incorporated explicitly into risk characterization. Identifying known sources of uncertainty is more useful than using conservative default assumptions because potential error is made more explicit in the risk management process (Suter 1993).

The following three sources of uncertainty in ERAs are described by 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 (ignorance about some aspect of the ecosystem that may be relevant, such as assumptions used in dose models, practical constraints on the ability to measure pertinent factors, and lack of knowledge on toxicological effects of all chemicals on all species)
- Inherent randomness (stochasticity in physical or biological processes that may affect assumptions or actual risk, such as variations in population parameters or rainfall patterns)

Ecological risk assessment is based on assumptions and extrapolations. Many of the assumptions in the SLERA process are conservative and result in overestimated site-specific risk, but the assumptions are important to ensure that no COPECs are dismissed when they actually may pose adverse ecological risk. Major uncertainties and conservative assumptions used in this SLERA are summarized below.

- **Habitat.** The site consists of paved industrial facilities that provide minimal habitat for ecological receptors. Use of the maximum concentration of chemicals in groundwater at the site to estimate risk to fish and aquatic invertebrates in Seal Creek likely greatly overestimates exposure risks. Concentrations of VOCs detected in wells near Seal Creek are well below the maximum concentrations of COPECs detected, which are centered around Building 269.

- **Sampling Data.** Data collected from the site must be used to evaluate conditions over the entire site; all parameters measured are therefore only estimates, with associated error. Groundwater and soil analytical data were used to characterize risk at the site. The sample size was adequate to evaluate risk posed by groundwater and soil COPECs.

- **Use of Screening Values.** An approach that compares site-specific bulk chemistry concentrations with generic screening values was used to indicate potential adverse effects. Screening values were not developed using site-specific taxa. In addition, some contaminants could not be evaluated because screening values are not available.

### 7.7 SUMMARY AND CONCLUSIONS

Despite the sources of uncertainty described in Section 7.6, adequate information was available to evaluate the potential risk to receptors from COPECs at the site using a screening-level approach. The results of the SLERA are summarized below.

- No significant risk to plants, terrestrial invertebrates, or herbivorous mammals is expected from soil COPECs at the site.

- No significant risk to fish and aquatic invertebrates is expected from groundwater COPECs at the site.

- No further action is recommended to characterize ecological risk at the site.

## 8.0 DATA QUALITY ASSESSMENT

Once the sampling data were collected and validated, a DQA was conducted to assess whether the data met the DQOs. The DQA process involves the application of statistical tools to identify the following information:

- Whether the data meet the DQO requirements and the assumptions under which the DQOs were prepared

- Whether the total study error of the data is small enough to allow decision-makers to use the data to support a decision

Data validation is a systematic process for reviewing and qualifying data against a set of criteria to provide assurance that the data are adequate for their intended use. This validation was

accomplished by reviewing and evaluating all analytical data against precision, accuracy, representativeness, completeness, and comparability criteria. The laboratory analytical data generated from the soil, groundwater, and soil gas sampling events at the site were validated in accordance with EPA procedures (EPA 1994a and 1994b) and TtEMI procedures in the QAPP (TtEMI 2001b). The total study error in the validated data appears small enough to allow decision-makers to use the data to support making site decisions, including the need for additional contingency sampling. Appendix A presents the validated data set, and Appendix G presents the data QC summary report.

# 9.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The following subsections present a summary of the investigation, conclusions, and recommended further actions for the site.

## 9.1 SUMMARY

This RI was conducted to provide additional site characterization of VOCs under CERCLA. TPH constituents at the site are investigated separately under the Navy's UST program, which is regulated by the RWQCB. The objective of this RI for Naval Weapons Station SBD Concord was to evaluate the nature and extent of VOCs in the soil, groundwater, and soil gas at SWMUs 2, 5, 7, and 18 and to determine the extent of VOC contamination related to historical uses at this site. VOC analytical results, TPH analytical results, HHRA results, and SLERA results are summarized below.

### 9.1.1 VOC Analytical Results

The highest concentrations of VOCs in groundwater were detected in samples collected from MW-10 and SB024 in SWMU 5. The highest concentration of PCE was 100 µg/L, and the highest concentration of TCE was 38 µg/L. As described below, the source for these contaminants appears to be the former waste oil UST on the south side of Building IA-12. Downgradient groundwater samples collected from SWMU 2 contained low but detectible concentrations of PCE (generally less than 10 µg/L) that exceed drinking water MCLs. Detected concentrations of VOCs in groundwater are consistent with concentrations detected during groundwater monitoring conducted in 1999. Evaluation of the historical data suggests that the plume of groundwater contamination is stable (that is, concentrations are not increasing and there is no evidence that the lateral extent of the plume is expanding).

The results of the soil gas survey indicate that soil gas VOC concentrations exceed human health-based screening levels in a small area near the former waste oil UST. The highest concentration of VOCs detected (120,000 $\mu g/m^3$) was only 20 to 30 feet from locations where significant concentrations of VOCs were not detected. The localized nature of soil gas contamination and lack of animal habitat in that area suggest that this contamination poses little risk to ecological receptors.

VOCs were detected in only two soil samples collected from SB020 and SB024, south and southwest of Buildings 269 and IA-12, at concentrations at or near the laboratory quantification limit. In the areas of highest groundwater VOC concentrations, soil borings were spaced no more than 30 to 40 feet apart.

### 9.1.2 TPH Analytical Results

In an effort to maximize efficiency between the CERCLA and UST programs, RWQCB requested that supplemental analyses for TPH be conducted on selected soil and groundwater samples to assist in the delineation of these constituents for other studies. As a result, TPH analysis was included in the analysis of soil and groundwater sample results. The extent of TPH-d-impacted groundwater appears limited to SMWUs 5 and 7. Two groundwater samples collected from SB033 and SB019 (located upgradient from the area of TPH-d-impacted groundwater and downgradient from the location of four former fuel USTs) did not contain TPH-d at concentrations exceeding laboratory method detection limits. These samples did, however, contain the highest concentrations of TPH-mo detected at the site.

The upgradient former waste oil UST does not appear to be an active source of TPH-mo detected in groundwater samples because the nearest downgradient groundwater sample collected from SB024 did not contain TPH-mo at a concentration exceeding the laboratory method detection limit. The area of highest detected TPH-mo concentrations in groundwater (at SB033 and SB019) corresponds approximately to the area of highest detected TPH-mo concentrations in shallow soil samples (SB024 at 750 mg/kg and SB019 at 360 mg/kg). This finding suggests that the presence of TPH-mo in groundwater may be the result of incidental surface releases.

### 9.1.3 Human Health Risk Assessment Results

The results of the qualitative HHRA indicate that groundwater VOC concentrations exceed agency threshold levels of concern. Concentrations of cis-1,2-DCE; PCE; and TCE exceeded the MCLs for drinking water. Concentrations of 1,2-dichloroethane (DCA); benzene; bromodichloromethane, chloroform, PCE; and TCE exceeded EPA Region 9 tap water PRGs. No COPC maximum concentration in the soil samples exceeded the residential PRGs. Additionally, none of the maximum concentrations reported for COPCs detected in the groundwater samples exceeded the indirect exposure screening value. Although groundwater at the site is not currently a source of drinking water, a conservative approach was taken to include screening against drinking water standards based on the basin plan (RWQCB 1995) and amendments (RWQCB 2000). The basin plan and amendments define all subsurface waters as potential sources for municipal and residential uses.

The results of the qualitative HHRA indicate that soil gas concentrations exceed RWQCB residential screening levels for cis-1,2-DCE; TCE; and PCE at five sampling locations centered around a former waste oil UST. Further evaluation using the Johnson and Ettinger vapor transport model and site-specific input parameters and assumptions indicate that potentially significant incremental risks (greater than 1E-06) are associated with potential exposure to PCE only under the assumption of future residential land use; no potentially significant incremental risks greater than

1E-06 were identified for any VOC detected in soil gas samples under the assumption of future industrial land use. Potentially significant hazard quotients (defined as greater than 1) were also not identified for any VOC detected in soil gas samples.

### 9.1.4 Screening Level Ecological Risk Assessment Results

The SLERA examined whether chemical concentrations in soil and groundwater pose risk to ecological receptors. Based on the fact that chemical concentrations in soil and groundwater are well below levels associated with ecological effects, the level of risk to ecological receptors at the site is considered minimal.

## 9.2 CONCLUSIONS

This RI was conducted under the IRP regulated by CERCLA. For this reason, the focus of this RI was evaluating the nature and extent of VOCs in soil, groundwater, and soil gas at the site. Samples were collected for TPH analysis during field activities associated with this RI at the request of the RWQCB for future use in other studies. Conclusions derived from this RI focus on the evaluation of VOC constituents at the site. Conclusions from this RI are summarized below:

- Significant unidentified areas of VOC-impacted soil at the site do not appear to exist, and no apparent data gaps were identified.
- VOC concentrations in soil and groundwater have remained relatively consistent at the site over time.
- The source of VOCs detected in groundwater at SWMU 2 appears to be associated with a location upgradient of the site.
- The qualitative HHRA indicates that COPC maximum concentrations in groundwater exceed agency threshold levels of concern. Concentrations of cis-1,2-DCE; PCE; and TCE exceeded the MCLs for drinking water. Concentrations of 1,2-dichloroethane (DCA); benzene; bromodichloromethane, chloroform, PCE; and TCE exceeded EPA Region 9 tap water PRGs. No COPC maximum concentration in soil exceeded the residential PRG, and no COPC maximum concentration in groundwater exceeded the indirect exposure screening levels.
- COPECs in soil and groundwater at the site pose minimal risk to ecological receptors.
- The qualitative HHRA, along with additional evaluation using the DTSC-modified Johnson and Ettinger vapor transport model and site-specific input parameters and assumptions, indicates that significant incremental risks (defined as greater than 1E-06) are associated only with potential exposure to PCE in indoor air under a future residential land-use scenario. The potential PCE-related incremental risks are driven by soil gas concentrations measured at two locations (SG25 and SG31) located immediately adjacent to the former waste oil UST; however, incremental risks associated with potential exposure to VOCs in indoor air are all less than 1E-06

(and considered insignificant) under a future industrial land-use scenario. Finally, hazard quotients associated with potential exposure to VOCs in indoor air are less than 1 (and considered insignificant) under both future residential and industrial land-use scenarios.

## 9.3 RECOMMENDATIONS

The site is not currently used as a source of drinking water; however, because groundwater contaminant concentrations at the site exceed agency threshold levels of concern for drinking water, a focused FS is recommended.

Based on the qualitative HHRA, contaminant concentrations in soil and groundwater at the site are below published health-protective values developed considering direct exposure to soil and indirect exposure (by volatilization to air) to VOCs in groundwater.

There are no plans for development of the site for residential purposes in the future, and no significant incremental risks or hazard quotients were identified based on soil gas modeling results based on site-specific input parameters and the assumption of future industrial land use; however, because VOCs in soil gas may induce risk to human health exceeding the excess cancer risk threshold of 1E–06, a focused FS is recommended to evaluate remedial alternatives such as institutional controls and active remediation technologies.

Based on the SLERA, observed contaminant concentrations in soil and groundwater at the site pose minimal risk to ecological receptors.

Groundwater monitoring on an annual basis is recommended. This monitoring frequency is considered sufficient based on the relatively stable nature of VOC concentrations in groundwater over time and the relatively low levels of groundwater contaminants at the site. Monitoring wells MW-4 and MW-5 are damaged and should be abandoned.

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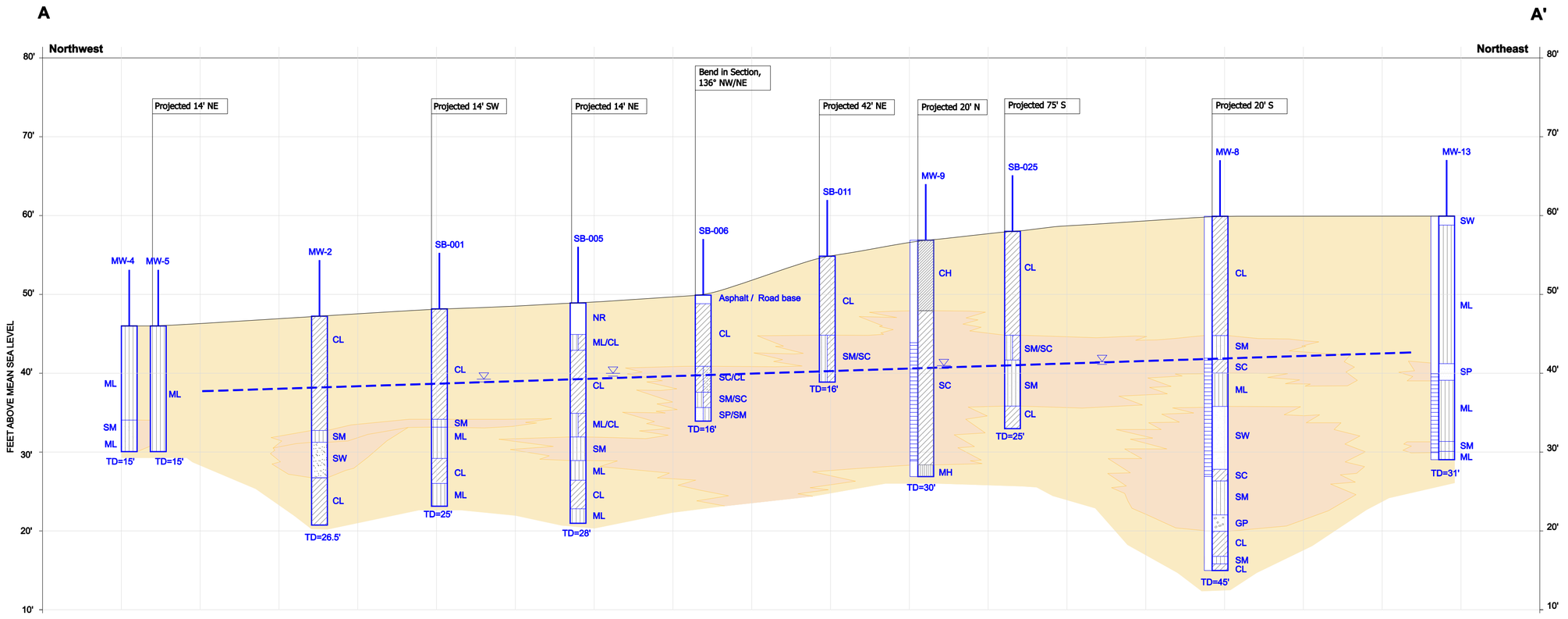
## FIGURES

Figures 1 - 8

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



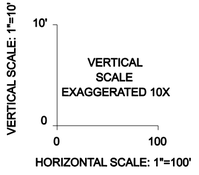

LEGEND

NR No Recovery
TD Total Depth
Groundwater Level
Screened Interval

LITHOLOGY

CH Inorganic clays of high plasticity, fat clays.
CL Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays.
GP Poorly graded gravels, gravel-sand mixtures, little or no fines.
MH Inorganic silts, micaceous or diatomaceous fine sand or silty soils.
ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity.
SC Clayey sands, sand-clay mixtures.
SM Silty sands, sand-silt mixtures.
SP Poorly graded sands, gravelly sands, little or no fines.
SW Well-graded sands, gravelly sands, little or no fines.

Silts and clays
Sands with silts and clays




NOTES:

Groundwater level information is projected from data presented in Figure 15 "Site Potentiometric Surface Map SWMUS 2, 5, 7, and 18 Remedial Investigation (March 2002).

Ground surface elevations of soil borings are approximated.

This hydrogeologic cross-section is based on interpretation of borings. Actual conditions may vary

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

ENGINEERING FIELD ACTIVITY WEST

DALY CITY, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT CONCORD

FIGURE 9
HYDROGEOLOGIC CROSS-SECTION A-A'

SWMUs 2, 5, 7, AND 18 REMEDIAL INVESTIGATION

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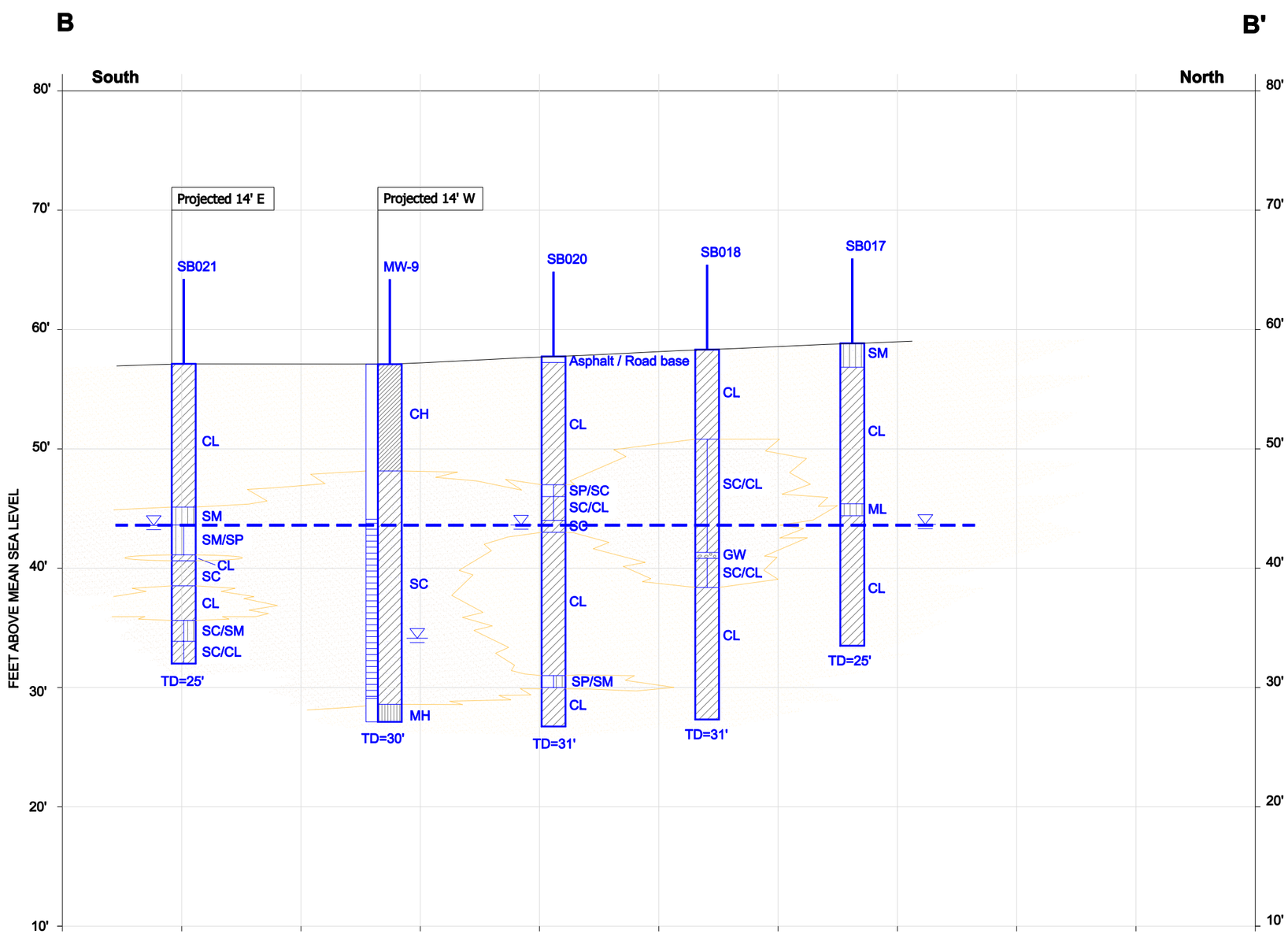
6/10/2004




LEGEND

TD Total Depth

Groundwater Level

Screened Interval

LITHOLOGY

CH = Inorganic clays of high plasticity, fat clays.

CL = Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays.

GW = Well-graded gravels, gravel-sand mixtures, little or no fines.

MH = Inorganic silts, micaceous or diatomaceous fine sand or silty soils.

ML = Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity.

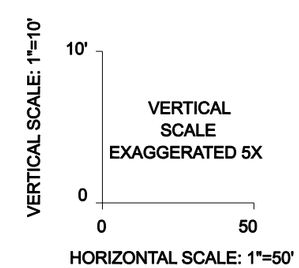
SC = Clayey sands, sand-clay mixtures.

SM = Silty sands, sand-silt mixtures.

SP = Poorly graded sands, gravelly sands, little or no fines.

Silts and clays

Sands with silts and clays




NOTES:

Groundwater level information is projected from data presented in Figure 15 "Site Potentiometric Surface Map SWMUS 2, 5, 7, and 18 Remedial Investigation (March 2002).

Ground surface elevations of soil borings are approximated.

This hydrogeologic cross-section is based on interpretation of borings. Actual conditions may vary

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

ENGINEERING FIELD ACTIVITY WEST

DALY CITY, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT CONCORD

FIGURE 10
HYDROGEOLOGIC CROSS-SECTION B-B'

SWMUs 2, 5, 7, AND 18 REMEDIAL INVESTIGATION

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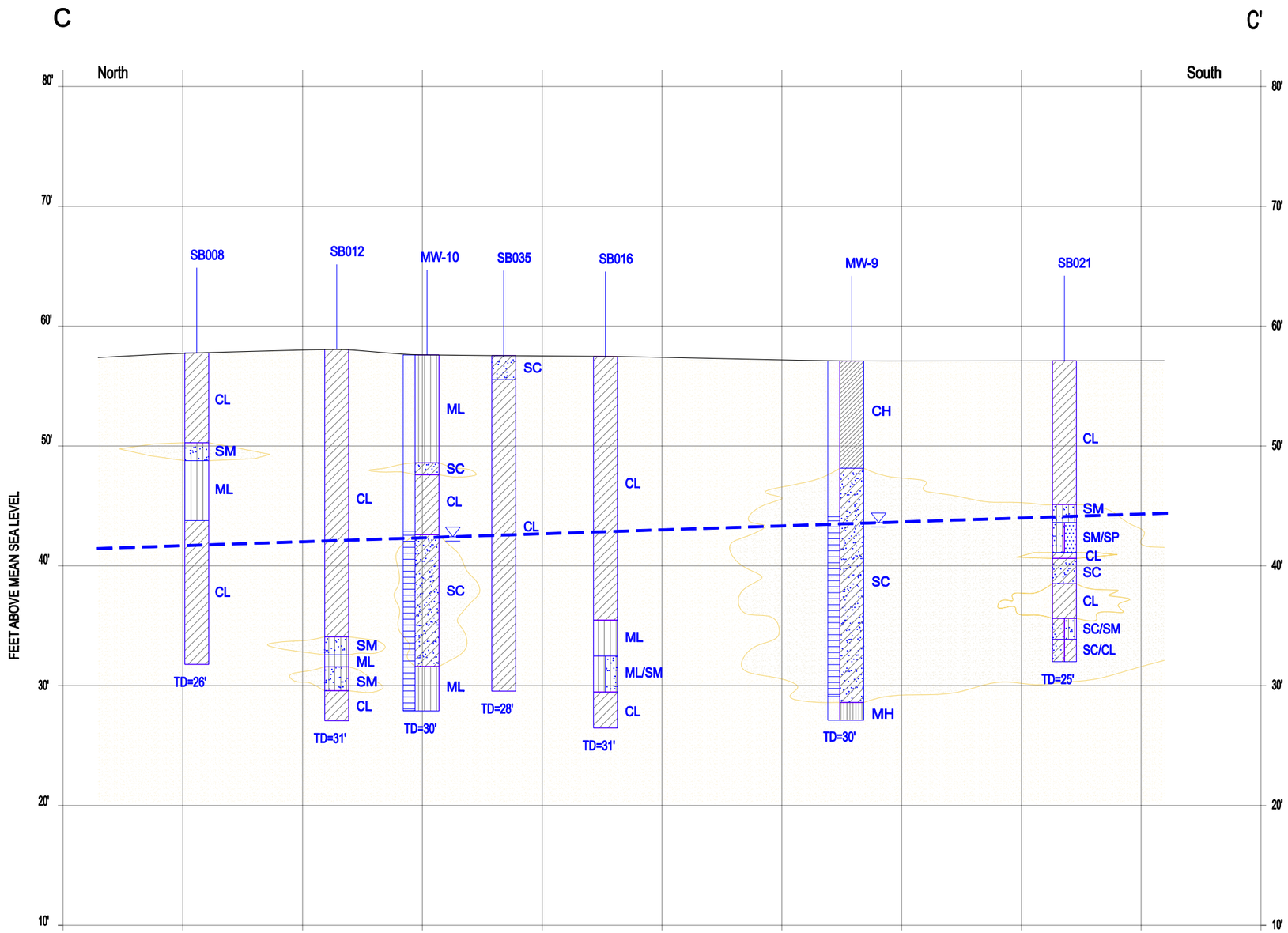



LEGEND

TD Total Depth

Groundwater Level

Screened Interval

LITHOLOGY

CH Inorganic clays of high plasticity, fat clays.

CL Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays.

MH Inorganic silts, micaceous or diatomaceous fine sand or silty soils.

ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity.

SC Clayey sands, sand-clay mixtures.

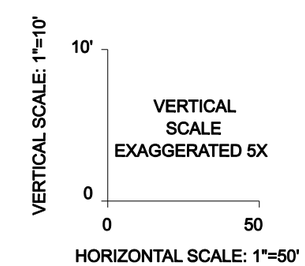
SM Silty sands, sand-silt mixtures.

SP Poorly graded sands, gravelly sands, little or no fines.

Silts and clays

Sands with silts and clays

Note:
Groundwater elevations measured in wells MW-9 and MW-10 on March 5 and 6, 2002.




NOTES:

Groundwater level information is projected from data presented in Figure 15 "Site Potentiometric Surface Map SWMUS 2, 5, 7, and 18 Remedial Investigation (March 2002).

Ground surface elevations of soil borings are approximated.

This hydrogeologic cross-section is based on interpretation of borings. Actual conditions may vary

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND

ENGINEERING FIELD ACTIVITY WEST

DALY CITY, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT CONCORD

FIGURE 11
HYDROGEOLOGIC CROSS-SECTION C-C'

SWMUs 2, 5, 7, AND 18 REMEDIAL INVESTIGATION

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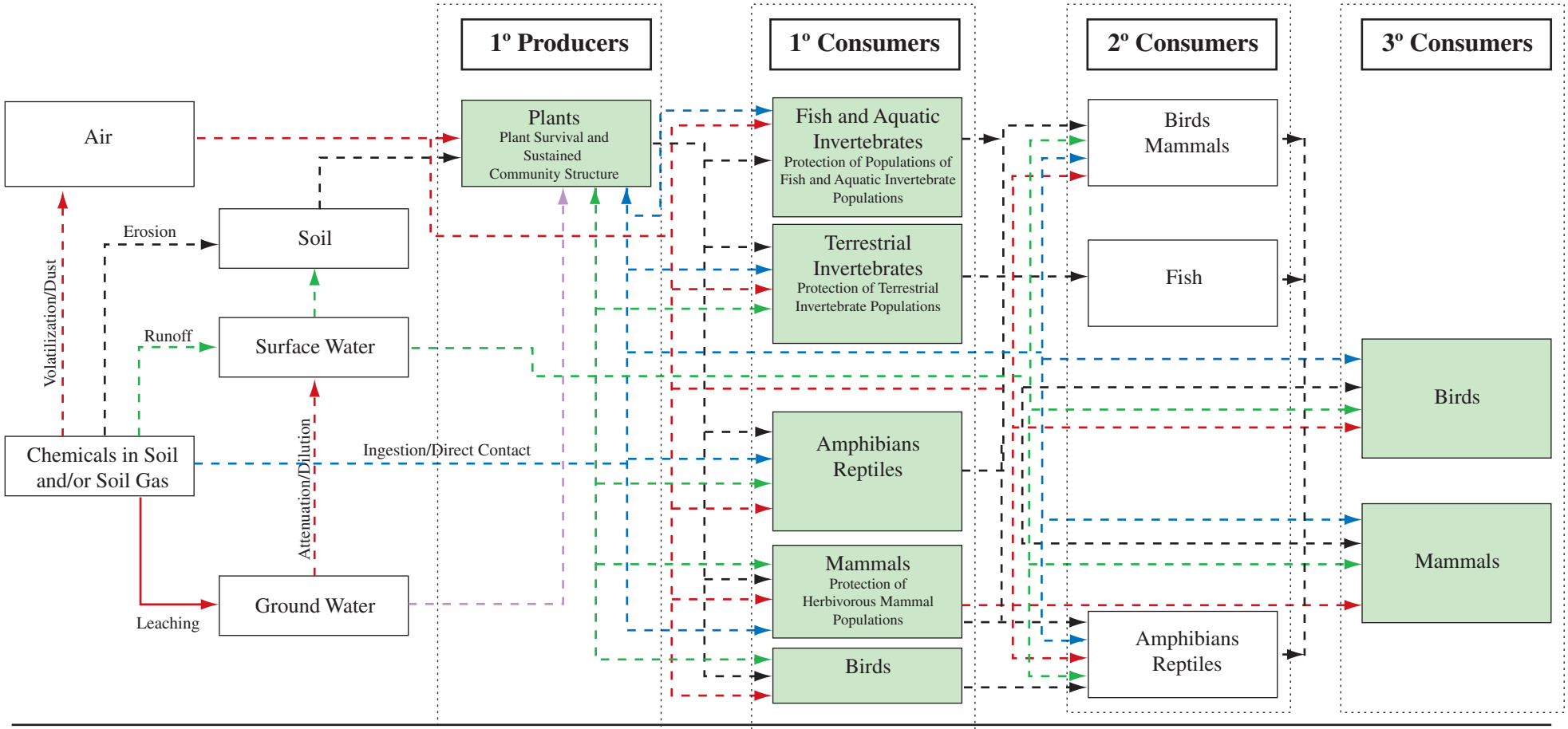
Figures 12 - 23

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




Comparison of groundwater concentrations of chemicals of ecological concern to ecotoxicity screening values for plants.

Comparison of groundwater concentrations of chemicals of ecological concern to ecotoxicity screening values for fish and aquatic invertebrates.

Comparison of groundwater concentrations of chemicals of ecological concern to ecotoxicity screening values for herbivorous mammals.

Comparison of groundwater concentrations of chemicals of ecological concern to ecotoxicity screening values for terrestrial invertebrates.

Measurement Endpoint(s)

LEGEND

- Air Pathway
- Groundwater Pathway
- Surface Water Pathway
- Direct Contact/Soil Ingestion Pathway
- Food Ingestion Pathway
- (All Colors) Incomplete or Minor Pathway
- Assessment Endpoints

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

ENGINEERING FIELD ACTIVITY WEST

DALY CITY, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT CONCORD

FIGURE 24

ECOLOGICAL SITE CONCEPTUAL MODEL

SWMUs 2,5,7, AND 18 REMEDIAL INVESTIGATION

# TABLES

# TABLE 1
# ANALYTICAL METHODS
# SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Method Procedure | Laboratory Container | Data Use |
|---|---|---|---|
| **Field Testing Methods** | | | |
| Dissolved oxygen | Field test kit using the Winkler titration technique | NA | Concentrations less than 1 mg/L generally indicate anaerobic conditions. Certain technologies are more efficient in anaerobic environments. |
| pH, conductivity, temperature | Field test kit | 100 mL plastic | Monitors stabilization of parameters for sampling formation water |
| Hydrogen sulfide | Field indicator test | NA | Presence indicates possible anaerobic environment. |
| Ferrous iron | Field indicator test | NA | May indicate an anaerobic degradation process due to depletion of oxygen , nitrate, and manganese. |
| Oxidation-reduction potential | Field meter with ORP probe | NA | Influences and is influenced by the nature of biologically mediated degradation of contaminants. Certain remedial technologies are more efficient in lower ORP environments. |
| **Laboratory Analytical Methods** | | | |
| Total petroleum hydrocarbons as diesel | EPA 3510/8015 | 1 amber liter glass | Extractable range petroleum hydrocarbon |
| Total petroleum hydrocarbons as gasoline | EPA 5030/8015 | 40 ml VOA | Purgable range volatile petroleum hydrocarbons using GC/FID |
| BTEX, MTBE, and other VOCs | EPA 8260B | 40 ml VOA | VOC analysis using GC/MS |
| Sulfate (as sulfur) | EPA 300.0 (IC) | 100 ml plastic | Standard inorganic parameter measured in groundwater and a substrate for anaerobic microbial respiration if oxygen is depleted. Required for calculating ion balance of groundwater. |
| Nitrite (as nitrogen) | EPA 300.0 (IC) | 100 ml plastic | Presence indicates anaerobic environment. |
| Nitrate (as nitrogen) | EPA 300.0 (IC) | 100 ml plastic | Substrate for microbial respiration if oxygen is depleted. Required for calculating ion balance of groundwater. |
| Ferric iron | EPA 200.7 or 6010A | 500 ml plastic | Standard inorganic parameter measured in groundwater. Required for calculating ion balance of groundwater. |
| Manganese | EPA 200.7 or 6010A | 500 ml plastic | Standard inorganic parameter measured in groundwater. Required for calculating ion balance of groundwater. |
| Dissolved methane | EPA 8260B | 40 ml VOA | Helps determine whether methane is being produced in an anaerobic environment. |

Notes:

| | |
|---|---|
| BTEX | Benzene, toluene, ethylbenzene, total xylenes |
| EPA | U.S. Environmental Protection Agency |
| GC | Gas chromatography |
| GC/FID | Gas chromatography with flame ionization detector |
| GC/MS | Gas chromatography/mass spectrometry |
| mg/L | Milligrams per liter |
| mL | Milliliter |
| MTBE | Methyl tertiary butylether |
| NA | Not applicable |
| ORP | Oxygen-reduction potential |
| VOA | Volatile organic analysis |
| VOC | Volatile organic compound |

# TABLE 2

## DATA QUALITY OBJECTIVES IDENTIFICATION PROCESS, SOIL AND GROUNDWATER SAMPLING
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| **State the Problem** | **Identify the Decisions** | **Identify Inputs to the Decisions** | **Define Study Boundaries** | **Develop Decision Rules** | **Specify Tolerable Limits on Error** | **Optimize Sampling Design** |
| **Stakeholders:**<br>Navy, regulatory agencies, restoration advisory board (RAB)<br><br>**Site History/Conceptual Site Model:**<br>Solid Waste Management Units (SWMU) 2, 5, 7 and 18 are located in the Inland portion of Naval Weapons Station Seal Beach Detachment (SBD) Concord, adjacent to Seal Creek, and feature numerous buildings of various uses, railroad tracks, locomotive steam cleaning area, several locations of former underground storage tanks (USTs).<br><br>Suspected or potential contamination includes total petroleum hydrocarbons (TPH), and volatile organic compounds (VOC), which may have been released to the environment through the floor drains and the industrial wastewater system during operations and transported via the buried utility corridors, railroad and or motorcade.<br><br>Potential exposure pathways: commercial and industrial workers could come into direct contact with contaminated soils at this site or be exposed to VOCs via inhalation of indoor air (sources of VOCs to indoor air include both contaminated soil and groundwater). Although groundwater is not currently used as a drinking water source, it is possible that groundwater on site could be used as a drinking water source in the future. Ecological receptors may be exposed to contaminated groundwater discharging into Seal Creek or contamination in surface soils (0 to 3 feet below ground surface).<br><br>**Problem Statement:**<br>Chemicals were detected within the site area during several phases of investigation. A data gap assessment indicated that the nature and extent of contamination had not been fully characterized.<br><br>An assessment is needed to adequately characterize the nature and extent of total TPH and VOCs. In addition, human health and ecological risks need to be assessed to evaluate whether remediation may be necessary. | **Study Questions:**<br>Characterization:<br>Is the extent of contamination in soil and groundwater adequately characterized?<br><br>Human Health and Ecological Risk Assessment:<br>Are human health and/or ecological risks of a magnitude warranting an evaluation of remedial alternatives?<br><br>**Alternative Actions:**<br>Characterization:<br>• Sufficient data have been collected to characterize the contamination both laterally and vertically; sampling is complete.<br><br>• Sufficient data have not been collected to characterize the site; additional sampling is necessary.<br><br>Human Health and Ecological Risk Assessment:<br>• Human health and/or ecological risk levels are not sufficiently high to warrant an evaluation of remedial alternatives in a feasibility study.<br><br>• The estimated magnitude of human health and/or ecological risk is sufficiently high to warrant an evaluation of remedial alternatives in a feasibility study.<br><br>**Decision Statements:**<br>Characterization:<br>Evaluate whether the site has been adequately characterized to define lateral and vertical extent of contamination, and collect additional data (if necessary).<br><br>Human Health and Ecological Risk Assessment:<br>Evaluate the magnitude of human health risk and evaluate the ecological risk to assess whether remedial alternatives should be evaluated in a feasibility study. | **Inputs to Make Decisions:**<br>Site history and physiography<br><br>Data from previous investigations including the Phase I/II remedial investigations (RIs), IR14, and removal action investigations<br><br>Geologic and hydrogeologic data<br><br>Chemical and physical data for soil and groundwater<br><br>Applicable or relevant and appropriate requirements (ARAR)<br><br>Physical and chemical properties of identified chemical contaminants<br><br>Chemical toxicity data<br><br>Exposure scenarios and pathways for receptors of concern (human and ecological)<br><br>Results of Fate and Transport Modeling<br><br>Results of human health and ecological risk assessments<br><br>**Criteria for Choosing Between Alternative Actions:**<br><br>Characterization Criteria:<br>Professional judgment and consensus<br><br>Human Health and Ecological Risk Assessment Criteria:<br>Federal Regulations (CERCLA) | **Spatial Boundary:**<br>The site includes only the Inland area of the Naval Weapons Station SBD Concord and is bounded by Seal Creek to the south and steep hills to the north.<br><br>To evaluate risk to human health, the Inland area has been divided into SWMUs. SWMUs 2, 5, 7 and 18 to focus of the analysis.<br><br>**Temporal Boundary:**<br>The temporal boundaries of the data set extend from the beginning of Navy activities to the date of the most recent collection of field data. Data have been collected from 1987 to March 2002.<br><br>The temporal boundaries of the risk assessment extend from the beginning of Navy activities to an undetermined future time (based on anticipated future use as an industrial site).<br><br>**Scale of Decision Making:**<br>Characterization:<br>Consider data from the surface to the maximum vertical extent of affected soil and the groundwater beneath the site.<br><br>Human Health Risk Assessment:<br>Soil from the surface to 14 feet below ground surface (bgs) will be considered for future resident, construction worker, and commercial/industrial worker scenarios, and soil from the surface to 3 feet bgs will be considered for current commercial/ industrial worker scenarios.<br><br>Ecological Risk Assessment:<br>Potential contribution of affected groundwater to receptors in Seal Creek and Suisan Bay (downsteam) will be considered. | **Action Levels:**<br>Characterization Criteria:<br>• U.S. Environmental Protection Agency Preliminary Remediation Goals<br>• Ambient levels for metals<br>• Professional judgment and consensus<br><br>Human Health Risk Criteria:<br>• Target excess cancer risk level of $1 \times 10^{-6}$<br>• Hazard index of 1 (total or segregated)<br>• Blood-lead levels of 10 micrograms per deciliter (µg/dl)<br><br>Ecological Risk Criteria:<br>• Aquatic water quality criteria (AWQC)<br><br>**Decision Rules:**<br>Characterization:<br>If constituents are detected at concentrations exceeding the characterization criteria, and the spatial extent of contamination is bounded by concentrations below the criteria, then the contamination has been characterized.<br><br>If constituents are detected at concentrations exceeding the characterization criteria, and the spatial extent of contamination is not bounded by concentrations below the criteria, then additional sampling may be required.<br><br>Human Health Risk:<br>If the estimated human health risk exceeds the human health risk criteria (excess cancer risk greater than $1 \times 10^{-6}$), an evaluation of remedial alternatives in a feasibility study is warranted.<br><br>If the estimated human health risk is less than the criteria (excess cancer risk less than $1 \times 10^{-6}$), no further action will be recommended.<br><br>If the human health cancer risk estimate is between $1 \times 10^{-4}$ and $1 \times 10^{-6}$, site-specific exposure scenarios will be considered and risk management decisions will be required to evaluate remedial action recommendations and the scope of a feasibility study.<br><br>Ecological Risk:<br>If contaminant concentrations in groundwater are anticipated to exceed AWQCs at the point of exposure, remedial action will be considered in a feasibility study.<br><br>If contaminant concentrations in groundwater are not anticipated to exceed AWQCs at the point of exposure, no remedial action for groundwater will be considered. | **Characterization:**<br>Whether the site has been adequately characterized is a yes/no decision; the types and numbers of samples collected at the site should be such that, based upon professional judgment, there is a very low probability that the site will be recommended for no further action if it poses unacceptable risks to human health or to the environment (risk criteria defined in Step 5).<br><br>**Human Health Risk:**<br>Whether a feasibility study will be performed to evaluate remedial alternatives protective of human health is a yes-no decision; Environmental Protection Agency (EPA) guidance and professional judgment provide tolerable limits on error.<br><br>**Ecological Risk:**<br>Whether a feasibility study will be performed to evaluate remedial alternatives protective of ecological health is a yes-no decision; EPA guidance and professional judgment provide tolerable limits on error. | **General Data Collection Design:**<br>Soil, grab groundwater, and monitoring well groundwater samples were collected during the remedial investigation.<br><br>During the initial remedial investigation, soil and grab groundwater samples were collected from a total of 32 soil borings and groundwater samples were collected from 15 monitoring wells.<br><br>During the data gap investigation, 7 additional sample locations were chosen in SWMUs 5, 7, and 18 to assess the lateral and vertical extent of affected areas identified during prior investigations. One location was north of Building IA 46, one location was between Buildings IA-15 and IA- 38, and five borings were located in the central area of SWMU 5, surrounding Building IA-43 and the active steam cleaning area.<br><br>**Design Optimization:**<br>The degree to which the sampling objectives have been met was reviewed prior to the data gap sampling. Additional sampling was proposed and conducted in accordance with regulatory agency review and recommendations. |

# TABLE 3

## DATA QUALITY OBJECTIVES IDENTIFICATION PROCESS, SOIL GAS SAMPLING SOIL GAS INVESTIGATION AT SWMU SITES 1, 2, 5, 7, AND 18, NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| |
|---|
| **STEP 1: State the Problem** |
| VOCs were detected in groundwater during previous investigations of the Site at concentrations exceeding the MCL. Soil sampling conducted in the area did not reveal a source for this groundwater contamination. |
| **STEP 2: Identify the Decisions** |
| Is a source of VOC contamination present in shallow soil at concentrations sufficient to impact groundwater in the vicinity of SWMU Sites 1, 2, 5, 7, and 18 and is this contamination at a concentration that poses an unacceptable risk to human health? |
| **STEP 3: Identify Inputs to the Decisions** |
| • Analytical results for VOCs in soil gas and soil at SWMU Sites 1, 2, 5, 7, and 18.<br>• Appropriate screening criteria.<br>• Review of historical information.<br>• Hydrogeologic information. |
| **STEP 4: Define Study Boundaries** |
| • The lateral extent of the study area is the area contained within Figure 1.<br>• The vertical extent of the shallow soil gas survey extends from the soil surface down to 10 feet bgs.<br>• Temporal boundaries extend through the period of performance of the task order. |
| **STEP 5: Develop Decision Rules** |
| If VOCs are detected in soil gas samples at concentrations exceeding the screening criteria (50µg/m$^3$ for mobile laboratory, Table 15 for fixed laboratory), then a second phase of step-out soil gas sampling will be considered to delineate the possible source of contamination and whether the concentrations pose an unacceptable risk to human health. Otherwise, no further investigation will be required. |
| **STEP 6: Specify Tolerable Limits on Decision Errors** |
| Site-specific sampling objectives and the media being investigated limit the use of statistical methods in selecting sampling locations for this investigation. Sampling locations will be based on prior knowledge of site history and existing soil and groundwater data. Tolerable limits on decision errors cannot be precisely defined. |
| **STEP 7: Optimize the Sampling Design** |
| Sampling locations were selected based on site history; therefore, sampling locations are judgmentally placed. A mobile laboratory will be used to efficiently screen the identified target areas. Step-out samples may be necessary if detects exceeding the screening criteria are encountered. Confirmation samples will be analyzed by a fixed laboratory capable of achieving reporting limits low enough for comparison to accepted regulatory screening criteria. |

Notes:

bgs Below ground surface
EPA U.S. Environmental Protection Agency
MCL Maximum contaminant level
PRG Preliminary remediation goal

## TABLE 4

## WELL CONSTRUCTION DETAILS
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Monitoring Well Number | Date Well Installed | Survey Coordinates | | Reference Elevation [a] (feet above msl) | Total Boring Depth (feet bgs) | Casing Diameter (inches) | Total Casing Length (feet bgs) | Screened Interval [b] (feet bgs) | Filter Pack Interval (feet bgs) | Bentonite Seal Interval (feet bgs) | Field-Measured Well Depth [c] (feet below toc) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Northing | Easting | | | | | | | | |
| MW-1 [d] | --- | 555134.0 | 1563915 | --- | 37 | 4 | --- | --- | --- | --- | 37 |
| MW-2 | --- | 555034.0 | 1564079.0 | 50.0 | --- | 2 | --- | --- | --- | --- | 26.3 |
| MW-3 | --- | 554974.0 | 1563924.0 | 46.2 | --- | 2 | --- | --- | --- | --- | 21 |
| MW-4 [e] | --- | 555173.0 | 1563834.0 | --- | --- | 4 | --- | --- | --- | --- | --- |
| MW-5 [e] | --- | 555148.0 | 1563889.0 | --- | --- | 4 | --- | --- | --- | --- | --- |
| MW-6 | --- | 555092.0 | 1563964.0 | 51.7 | --- | 4 | --- | --- | --- | --- | 30.1 |
| MW-7 | 28-Jan-99 | 554943.8 | 1565101.8 | 61.9 | 30 | 2 | 30 | 20 to 30 | 19 to 30 | 17 to 19 | 29.6 |
| MW-8 | 27-Jan-99 | 554830.2 | 1565124.7 | 60.7 | 45 | 2 | 33 | 18 to 33 | 17 to 33 | 15 to 17 | 31.3 |
| MW-9 | 01-Feb-99 | 554812.0 | 1564754.6 | 57.2 | 30 | 2 | 28 | 13 to 28 | 12 to 30 | 11 to 12 | 27.6 |
| MW-10 | 01-Feb-99 | 554973.6 | 1564681.1 | 58.2 | 30 | 2 | 30 | 15 to 30 | 14 to 30 | 13 to 14 | 29.5 |
| MW-11 | 02-Feb-99 | 554823.4 | 1564182.0 | 49.4 | 18.5 | 2 | 18.5 | 8.5 to 18.5 | 7.5 to 18.5 | 6.5 to 7.5 | 18.2 |
| MW-12 | 03-Feb-99 | 554645.5 | 1565204.8 | 60.9 | 34 | 2 | 34 | 24 to 34 | 23 to 34 | 22 to 23 | 29.53 |
| MW-13 | 26-Jan-99 | 554899.0 | 1565407.7 | 64.3 | 31 | 2 | 31 | 20 to 31 | 20 to 31 | 19 to 20 | 30.5 |
| MW-14 | 02-Feb-99 | 554979.6 | 1563500.2 | 43.2 | 20 | 2 | 20 | 7 to 20 | 6 to 20 | 5 to 6 | 19.99 |
| MW178-5 | --- | 554438.0 | 1563820.0 | 54.9 | 31 | 2 | --- | --- | --- | --- | 31.2 |
| MWIA-17 | 31-Aug-91 | 554991.0 | 1564872.0 | 60.5 | 30.17 | 4 | 30 | 15 to 30 | 13.5 to 30.17 | 12 to 13.5 | 28.11 |
| Golf Course Well | --- | --- | --- | --- | --- | 12 | 200 | --- | --- | --- | 200.0 |

Notes:

Reference elevation represents elevation of reference mark on top of PVC riser on groundwater monitoring wells. Elevations for MW-2, MW-3, MW-6, MW178-5, and MWIA-17 were determined from NFEC 1985.

| | |
|---|---|
| a | Elevation of the top of casing based Contra Costa County Benchmark (1929 NGVD) |
| b | Well screen slot size not reported |
| c | Measured on 02/11/02 by LFR field personnel |
| d | Abandoned |
| e | Partially filled with gravel; no longer in use |
| --- | Well completion and survey information not available |
| bgs | below ground surface |
| LFR | LFR Levine-Fricke |
| msl | mean sea level |
| toc | top of casing |

## TABLE 5

## GROUNDWATER ELEVATIONS IN MONITORING WELLS
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Well Number | Date Measured | Reference Elevation [a] | Well Depth (feet toc) | Depth to Water (feet toc) | Groundwater Elevation (feet msl) |
|---|---|---|---|---|---|
| MW-2 | 05-Mar-02 | 50.0 | 26.3 | 8.35 | 41.65 |
| MW-3 | 06-Mar-02 | 46.2 | 21 | 6.80 | 39.4 |
| MW-6 | 06-Mar-02 | 51.7 | 30.1 | 8.68 | 43.02 |
| MW-7 | 05-Mar-02 | 61.9 | 29.6 | 16.68 | 45.22 |
| MW-8 | 05-Mar-02 | 60.7 | 31.3 | 15.23 | 45.47 |
| MW-9 | 05-Mar-02 | 57.2 | 27.6 | 13.61 | 43.59 |
| MW-10 | 05-Mar-02 | 58.2 | 29.5 | 15.57 | 42.63 |
| MW-11 | 06-Mar-02 | 49.4 | 18.2 | 9.06 | 40.34 |
| MW-12 | 06-Mar-02 | 60.9 | 33.4 | 13.61 | 47.29 |
| MW-13 [b] | 05-Mar-02 | 64.3 | 30.5 | 0 | 64.3 |
| MW-14 | 05-Mar-02 | 43.2 | 38 | 6.36 | 36.84 |
| MW178-5 | 06-Mar-02 | 54.9 | 31.2 | 12.32 | 42.58 |
| MWIA-17 | 05-Mar-02 | 60.5 | 28.11 | 16.63 | 43.87 |
| Golf Course Well | 06-Mar-02 | --- | 200 | --- | --- |

Notes:

Reference elevation represents elevation of reference mark on top of polyvinyl chloride riser on groundwater monitoring wells. Elevations for MW-2, MW-3, MW-6, MW178-5, and MWIA-17 were determined from NFEC 1985; information from this source was not sufficient to contour potentiometric surfaces.

| | |
|---|---|
| a | Elevation of the top of casing based on Contra Costa County Benchmark (1929 NGVD) |
| b | MW-13 is a flowing artesian well; the water level rose above the top of casing. |
| --- | Water levels and survey information not available |
| msl | mean sea level |
| toc | top of casing |

**TABLE 6**

**LIST OF SAMPLING LOCATIONS AND ANALYSES PERFORMED**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| Location | Field Sample ID or Depth (ft bgs) | Sample Matrix | Date Sampled | Natural Attenuation Parameters | TPH | VOCs |
|---|---|---|---|---|---|---|
| BLDG 178-5 | 32401GW204 | Water | 06-Mar-02 | X | NA | NA |
| GOLF COURSE | 32401GW201 | Water | 06-Mar-02 | X | NA | NA |
| MW-2 | 32402GW193 | Water | 05-Mar-02 | X | X | NA |
| MW-3 | 32401GW202 | Water | 06-Mar-02 | X | NA | NA |
| MW6 | 32401GW205 | Water | 06-Mar-02 | X | NA | NA |
| MW-7 | 32405GW191 | Water | 05-Mar-02 | X | X | NA |
| MW-8 | 32405GW192 | Water | 05-Mar-02 | X | X | NA |
| MW-9 | 32405GW197 | Water | 05-Mar-02 | X | NA | NA |
| MW-10 | 32405GW196 | Water | 05-Mar-02 | X | X | NA |
| MW-11 | 32402GW203 | Water | 06-Mar-02 | X | NA | NA |
| MW-12 | 32418GW206 | Water | 06-Mar-02 | X | NA | NA |
| MW-13 | 32418GW199 | Water | 06-Mar-02 | X | X | NA |
| MW-14 | 32401GW200 | Water | 06-Mar-02 | X | X | NA |
| MW-1A17 | 32405GW195 | Water | 05-Mar-02 | X | X | NA |
| SB001 | 32402GW010 | Water | 19-Feb-02 | NA | X | X |
| | 32402SB002 | Soil | 19-Feb-02 | NA | X | X |
| | 32402SB003 | Soil | 19-Feb-02 | NA | X | X |
| | 32402SB004 | Soil | 19-Feb-02 | NA | X | X |
| | 32402SB005 | Soil | 19-Feb-02 | NA | X | X |
| SB002 | 32402GW170 | Water | 01-Mar-02 | NA | NA | X |
| | 32402SB166 | Soil | 01-Mar-02 | NA | X | X |
| | 32402SB167 | Soil | 01-Mar-02 | NA | X | X |
| | 32402SB168 | Soil | 01-Mar-02 | NA | X | X |
| | 32402SB169 | Soil | 01-Mar-02 | NA | X | X |
| SB003 | 32402GW053 | Water | 22-Feb-02 | NA | NA | X |
| | 32402SB014 | Soil | 20-Feb-02 | NA | X | X |
| | 32402SB015 | Soil | 20-Feb-02 | NA | X | X |
| | 32402SB016 | Soil | 20-Feb-02 | NA | X | X |
| | 32402SB017 | Soil | 20-Feb-02 | NA | X | X |
| SB004 | 32402GW161 | Water | 01-Mar-02 | NA | NA | X |
| | 32402SB154 | Soil | 28-Feb-02 | NA | X | X |
| | 32402SB155 | Soil | 28-Feb-02 | NA | X | X |
| | 32402SB156 | Soil | 28-Feb-02 | NA | X | X |
| | 32402SB157 | Soil | 28-Feb-02 | NA | X | X |

**TABLE 6 (Continued)**

**LIST OF SAMPLING LOCATIONS AND ANALYSES PERFORMED**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| Location | Field Sample ID or Depth (ft bgs) | Sample Matrix | Date Sampled | Natural Attenuation Parameters | TPH | VOCs |
|---|---|---|---|---|---|---|
| SB005 | 32402GW011 | Water | 20-Feb-02 | NA | NA | X |
| | 32402SB006 | Soil | 19-Feb-02 | NA | X | X |
| | 32402SB007 | Soil | 19-Feb-02 | NA | X | X |
| | 32402SB008 | Soil | 19-Feb-02 | NA | X | X |
| | 32402SB009 | Soil | 19-Feb-02 | NA | X | X |
| SB006 | 32402GW027 | Water | 20-Feb-02 | NA | NA | X |
| | 32402SB018 | Soil | 20-Feb-02 | NA | X | X |
| | 32402SB019 | Soil | 20-Feb-02 | NA | X | X |
| | 32402SB020 | Soil | 20-Feb-02 | NA | X | X |
| | 32402SB021 | Soil | 20-Feb-02 | NA | X | X |
| SB007 | 32402GW171 | Water | 01-Mar-02 | NA | NA | X |
| | 32402SB162 | Soil | 01-Mar-02 | NA | X | X |
| | 32402SB163 | Soil | 01-Mar-02 | NA | X | X |
| | 32402SB164 | Soil | 01-Mar-02 | NA | X | X |
| | 32402SB165 | Soil | 01-Mar-02 | NA | X | X |
| SB008 | 32405SB032 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB033 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB034 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB035 | Soil | 21-Feb-02 | NA | X | X |
| SB009 | 32405GW103 | Water | 26-Feb-02 | NA | X | X |
| | 32405SB094 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB095 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB096 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB097 | Soil | 25-Feb-02 | NA | X | X |
| SB010 | 32405GW124 | Water | 27-Feb-02 | NA | NA | X |
| | 32405SB116 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB117 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB118 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB119 | Soil | 26-Feb-02 | NA | X | X |
| SB011 | 32402SB022 | Soil | 20-Feb-02 | NA | X | X |
| | 32405GW030 | Water | 21-Feb-02 | NA | NA | X |
| | 32405GW031 | Water | 21-Feb-02 | NA | NA | X |
| | 32405SB023 | Soil | 20-Feb-02 | NA | X | X |
| | 32405SB024 | Soil | 20-Feb-02 | NA | X | X |
| | 32405SB025 | Soil | 20-Feb-02 | NA | X | X |

**TABLE 6 (Continued)**

**LIST OF SAMPLING LOCATIONS AND ANALYSES PERFORMED**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| Location | Field Sample ID or Depth (ft bgs) | Sample Matrix | Date Sampled | Natural Attenuation Parameters | TPH | VOCs |
|---|---|---|---|---|---|---|
| SB012 | 32405GW123 | Water | 27-Feb-02 | NA | X | X |
| | 32405SB112 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB113 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB114 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB115 | Soil | 26-Feb-02 | NA | X | X |
| SB013 | 32405GW121 | Water | 26-Feb-02 | NA | NA | X |
| | 32405SB108 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB109 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB110 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB111 | Soil | 26-Feb-02 | NA | X | X |
| SB014 | 32405GW080 | Water | 25-Feb-02 | NA | X | X |
| | 32405SB038 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB039 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB040 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB041 | Soil | 21-Feb-02 | NA | X | X |
| SB015 | 32405GW120 | Water | 26-Feb-02 | NA | X | X |
| | 32405SB104 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB105 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB106 | Soil | 26-Feb-02 | NA | X | X |
| | 32405SB107 | Soil | 26-Feb-02 | NA | X | X |
| SB016 | 32405GW102 | Water | 26-Feb-02 | NA | X | X |
| | 32405SB090 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB091 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB092 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB093 | Soil | 25-Feb-02 | NA | X | X |
| SB017 | 32405SB042 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB043 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB044 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB045 | Soil | 21-Feb-02 | NA | X | X |
| SB018 | 32405GW099 | Water | 25-Feb-02 | NA | X | X |
| | 32405SB081 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB082 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB083 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB084 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB089 | Soil | 25-Feb-02 | NA | NA | X |

**TABLE 6 (Continued)**

**LIST OF SAMPLING LOCATIONS AND ANALYSES PERFORMED**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| Location | Field Sample ID or Depth (ft bgs) | Sample Matrix | Date Sampled | Natural Attenuation Parameters | TPH | VOCs |
|---|---|---|---|---|---|---|
| SB019 | 32405GW098 | Water | 25-Feb-02 | NA | X | X |
| | 32405SB085 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB086 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB087 | Soil | 25-Feb-02 | NA | X | X |
| | 32405SB088 | Soil | 25-Feb-02 | NA | X | X |
| SB020 | 32405GW070 | Water | 22-Feb-02 | NA | NA | X |
| | 32405GW074 | Water | 22-Feb-02 | NA | X | NA |
| | 32405GW075 | Water | 22-Feb-02 | NA | X | NA |
| | 32405SB061 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB062 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB063 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB064 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB065 | Soil | 22-Feb-02 | NA | X | X |
| SB021 | 32405GW142 | Water | 28-Feb-02 | NA | X | X |
| | 32405SB129 | Soil | 27-Feb-02 | NA | X | X |
| | 32405SB130 | Soil | 27-Feb-02 | NA | X | X |
| | 32405SB131 | Soil | 27-Feb-02 | NA | X | X |
| | 32405SB132 | Soil | 27-Feb-02 | NA | X | X |
| SB022 | 32405GW054 | Water | 22-Feb-02 | NA | NA | X |
| | 32405SB046 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB047 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB048 | Soil | 21-Feb-02 | NA | X | X |
| | 32405SB049 | Soil | 21-Feb-02 | NA | X | X |
| SB023 | 32405GW071 | Water | 22-Feb-02 | NA | NA | X |
| | 32405GW071A | Water | 22-Feb-02 | NA | X | NA |
| | 32405GW072 | Water | 22-Feb-02 | NA | NA | X |
| | 32405GW072A | Water | 22-Feb-02 | NA | X | NA |
| | 32405SB057 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB058 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB059 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB060 | Soil | 22-Feb-02 | NA | X | X |

**TABLE 6 (Continued)**

**LIST OF SAMPLING LOCATIONS AND ANALYSES PERFORMED**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| Location | Field Sample ID or Depth (ft bgs) | Sample Matrix | Date Sampled | Natural Attenuation Parameters | TPH | VOCs |
|---|---|---|---|---|---|---|
| SB024 | 32405GW073 | Water | 22-Feb-02 | NA | NA | X |
| | 32405GW073A | Water | 22-Feb-02 | NA | X | NA |
| | 32405GW073B | Water | 22-Feb-02 | NA | X | NA |
| | 32405SB066 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB067 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB068 | Soil | 22-Feb-02 | NA | X | X |
| | 32405SB069 | Soil | 22-Feb-02 | NA | X | X |
| SB025 | 32405GW143 | Water | 28-Feb-02 | NA | X | X |
| | 32405SB125 | Soil | 27-Feb-02 | NA | X | X |
| | 32405SB126 | Soil | 27-Feb-02 | NA | X | X |
| | 32405SB127 | Soil | 27-Feb-02 | NA | X | X |
| | 32405SB128 | Soil | 27-Feb-02 | NA | X | X |
| SB026 | 32405GW144 | Water | 28-Feb-02 | NA | X | X |
| | 32405SB133 | Soil | 27-Feb-02 | NA | X | X |
| | 32405SB134 | Soil | 27-Feb-02 | NA | X | X |
| | 32405SB135 | Soil | 27-Feb-02 | NA | X | X |
| | 32405SB136 | Soil | 27-Feb-02 | NA | X | X |
| SB027 | 32418GW145 | Water | 28-Feb-02 | NA | X | X |
| | 32418SB137 | Soil | 27-Feb-02 | NA | X | X |
| | 32418SB138 | Soil | 27-Feb-02 | NA | X | X |
| | 32418SB139 | Soil | 27-Feb-02 | NA | X | X |
| | 32418SB140 | Soil | 27-Feb-02 | NA | X | X |
| SB028 | 32418GW158 | Water | 28-Feb-02 | NA | NA | X |
| | 32418SB150 | Soil | 28-Feb-02 | NA | X | X |
| | 32418SB151 | Soil | 28-Feb-02 | NA | X | X |
| | 32418SB152 | Soil | 28-Feb-02 | NA | X | X |
| | 32418SB153 | Soil | 28-Feb-02 | NA | X | X |
| SB029 | 32418GW159 | Water | 28-Feb-02 | NA | NA | X |
| | 32418SB146 | Soil | 28-Feb-02 | NA | X | X |
| | 32418SB147 | Soil | 28-Feb-02 | NA | X | X |
| | 32418SB148 | Soil | 28-Feb-02 | NA | X | X |
| | 32418SB149 | Soil | 28-Feb-02 | NA | X | X |

**TABLE 6 (Continued)**

**LIST OF SAMPLING LOCATIONS AND ANALYSES PERFORMED**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| Location | Field Sample ID or Depth (ft bgs) | Sample Matrix | Date Sampled | Natural Attenuation Parameters | TPH | VOCs |
|---|---|---|---|---|---|---|
| SB030 | 32418GW188 | Water | 05-Mar-02 | X | NA | X |
| | 32418SB175 | Soil | 04-Mar-02 | NA | X | X |
| | 32418SB176 | Soil | 04-Mar-02 | NA | X | X |
| | 32418SB177 | Soil | 04-Mar-02 | NA | NA | X |
| | 32418SB178 | Soil | 04-Mar-02 | NA | NA | X |
| SB031 | 32418GW189 | Water | 05-Mar-02 | X | X | X |
| | 32418SB183 | Soil | 04-Mar-02 | NA | NA | X |
| | 32418SB184 | Soil | 04-Mar-02 | NA | X | X |
| | 32418SB185 | Soil | 04-Mar-02 | NA | NA | X |
| | 32418SB186 | Soil | 04-Mar-02 | NA | NA | X |
| SB032 | 32418GW190 | Water | 05-Mar-02 | X | X | X |
| | 32418SB179 | Soil | 04-Mar-02 | NA | NA | X |
| | 32418SB180 | Soil | 04-Mar-02 | NA | NA | X |
| | 32418SB181 | Soil | 04-Mar-02 | NA | X | X |
| | 32418SB182 | Soil | 04-Mar-02 | NA | NA | X |
| SB033 | 32405GW230 | Water | 08-Mar-02 | NA | X | X |
| | 32405SB209 | Soil | 07-Mar-02 | NA | X | X |
| | 32405SB210 | Soil | 07-Mar-02 | NA | NA | X |
| | 32405SB211 | Soil | 07-Mar-02 | NA | NA | X |
| | 32405SB212 | Soil | 07-Mar-02 | NA | X | X |
| SB034 | 32405SB213 | Soil | 07-Mar-02 | NA | X | X |
| | 32405SB214 | Soil | 07-Mar-02 | NA | X | X |
| | 32405SB215 | Soil | 07-Mar-02 | NA | X | X |
| | 32405SB216 | Soil | 07-Mar-02 | NA | X | X |
| SB035 | 32405SB217 | Soil | 07-Mar-02 | NA | NA | X |
| | 32405SB218 | Soil | 07-Mar-02 | NA | X | X |
| | 32405SB219 | Soil | 07-Mar-02 | NA | X | X |
| | 32405SB220 | Soil | 07-Mar-02 | NA | X | X |
| SB036 | 32405SB221 | Soil | 07-Mar-02 | NA | NA | X |
| | 32405SB222 | Soil | 07-Mar-02 | NA | NA | X |
| | 32405SB223 | Soil | 07-Mar-02 | NA | X | X |
| | 32405SB224 | Soil | 07-Mar-02 | NA | X | X |

**TABLE 6 (Continued)**

**LIST OF SAMPLING LOCATIONS AND ANALYSES PERFORMED**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| Location | Field Sample ID or Depth (ft bgs) | Sample Matrix | Date Sampled | Natural Attenuation Parameters | TPH | VOCs |
|---|---|---|---|---|---|---|
| SB037 | 32405SB225 | Soil | 07-Mar-02 | NA | X | X |
| | 32405SB226 | Soil | 07-Mar-02 | NA | X | X |
| | 32405SB227 | Soil | 07-Mar-02 | NA | NA | X |
| | 32405SB228 | Soil | 07-Mar-02 | NA | NA | X |
| SB038 | 32418SB231 | Soil | 08-Mar-02 | NA | NA | X |
| | 32418SB232 | Soil | 08-Mar-02 | NA | NA | X |
| | 32418SB233 | Soil | 08-Mar-02 | NA | NA | X |
| | 32418SB234 | Soil | 08-Mar-02 | NA | NA | X |
| SB039 | 32418GW239 | Water | 08-Mar-02 | NA | X | X |
| | 32418SB235 | Soil | 08-Mar-02 | NA | NA | X |
| | 32418SB236 | Soil | 08-Mar-02 | NA | NA | X |
| | 32418SB237 | Soil | 08-Mar-02 | NA | NA | X |
| | 32418SB238 | Soil | 08-Mar-02 | NA | NA | X |
| 324SG01 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG02 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG03 | 5 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG04 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG05 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG06 | 5 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG07 | 5 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG08 | 10 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG09 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG10 | 10 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG11 | 5 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG12 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG13 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG14 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG15 | 10 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG16 | 5 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG17 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG17 | 5 (duplicate) | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG18 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG19 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG20 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |

**TABLE 6 (Continued)**

**LIST OF SAMPLING LOCATIONS AND ANALYSES PERFORMED**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| Location | Field Sample ID or Depth (ft bgs) | Sample Matrix | Date Sampled | Natural Attenuation Parameters | TPH | VOCs |
|---|---|---|---|---|---|---|
| 324SG21 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG22 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG23 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG23 | 5 (duplicate) | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG24 | 10 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG25 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG25 | 5 (duplicate) | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG26 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG27 | 5 | SG/Mobile Lab | 26-Jan-04 | NA | NA | X |
| 324SG28 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG29 | 10 | SG/Mobile Lab | 27Jan-04 | NA | NA | X |
| 324SG30 | 5 | SG/Mobile Lab | 27-Jan-04 | NA | NA | X |
| 324SG31 | 5 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG32 | 5 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG32 | 10 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG33 | 5 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG34 | 5 | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG34 | 5 (duplicate) | SG/Mobile Lab | 28-Jan-04 | NA | NA | X |
| 324SG04 | 5 | SG/Fixed Lab | 27-Jan-04 | NA | NA | X |
| 324SG05 | 5 | SG/Fixed Lab | 28-Jan-04 | NA | NA | X |
| 324SG09 | 5 | SG/Fixed Lab | 27-Jan-04 | NA | NA | X |
| 324SG18 | 5 | SG/Fixed Lab | 27-Jan-04 | NA | NA | X |
| 324SG21 | 5 | SG/Fixed Lab | 26-Jan-04 | NA | NA | X |
| 324SG25 | 5 | SG/Fixed Lab | 28-Jan-04 | NA | NA | X |
| 324SG32 | 10 | SG/Fixed Lab | 28-Jan-04 | NA | NA | X |
| 324SG35 | 5 | SG/Fixed Lab | 1-April-04 | NA | NA | X |
| 324SG36 | 5 | SG/Fixed Lab | 1-April-04 | NA | NA | X |
| 324SG37 | 5 | SG/Fixed Lab | 1-April-04 | NA | NA | X |
| 324SG37 (field dup.) | 5 | SG/Fixed Lab | 1-April-04 | NA | NA | X |
| 324SG37 (lab dup.) | 5 | SG/Fixed Lab | 1-April-04 | NA | NA | X |
| 324SG38 | 6.5 | SG/Fixed Lab | 1-April-04 | NA | NA | X |
| 324SG39 | 5 | SG/Fixed Lab | 1-April-04 | NA | NA | X |

**TABLE 6 (Continued)**

**LIST OF SAMPLING LOCATIONS AND ANALYSES PERFORMED**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

Notes:

| | |
|---|---|
| bgs | Below ground surface |
| ID | Identification |
| MW | Monitoring well |
| NA | Not applicable |
| SB | Soil boring |
| TPH | Total petroleum hydrocarbons |
| VOCs | Volatile organic compounds |
| SG/Fixed Lab | Soil gas analyzed by the offsite stationary laboratory |
| SG/Mobile Lab | Soil gas analyzed by the mobile laboratory |

## TABLE 7

## DETECTED CONCENTRATIONS OF TOTAL PETROLEUM HYDROCARBONS IN SOIL SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location [a] | Date Sampled | Depth (feet bgs) | Diesel Range Organic Compounds (mg/kg) | Gasoline Range Organics Compounds (mg/kg) | Motor Oil Range Organics Compounds (mg/kg) |
|---|---|---|---|---|---|
| SB001 | 19-Feb-02 | 1.5-2 | 6 J | <0.89 | 5 J |
| | 19-Feb-02 | 6-6.5 | 4 J | <0.69 | <12 |
| | 19-Feb-02 | 9.5-10 | 4 J | <0.5 | <12 |
| SB002 | 01-Mar-02 | 1.5-2 | 29 D | <0.48 | <12 |
| SB003 | 20-Feb-02 | 1.5-2 | 16 D | <0.59 | 73 M |
| | 20-Feb-02 | 6-6.5 | 7 J | <0.53 | <12 |
| | 20-Feb-02 | 9.5-10 | 8 J | <0.44 | <12 |
| SB005 | 19-Feb-02 | 1.5-2 | <12 | <0.59 | 120 M |
| SB006 | 20-Feb-02 | 6-6.5 | 8 J | <0.7 | <12 |
| | 20-Feb-02 | 9.5-10 | <12 | <0.49 | 14 M |
| | 20-Feb-02 | 13.5-14 | 7 J | <0.54 J | <12 |
| SB011 | 20-Feb-02 | 6-6.5 | 8 J | <0.53 | <12 |
| | 20-Feb-02 | 9.5-10 | 6 J | <0.48 | <12 |
| | 20-Feb-02 | 13.5-14 | 7 J | <0.52 | <12 |
| SB012 | 26-Feb-02 | 1.5-2 | <12 | <0.48 | 120 M |
| SB013 | 26-Feb-02 | 1.5-2 | <12 | <0.51 | 23 M |
| SB016 | 25-Feb-02 | 1.5-2 | <12 | 0.04 J | 14 M |
| SB018 | 25-Feb-02 | 1.5-2 | <12 | <0.49 | 65 M |
| | 25-Feb-02 | 6-6.5 | 41 D | <0.5 | <12 |
| SB019 | 25-Feb-02 | 1.5-2 | <120 | <0.46 | 360 M |
| SB020 | 22-Feb-02 | 1.5-2 | 7 J | <0.57 | <12 |
| | 22-Feb-02 | 6-6.4 | 1700 D | 960 H | <120 |
| | 22-Feb-02 | 6.4-6.5 | NA | 830 H | NA |
| SB022 | 21-Feb-02 | 9.5-10 | 120 | <0.51 | 51 |
| SB023 | 22-Feb-02 | 6-6.5 | 14 Z | <0.6 | <13 |
| SB024 | 22-Feb-02 | 1.5-2 | <59 | <0.46 | 750 M |
| SB029 | 28-Feb-02 | 1.5-2 | <13 | <0.55 | 7 J |

## TABLE 7 (Continued)

## DETECTED CONCENTRATIONS OF TOTAL PETROLEUM HYDROCARBONS IN SOIL SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location [a] | Date Sampled | Depth (feet bgs) | Diesel Range Organic Compounds (mg/kg) | Gasoline Range Organics Compounds (mg/kg) | Motor Oil Range Organics Compounds (mg/kg) |
|---|---|---|---|---|---|
| SB033 | 07-Mar-02 | 1.5-2 | <12 | <0.49 | 100 M |
| | 07-Mar-02 | 13.5-14 | 7 J | <0.46 | 7 J |
| SB034 | 07-Mar-02 | 1.5-2 | <12 | <0.47 | 10 J |
| | 07-Mar-02 | 6-6.5 | 6 J | <0.48 | 13 M |
| | 07-Mar-02 | 9.5-10 | <11 | <0.47 | 8 J |
| | 07-Mar-02 | 13.5-14 | <12 | <0.47 | 12 J |
| SB035 | 07-Mar-02 | 6-6.5 | <12 J | <0.51 | 8 J |
| | 07-Mar-02 | 9.5-10 | <12 | <0.45 | 8 J |
| | 07-Mar-02 | 13.5-14 | <11 | <0.49 | 11 J |
| SB037 | 07-Mar-02 | 1.5-2 | <11 | <0.45 | 12 M |

Notes:

a Only samples with at least one detection are presented

bgs Below ground surface
D Chromatographic pattern resembles diesel
H Heavier hydrocarbons contributed to the quantitation
J Estimated value
L Lighter hydrocarbons contributed to this quantitation
M Chromatographic pattern resembles motor oil
mg/kg Milligram per kilogram
NA Not analyzed
Y Sample exhibits fuel pattern which dose not resemble standard
Z Chromatographic pattern does not resemble TPH fuel pattern (individual peaks)

# TABLE 8

## DETECTED CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN SOIL SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location [a] | Date Sampled | Depth (feet bgs) | PCE (mg/kg) | TCE (mg/kg) |
|---|---|---|---|---|
| SB018 | 25-Feb-02 | 28 to 28 | 0.002 J | 0.001 J |
| SB024 | 22-Feb-02 | 6 to 6.5 | 0.0006 J | <0.0011 J |

Notes:

a Only samples with at least one detection are presented.

bgs Below ground surface
J Estimated Value
mg/kg Milligram per kilogram
NA Not analyzed
PCE Tetrachloroethene
TCE Trichloroethene

# TABLE 9

## STATISTICAL SUMMARY OF ANALYTICAL RESULTS FOR SOIL
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte [a] | Number of Detections/ Number of Samples | Detection Frequency (Percent) | Minimum Value Detected | Maximum Value Detected | Location of Minimum Value | Location of Maximum Value |
|---|---|---|---|---|---|---|
| **Petroleum Hydrocarbons (mg/kg)** | | | | | | |
| Gasoline range organic compounds | 3/134 | 2.2 | 0.04 J | 960 H | SB016 | SB020 |
| Diesel range organic compounds | 19/133 | 14.3 | 4 J | 1,700 D | SB001 | SB020 |
| Motor oil range organic compounds | 22/133 | 16.5 | 5 J | 750 M | SB001 | SB024 |
| **Volatile Organic Compounds (mg/kg)** | | | | | | |
| 1,2,4-trimethylbenzene | 3/158 | 1.9 | 0.0008 J | 21.1 | SB022 | SB020 |
| 1,3,5-trimethylbenzene | 2/158 | 1.3 | 0.26 J | 5.7 | SB020 | SB020 |
| 4-methyl-2-pentanone | 10/158 | 6.3 | 0.0007 J | 0.003 J | SB005 | SB008 |
| Ethylbenzene | 1/158 | 0.6 | 0.0006 J | 0.0006 J | SB023 | SB023 |
| Isopropylbenzene | 1/158 | 0.6 | 0.8 | 0.8 | SB020 | SB020 |
| M,p-xylenes | 5/158 | 3.2 | 0.0007 J | 0.42 J | SB022 | SB020 |
| Naphthalene | 2/158 | 1.3 | 0.46 J | 2.8 | SB020 | SB020 |
| P-isopropyltoluene | 3/158 | 1.9 | 0.0039 J | 7.5 | SB001 | SB020 |
| Sec-butylbenzene | 2/158 | 1.3 | 0.9 | 5.7 | SB020 | SB020 |
| Tetrachloroethene | 2/158 | 1.3 | 0.0006 J | 0.002 J | SB024 | SB018 |
| Toluene | 12/158 | 7.6 | 0.0006 J | 0.26 J | SB036 | SB020 |
| Trichloroethene | 1/158 | 0.6 | 0.001 J | 0.001 J | SB018 | SB018 |

Notes:

a Categories of analyses are shown, but only detected compounds are presented

D Chromatographic pattern resembles diesel
H Chromatographic pattern is in the heavier hydrocarbon end of the analyte's range in the standard
J Estimated value
M Chromatographic pattern resembles motor oil
mg/kg Milligram per kilogram

# TABLE 10

## DETECTED CONCENTRATIONS OF TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location [a] | Date Sampled | Diesel Range Organics (µg/L) | Gasoline Range Organics (µg/L) | Motor Oil Range Organics (µg/L) |
|---|---|---|---|---|
| MW01A17 | 05-Mar-02 | 350 | <50 | <100 |
| SB001 | 19-Feb-02 | NA | 50 J | NA |
| SB015 | 26-Feb-02 | 220 | <50 J | <100 |
| SB016 | 26-Feb-02 | 60 J | <50 J | <100 |
| SB018 | 25-Feb-02 | 420 | <50 | <100 |
| SB019 | 25-Feb-02 | <100 | <50 | 860 |
| SB020 | 22-Feb-02 | 370 | NA | <100 |
| b | 22-Feb-02 | NA | 30 ZJ | NA |
| SB021 | 28-Feb-02 | 60 J | <50 J | <100 |
| SB024 | 22-Feb-02 | NA | 100 | NA |
| SB025 | 28-Feb-02 | 50 J | <50 | <100 |
| SB026 | 28-Feb-02 | <100 | <50 J | 760 |
| SB027 | 28-Feb-02 | <100 | <50 J | 60 J |
| SB031 | 05-Mar-02 | 60 JZ | <50 | <100 |
| SB033 | 08-Mar-02 | <100 | <50 J | 2,200 |

Notes:

a Only samples with at least one detection are presented.

b Duplicate field sample collected.

J Estimated value
µg/L Microgram per liter
NA Not analyzed
Z Chromatographic pattern does not resemble TPH fuel pattern (individual peaks)

# TABLE 11

## DETECTED CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Date Sampled | Depth to Water (feet bgs) | Benzene (µg/L) | Bromo-dichloro-methane (µg/L) | Carbon Disulfide (µg/L) | Chloro-dibromo-methane (µg/L) | Chloro-form (µg/L) | 1,2-DCA (µg/L) | 1,1-DCE (µg/L) | trans-1,2-DCE (µg/L) | cis-1,2-DCE (µg/L) | Ethyl-benzene (µg/L) | p-Isopropyl-toluene (µg/L) | MTBE (µg/L) | Naphthalene (µg/L) | 4-methyl-2-Pentanone (MIBK) (µg/L) | m/p-Xylene (µg/L) [1] | o-Xylene (µg/L) [1] | PCE (µg/L) | TCE (µg/L) | Toluene (µg/L) | 1,2,4-Trimethyl-benzene (µg/L) | 1,3,5-Trimethyl-benzene (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Federal MCL** | --- | --- | 5.0 | NA | NA | NA | NA | 5.0 | 7.0 | 100 | 70 | 700 | NA | NA | NA | NA | 10,000 | 10,000 | 5.0 | 5.0 | 1,000 | NA | NA |
| **State MCL** | --- | --- | 1.0 | NA | NA | NA | NA | 0.5 | 6.0 | 10 | 6 | 300 | NA | 5 | NA | NA | 1,750 | 1,750 | 5.0 | 5.0 | 150 | NA | NA |
| **EPA 2002 Tap Water PRGs** | --- | --- | 0.34 | 0.18 | 1000 | NA | 0.53 | 0.120 | 340 | 120 | 61 | 2.9 | NA | 13 | 6.2 | NA | 210 | 210 | 0.66 | 0.028 | 720 | 12 | 12 |
| **178-5** | **3/6/2002** | 12.32 | <1 | <1 | <2 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 0.7 J | 0.6 J | <1 | <1 | <1 |
| **MW-1A17** | **3/5/2002** | 16.63 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| **MW-2** | **3/5/2002** | 8.35 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 5 | <1 | <1 | <1 | <1 |
| **MW-3** | **3/6/2002** | --- | <1 | <1 | <2 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 6 | <1 | <1 | <1 | <1 |
| **MW-6** | **3/6/2002** | 8.68 | <1 | <1 | <2 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 4 | <1 | <1 | <1 | <1 |
| **MW-7** | **3/5/2002** | 16.68 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| **MW-8** | **3/5/2002** | 15.23 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | 2 | <1 | <1 | <1 |
| **MW-9** | **3/5/2002** | 13.61 | <1 | <1 | <1J | <1 | <1 | 0.4 J | 1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 0.4 J | 0.9 J | <1 | <1 | <1 |
| **MW-10** | **3/5/2002** | 15.57 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 3 | 5 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 100 | 29 | <1 | <1 | <1 |
| **MW-11** | **3/6/2002** | --- | <1 | <1 | <2 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 10 | <1 | <1 | <1 | <1 |
| **MW-12** | **3/6/2002** | 13.61 | <1 | <1 | <2 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | 1 | <1 | <1 | <1 |
| **MW-13** | **3/6/2002** | 0.0 | <1 | <1 | <2 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| **MW-14** | **3/6/2002** | --- | <1 | <1 | <2 | <1 | 0.4 J | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 3 | <1 | <1 | <1 | <1 |
| **SB001** | **2/19/2002** | --- | 0.5 J | 1 | <1 | 0.9 J | 1 | <1 | <1 | <1 | <1 | 1 | 0.6 J | <10 | 0.4 J | <50 | 6 | 2 | 0.6 J | <1 | 9 | 2 | 0.6 J |
| **SB002** | **2/20/2002** | 6.33 | <1J | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.6 J | <1 | <10 | <1 | <50 | 3 UJ | <1J | <1 | <1 | 5 UJ | <1J | <1 |
| **SB002** | **3/1/2002** | --- | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 5 | <1 | <1 | <1 | <1 |
| **SB003** | **2/22/2002** | 17.90 | 0.5 J | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 1 J | <1 | <10 | 0.3 J | <50 | 5 | 1 | <1 | <1 | 6 | 1 | 0.4 J |
| **SB004** | **3/1/2002** | 10.15 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.9 J | 2 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 33 | 11 | 0.4 J | <1 | <1 |
| **SB006** | **2/20/2002** | --- | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | 0.9 J | <1J | <1 | 3 J | 0.5 J | <1J | <1 | <1 |
| **SB009** | **2/26/2002** | 15.21 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 2 J | 3 J | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 43 J | 15 J | 0.3 J | <1 | <1 |
| **SB011** | **2/21/2002** | 8.92 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.5 J | <1 | <10 | 0.5 J | <50 | 2 J | 0.8 J | 1 J | <1 | 2 J | 2 J | 0.4 J |
| * | **2/21/2002** | 11.71 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.5 J | <1 | <10 | 0.4 J | <50 | 2 J | 0.7 J | 1 J | <1 | 3 J | 1 J | 0.3 J |
| **SB012** | **2/27/2002** | 13.21 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.5 J | <1 | <1 | 0.9 J | <1 | <50 | <1 | <1 | 5 J | 4 J | <1 | <1 | <1 |
| **SB013** | **2/26/2002** | 13.49 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 2 J | <1 | <50 | <1 | <1 | 1 J | 1 J | <1 | <1 | <1 |
| **SB014** | **2/25/2002** | 12.51 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | 0.7 J | 0.4 J | <1 | <1 |
| **SB015** | **2/26/2002** | 14.19 | <1 | <1 | <1 | <1 | <1J | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 3 J | 2 J | <1 | <1 | <1 |
| **SB016** | **2/26/2002** | 12.41 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 2 J | 5 J | <1 | <1 | <10 | <1 | <50 J | 0.3 J | <1 | 38 J | 18 J | 0.3 J | <1 | <1 |
| **SB018** | **2/25/2002** | 14.17 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 5 J | 3 J | 0.4 J | <1 | <1 |
| **SB019** | **2/25/2002** | 14.25 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | <1 | 0.3 J | <1 | <1 |
| **SB020** | **2/22/2002** | 12.15 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 2 | 6 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 47 | 19 | <1 | 1 | <1 |

## TABLE 11 (Continued)

## DETECTED CONCENTRATIONS OF CHEMICALS IN GROUNDWATER
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Date Sampled | Depth to Water (feet bgs) | Benzene (µg/L) | Bromo-dichloro-methane (µg/L) | Carbon Disulfide (µg/L) | Chloro-dibromo-methane (µg/L) | Chloro-form (µg/L) | 1,2-DCA (µg/L) | 1,1-DCE (µg/L) | trans-1,2-DCE (µg/L) | cis-1,2-DCE (µg/L) | Ethyl-benzene (µg/L) | p-Isopropyl-toluene (µg/L) | MTBE (µg/L) | Naphthalene (µg/L) | 4-methyl-2-Pentanone (MIBK) (µg/L) | m/p-Xylene (µg/L) [1] | o-Xylene (µg/L) [1] | PCE (µg/L) | TCE (µg/L) | Toluene (µg/L) | 1,2,4-Trimethyl-benzene (µg/L) | 1,3,5-Trimethyl-benzene (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SB021** | **2/28/2002** | 12.88 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.5 J | <1 | <50 | 1 | 0.5 J | 0.6 J | <1 | 1 | <1 | <1 |
| **SB022** | **2/22/2002** | 15.57 | <1 | <1 | 0.3 J | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | 0.5 J | 0.4 J | <1 | <1 |
| **SB023** | **2/22/2002** | --- | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.3 J | 0.8 J | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 6 J | 5 J | <1 | <1 | <1 |
| * | **2/22/2002** | --- | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.8 J | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 5 J | 4 J | <1 | <1 | <1 |
| **SB024** | **2/22/2002** | 12.34 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 4 J | 7 J | <1 | <1 | <10 | <1 | <50 | <1 | <1 | 86 J | 38 J | <1 | <1 | <1 |
| **SB025** | **2/28/2002** | 13.84 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | <1 | 1 | <1 | <1 |
| **SB026** | **2/28/2002** | 14.74 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | 0.9 J | 0.4 J | <1 | <1 |
| **SB027** | **2/28/2002** | 16.24 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | 0.8 J | 0.4 J | <1 | <1 |
| **SB028** | **2/28/2002** | 16.62 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.4 J | <1 | <10 | <1 | <50 | 2 J | 0.8 J | <1 | 1 J | 0.8 J | <1 | <1 |
| **SB029** | **2/28/2002** | 17.25 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 0.9 J | <1 | <10 | <1 | <50 | 5 | 3 | <1 | 2 | 1 | <1 | <1 |
| **SB030** | **3/5/2002** | 21.72 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| **SB031** | **3/5/2002** | 14.88 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| **SB032** | **3/5/2002** | 14.28 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| **SB033** | **3/8/2002** | 2.12 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <10 | <1 | <50 | 0.5 J | <1 | <1 | <1 | 0.7 J | <1 | <1 |

Notes:

Yellow shaded cells denotes concentrations of contaminants equal to or exceeding EPA Region 9 tap water Preliminary Remediation Goals.

Gray shaded cells denote concentrations of contaminants equal to or exceeding state and/or federal MCLs

Groundwater depths are recorded prior to sampling. Samples are typically collected 1 foot below the measured groundwater elevation.

a Only samples with at least one detection are presented
* Duplicate field sample collected

1 MCL presented is for total xylenes

DCE Dichloroethene
J Estimated value
MCL State and federal maximum contaminant levels for drinking water.
MTBE Methyl-tertiary-butyl ether
µg/L Microgram per liter
NA Not analyzed
PCE Tetrachloroethene
TCE Trichloroethene

## TABLE 12

## STATISTICAL SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte [a] | Number of Detections/ Number of Samples | Detection Frequency (Percent) | Minimum Value Detected | Maximum Value Detected | Location of Minimum Value | Location of Maximum Value |
|---|---|---|---|---|---|---|
| **Petroleum Hydrocarbons (µg/L)** | | | | | | |
| Gasoline range organic compounds | 3/21 | 14.3 | 30 ZJ | 100 | SB020 | SB024 |
| Diesel range organic compounds | 8/18 | 44.4 | 50 J | 420 D | SB025 | SB018 |
| Motor oil range organic compounds | 4/18 | 22.2 | 60 J | 2,200 M | SB027 | SB033 |
| **Volatile Organic Compounds (µg/L)** | | | | | | |
| 1,1-dichloroethene | 1/48 | 2.1 | 1 | 1 | MW-9 | MW-9 |
| 1,2,4-trimethylbenzene | 5/48 | 10.4 | 1 | 2 | SB003 | SB001 |
| 1,2-dichloroethane | 1/48 | 2.1 | 0.4 J | 0.4 J | MW-9 | MW-9 |
| 1,3,5-trimethylbenzene | 4/48 | 8.3 | 0.3 J | 0.6 J | SB011 | SB001 |
| 4-methyl-2-pentanone | 1/48 | 2.1 | 0.9 J | 0.9 J | SB006 | SB006 |
| Benzene | 2/48 | 4.2 | 0.5 J | 0.5 J | SB001 | SB001 |
| Bromodichloromethane | 1/48 | 2.1 | 1 | 1 | SB001 | SB001 |
| Carbon disulfide | 1/48 | 2.1 | 0.3 J | 0.3 J | SB022 | SB022 |
| Chlorodibromomethane | 1/48 | 2.1 | 0.9 J | 0.9 J | SB001 | SB001 |
| Chloroform | 2/48 | 4.2 | 0.4 J | 1 | MW-14 | SB001 |
| Cis-1,2-dichloroethene | 9/48 | 18.8 | 0.5 J | 7 J | SB012 | SB024 |
| Ethylbenzene | 7/48 | 14.6 | 0.4 J | 1 | SB028 | SB001 |
| M,p-xylenes | 9/48 | 18.8 | 0.3 J | 6 | SB016 | SB001 |
| Methyl tertiary butyl ether | 3/48 | 6.3 | 0.5 J | 2 J | SB021 | SB013 |
| Naphthalene | 4/48 | 8.3 | 0.3 J | 0.5 J | SB003 | SB011 |
| O-xylene | 7/48 | 14.6 | 0.5 J | 3 | SB021 | SB029 |

## TABLE 12 (Continued)

## STATISTICAL SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte [a] | Number of Detections/ Number of Samples | Detection Frequency (Percent) | Minimum Value Detected | Maximum Value Detected | Location of Minimum Value | Location of Maximum Value |
|---|---|---|---|---|---|---|
| P-isopropyltoluene | 1/48 | 2.1 | 0.6 J | 0.6 J | SB001 | SB001 |
| Tetrachloroethene | 25/48 | 52.1 | 0.4 J | 100 | MW-9 | MW-10 |
| Toluene | 18/48 | 37.5 | 0.3 J | 9 | SB009 | SB001 |
| Trans-1,2-dichloroethene | 7/48 | 14.6 | 0.3 J | 4 J | SB023 | SB024 |
| Trichloroethene | 23/48 | 47.9 | 0.5 J | 38 J | SB006 | SB024 |

Notes:

a Catagories of analyses are shown, but only detected compounds are presented.

D Chromatographic pattern resembles diesel
J Estimated value
M Chromatographic pattern resembles motor oil
µg/L Microgram per liter
Z Chromatographic pattern does not resemble TPH fuel pattern (individual peaks)

## TABLE 13

## GROUNDWATER SAMPLING RESULTS, INORGANIC AND NATURAL ATTENUATION PARAMETERS
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Date Sampled | COD (mg/L) | Iron (µg/L) | Methane (µg/L) | Nitrate (mg/L) | Sulfate (mg/L) | TDS (mg/L) | Field Parameters [a] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | DO (mg/L) | ORP (mV) |
| MW-2 | 05-Mar-02 | <20 | <1.5 J | <3 | 4 | 76 | 615 | 8.0 | 124.3 |
| MW-7 | 05-Mar-02 | <20 | <1.5 J | <3 | 6 | 60 | 688 | 7.7 | 49.7 |
| MW-8 | 05-Mar-02 | <20 | <1.5 J | <3 | 8 | 66 | 718 | 5.1 | 104.8 |
| MW-10 | 05-Mar-02 | <20 | <1.5 J | <3 | 7 | 77 | 759 | 1.0 | 77.7 |
| MW-13 | 06-Mar-02 | <20 | 217 | <3 J | 5 | 62 | 808 | 1.5 | 181.5 |
| MW-14 | 06-Mar-02 | <20 | 521 | <3 J | 5 | 91 | 613 | 2.9 | 174.1 |
| SB030 | 05-Mar-02 | <20 | <1.5 J | <3 | 4 | 57 | 748 | .90 | -305 |
| SB031 | 05-Mar-02 | <20 | 306 | <3 | 4 | 22 | 492 | 3.4 | -265 |
| SB032 | 05-Mar-02 | <20 | <1.5 J | <3 | 4 | 74 | 1,010 | 7.3 | -208 |

Notes:

a Field parameters collected by Blaine Tech Services

COD Chemical oxygen demand
DO Dissolved oxygen
J Estimated value
µg/L Microgram per liter
mg/L Milligram per liter
mV Millivolts
ORP Oxydation-reduction potential
TDS Total dissolved solids

**TABLE 14**

**SOIL GAS RESULTS FROM MOBILE LABORATORY**
**REMEDIAL INVESTIGATION FOR SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| SAMPLE ID | RWQCB Screening Level (See Note 3) | Ambient Blank | 324SG01 | 324SG02 | 324SG03 | 324SG04 | 324SG05 | 324SG06 | 324SG07 | 324SG08 | 324SG09 | 324SG10 | 324SG11 | 324SG12 | 324SG13 | 324SG14 | 324SG15 | 324SG16 | 324SG17 | 324SG17 | 324SG18 | 324SG19 | 324SG20 | 324SG21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DEPTH | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 5 | 10 | 5 | 5 | 5 | 5 | 10 | 5 | 5 | 5 duplicate | 5 | 5 | 5 | 5 |
| Benzene | 84 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromoform | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroform | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloromethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trans-1,2-Dichloroethene | 15,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Cis-1,3-Dichloropropene | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trans-1,3-Dichloropropene | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylene Chloride | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | 410 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 650 | ND | ND | ND |
| Toluene | 83,000 | ND | 220 | 180 | ND | 130 | 290 | ND | ND | 110 | 90 | 160 | 58 | 220 | 90 | 53 | 130 | 70 | ND | ND | ND | 180 | 200 | 230 |
| 1,1,1-Trichloroethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 1,200 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Total Xylenes | 21,000 | ND | 240 | 180 | 70 | 97 | 210 | 60 | ND | 81 | 75 | 100 | 58 | 230 | 100 | 85 | 86 | 65 | ND | ND | 100 | 170 | 220 | 210 |
| Carbon Disulfide | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Styrene | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Cis-1,2-Dichloroethene | 7,300 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

**TABLE 14 (Continued)**

**SOIL GAS RESULTS FROM MOBILE LABORATORY**
**REMEDIAL INVESTIGATION FOR SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

| SAMPLE ID | 324SG22 | 324SG23 | 324SG23 | 324SG24 | 324SG25 | 324SG25 | 324SG26 | 324SG27 | 324SG28 | 324SG29 | 324SG30 | 324SG31 | 324SG32 | 324SG32 | 324SG33 | 324SG34 | 324SG34 | Method Blank | Method Blank | Method Blank | Method Blank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DEPTH | 5 | 5 | 5 duplicate | 10 | 5 | 5 summa duplicate sample | 5 | 5 | 5 | 10 | 5 | 5 | 5 | 10 | 5 | 5 | 5 duplicate | | | | |
| Benzene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromoform | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroform | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloromethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1,100 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylene Chloride | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | ND | ND | ND | ND | 12,000 | 14,000 | ND | ND | ND | ND | ND | 120,000 | 75 | 150 | 730 | ND | ND | ND | ND | ND | ND |
| Toluene | 180 | 160 | 150 | 210 | ND | ND | 160 | 130 | 120 | 130 | 170 | 180 | 80 | 65 | 180 | 51 | 85 | 160 | ND | ND | ND |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | ND | ND | ND | 2,400 | 2,200 | ND | ND | ND | ND | ND | 19,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Total Xylenes | 170 | 160 | 160 | 170 | ND | ND | 150 | 130 | 80 | 60 | 130 | 180 | 89 | 83 | 70 | ND | 100 | 170 | ND | ND | ND |
| Carbon Disulfide | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Styrene | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | 650 | ND | ND | ND | ND | ND | 8,100 | ND | ND | ND | ND | ND | ND | ND | ND | ND |

Notes:
1. All results reported in micrograms per cubic meter.
2. The detection limits vary for each constituent. Detection limits are presented in Appendix A-3.
3. From Interim Final July 2003 SFBRWQCB screening levels for evaluation of indoor air impacts from shallow soil gas in sandy soil. Screening level is for "Lowest Residential" exposure scenario
4. Blue highlight dentotes constituent detection.
5. Yellow highlight denotes concentration exceeding RWQCB screening level

RWQCB San Francisco Bay Regional Water Quality Control Board

## TABLE 15

## SOIL GAS RESULTS FROM STATIONARY LABORATORY
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| SAMPLE ID | RWQCB Screening Level (See Note 3) | 324SG04 | 324SG05 | 324SG09 | 324SG18 | 324SG21 | 324SG25 | 324SG32 | 324SG35 | 324SG36 | 324SG37 | 324SG37 (field dup.) | 324SG37 (lab dup.) | 324SG38 | 324SG39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DEPTH | | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 5 | 5 | 5 | 5 | 5 | 6.5 | 5 |
| Freon 12 | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Freon 114 | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | 31 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromomethane | 1,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloroethane | 2,900 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Freon 11 | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | 42,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Freon 113 | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylene Chloride | 2,400 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 1,500 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichoroethene | 7,300 | ND | ND | ND | ND | ND | 550 | ND | ND | 15 | 5.4 | ND | ND | ND | ND |
| Chloroform | 460 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 46,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | 58 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzene | 84 | 2.9 | 3.0 | ND | ND | 11 | ND | 4.2 | 2.6 | 3.2 | 3.6 | ND | ND | 3.9 | 2.9 |
| 1,2-Dichloroethane | 120 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Trichloroethene | 1,200 | ND | ND | ND | 68 | ND | 2,200 | ND | ND | 26 | 7.1 | ND | ND | 12 | ND |
| 1,2-Dichloropropane | 240 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 150 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Toluene | 83,000 | 12 | 11 | 6.0 | ND | 25 | ND | 9.5 | 15 | 14 | 17 | 9.2 | 8.5 | 19 | 12 |
| trans-1,3-Dichloropropene | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 150 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | 410 | ND | ND | ND | 1,000 | ND | 15,000 | 25 | ND | 40 | 17 | 6.8 | 6.9 | 67 | ND |
| 1,2-Dibromoethane (EDB) | 34 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chlorobenzene | 13,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethyl Benzene | 2,200 | ND | ND | ND | ND | 4.0 | ND | 4.3 | 5.4 | 5.2 | 5.4 | 3.8 | 4.1 | 6.5 | 6.1 |
| m,p-Xylene | None Available | 8.8 | 7.8 | 5.2 | ND | 15 | ND | 18 | 25 | 21 | 25 | 16 | 17 | 27 | 26 |
| o-Xylene | None Available | ND | ND | ND | ND | 5.3 | ND | 6.8 | 9.6 | 7.3 | 8.4 | 5.5 | 5.4 | 9.1 | 8.1 |
| Total Xylenes | 21,000 | 8.8 | 7.8 | 5.2 | ND | 20.3 | ND | 24.8 | 34.6 | 28.3 | 33.4 | 21.5 | 22.4 | 36.1 | 34.1 |
| Styrene | 210,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 42 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,3,5-Trimethylbenzene | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2,4-Trimethylbenzene | None Available | 7.2 | ND | ND | ND | ND | ND | 6.2 | 8.2 | 5.6 | 7.6 | 7.0 | 6.5 | 6.8 | 7.4 |
| 1,3-Dichlorobenzene | 670 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 220 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| alpha-Chlorotoluene | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

## TABLE 15 (Continued)

## SOIL GAS RESULTS FROM STATIONARY LABORATORY
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| SAMPLE ID | RWQCB Screening Level (See Note 3) | 324SG04 | 324SG05 | 324SG09 | 324SG18 | 324SG21 | 324SG25 | 324SG32 | 324SG35 | 324SG36 | 324SG37 | 324SG37 (field dup.) | 324SG37 (lab dup.) | 324SG38 | 324SG39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DEPTH | | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 5 | 5 | 5 | 5 | 5 | 6.5 | 5 |
| 1,2-Dichlorobenzene | 42,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,3-Butadiene | None Available | ND | ND | ND | ND | ND | ND | 3.2 | ND | 4.4 | 2.0 | ND | ND | ND | 2.1 |
| Hexane | None Available | ND | 3.4 | ND | ND | 5.1 | ND | 3.5 | 2.7 | 3.0 | ND | ND | ND | ND | ND |
| Cyclohexane | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 9.0 |
| Heptane | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 15 |
| Bromodichloromethane | 66 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | 90 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Cumene | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Propylbenzene | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Chloromethane | 1,400 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2,4-Trichlorobenzene | 42,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Hexachlorobutadiene | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Acetone | 73,000 | 180 | 370 | 19 | 11 | 700 | ND | 39 | 16 | 45 | 37 | 19 | 19 | 46 | 44 |
| Carbon Disulfide | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 41 |
| 2-Propanol | None Available | ND | ND | ND | ND | 24 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | 15,000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vinyl Acetate | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Butanone (Methyl Ethyl Ketone) | None Available | 25 | 46 | ND | ND | 73 | ND | ND | ND | 11 | ND | ND | ND | 11 | 11 |
| Tetrahydrofuran | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,4-Dioxane | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-Hexanone | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Bromoform | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-Ethyltoluene | None Available | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ethanol | None Available | ND | 7.5 | ND | ND | 12 | ND | ND | 28.0 | 9.2 | 55 | 38 | 40 | 42 | 38 |
| Methyl tert-butyl ether | 9,400 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

Notes:
1. All results reported in micrograms per cubic meter.
2. The detection limits vary for each constituent. Detection limits are presented in Appendix A-3.
3. From Interim Final July 2003 SFBRWQCB screening levels for evaluation of indoor air impacts from shallow soil gas in sandy soil. Screening level is for "Lowest Residential" exposure scenario
4. Blue highlight dentotes constituent detection.

RWQCB San Francisco Bay Regional Water Quality Control Board

# TABLE 16

## AQUIFER SLUG TEST RESULTS
## SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| | Monitor Well Parameters | | | | | Hydrogeology | | Test Parameters | | | | | | | | Results | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Name | Well Diameter (inches) | TOC Elevation (feet msl) | Top of Filter Pack (feet bgs) | Top of Screen (feet bgs) | Bottom of Screen (feet bgs) | Lithology of Saturated Portion of Screen Interval (USCS) | Expected Range of Hydraulic Conductivity (feet/day) | Static Water Level (feet toc) | Height of Water Column (feet) | Volume of Water Column[a] (gallons) | Total Displacement (feet) | Total Volume of Displacement (gallons) | Percent of Water Column Displacement (%) | Volume of Water Removed (gallons) | Recovery Time (minutes) | Hvorslev Hydraulic Conductivity (feet/day) | Bouwer & Rice Hydraulic Conductivity (feet/day) |
| MW-2 | 2 | NA | NA | NA | 26.3[b] | NA | NA | 9.42 | 17.0 | 24.9 | 8.91 | 1.5 | 6.0 | 1.00 | 2.8 | 3.7 | 2.9 |
| MW-7 | 2 | 61.9 | 19 | 20 | 30 | CL/MH | 0.0001 to 1[c]<br>0.001 to 1[d] | 17.69 | 13.4 | 19.7 | 4.38 | 0.71 | 3.6 | 0.38 | 0.45 | 126 | 90 |
| MW-8 | 2 | 60.7 | 17 | 18 | 33 | SW | 0.1 to 50[c]<br>0.001 to 1[d] | 16.21 | 16.8 | 24.7 | 5.35 | 0.87 | 3.5 | 0.63 | 1.8 | 9.3 | 6.8 |
| MW-9 | 2 | 57.2 | 12 | 13 | 28 | SC | 0.001 to 1[c]<br>0.001 to 0.1[d] | 14.64 | 13.4 | 19.6 | 4.89 | 0.80 | 4.1 | 0.35 | 10 | 1.7 | 1.2 |
| MW-10 | 2 | 58.2 | 14 | 15 | 30 | SC | 0.001 to 1[c]<br>0.001 to 0.1[d] | 16.60 | 13.4 | 19.7 | 4.64 | 0.76 | 3.9 | 0.38 | 3.8 | 6.6 | 4.5 |
| MW-11 | 2 | 49.4 | 7.5 | 8.5 | 18.5 | CL/MH | 0.001 to 0.1[c]<br>0.001 to 1[d] | 9.86 | 11.7 | 17.2 | 3.57 | 0.58 | 3.4 | 0.44 | 0.75 | 47.5 | 32.9 |
| MW-13[e] | 2 | 64.3 | 20 | 20 | 31 | SP/SM/ML | 0.1 to 50[c]<br>0.001 to 10[d] | 2.08[f] | 28.9 | 42.5 | 8.03 | 1.31 | 3.1 | 0.88 | >12 | 2.7 | 2.2 |
| | | | | | | | | | | | | | | | **GEOMETRIC MEAN[g]:** | **4.0** | **3.0** |

Notes:

a Includes the volume of water in the well filter pack.
b Bottom of screen assumed to equal the total depth of the well as measured during the test. The screen length was assumed to equal 15 feet based on other well screen lengths.
c U.S. Department of the Interior. 1989. Basic Ground-Water Hydrology. U.S. Geological Survey Water-Supply Paper 2220.
d Fetter, C.W. 1988. Applied Hydrogeology, Macmilllian Publishing Company, 2nd Ed.
e Monitor well MW-13 is a flowing artesian well.
f Static water level measured from the top of a 38-inch PVC riser pipe attached to the top of casing.
g Because the slug test results for monitoring wells MW-7 and MW-11 are not representative of native material, they are excluded from the calculation of the geometric mean.

bgs Below ground surface
msl Mean sea level
NA Not available
toc Top of casing
USCS Unified Soil Classification System

Lithology Descriptions:

CL Inorganic clays of low to medium plasticity (gravelly, sandy, silty, lean clays)
MH Inorganic silts, micaceous or diatomaceous fine sand or silty soils
ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayer silts with slight plasticity
SC Clayey sands, sand/clay mixtures
SM Silty sands, sand/silt mixtures
SP Poorly graded sands, gravelly sands (little or no fines)
SW Well-graded sands, gravelly sands (little or no fines)

# TABLE 17

## DETECTED CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER AND FIELD QUALITY CONTROL WATER SAMPLES COLLECTED ON FEBRUARY 20, 2002 SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location [a] | Field Sample ID | Date Sampled | 1,2,4-Trimethyl benzene | 4-Methyl-2-pentanone | Benzene | Bromodichloromethane | Chlorodibromomethane | Chloroform | Ethylbenzene | m,p-Xylenes | MTBE | O-Xylene | PCE | TCE | Toluene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SB005 (original) | 32402GW011 | 20-Feb-02 | <1 J | <50 | <1 J | <1 | <1 | <1 | 0.6 J | <1 J | <10 | <1 J | <1 | <1 | <1 J |
| SB006 (original) | 32402GW027 | 20-Feb-02 | <1 | 0.9 J | <1 | <1 | <1 | <1 | <1 | <1 J | <10 | <1 | 3 | 0.5 J | <1 J |
| Qc Sample (eb) | 32402EQ013 | 20-Feb-02 | 3 | <50 | 4 | 4 | 1 | 11 | 5 | 15 | 51 | 9 | <1 | <1 | 34 |
| Qc Sample (sb) | 32405SW026 | 20-Feb-02 | <1 | <50 | 7 J | 6 J | 2 J | 16 J | 9J | 16 J | 60 J | 17 J | <1 | <1 | 57 J |

Notes:

| | |
|---|---|
| a | Only samples with at least one detection are presented |
| bgs | Below ground surface |
| eb | Equipment blank |
| J | Estimated value |
| ID | Identification |
| µg/L | Microgram per liter |
| MTBE | Methyl Tertiary Butylether |
| NA | Not analyzed |
| PCE | Tetrachloroethene |
| sb | Source blank |
| TCE | Trichloroethene |

# TABLE 18

## COMPARISON OF MAXIMUM DETECTED CONCENTRATIONS IN SOIL WITH RESIDENTIAL PRELIMINARY REMEDIAL GOALS SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Maximum Detection (mg/kg) | Sample Location | Sample Depth (ft) | Sample Date | Residential Screening Value [a] (mg/kg) | Greater than Screen |
|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | 21.1 | SB020 | 6.5 | 2/22/02 | 52 | No |
| 1,3,5-Trimethylbenzene | 5.7 | SB020 | 6.5 | 2/22/02 | 21 | No |
| 4-Methyl-2-Pentanone | 0.003 | SB008 | 6.0 | 2/2102 | 790 | No |
| Bis(2-ethylhexl)phthalate | 8.8 | MW-9 | 10.5 | 2/1/99 | 35 | No |
| Ethylbenzene | 0.0006 | SB023 | 6.0 | 2/22/02 | 8.9 | No |
| Isopropylbenzene | 0.8 | SB020 | 6.5 | 2/22/02 | 140 | No |
| M,P-Xylenes | 0.42 | SB020 | 6.0 | 2/22/02 | 270 | No |
| Naphthalene | 2.8 | SB020 | 6.5 | 2/22/02 | 56 | No |
| Phenol | 0.096 | MW-08 | 5.5 | 1/27/99 | 37000 | No |
| P-Isopropyltoluene [b] | 7.5 | SB020 | 6.5 | 2/22/02 | 520 | No |
| sec-Butylbenzene | 5.7 | SB020 | 6.5 | 2/22/02 | 220 | No |
| PCE | 0.002 | SB018 | 28 | 2/25/02 | 1.5 | No |
| Toluene | 0.26 | SB020 | 6.0 | 2/22/02 | 520 | No |
| TCE | 0.001 | SB018 | 28 | 2/25/02 | 0.0053 | No |

Notes:

a United States Environmental Protection Agency, Region IX, "Preliminary Remedial Goals," October 2002

mg/kg Milligram per kilogram

PCE Tetrachloroethene

TCE Trichloroethene

## TABLE 19

## COMPARISON OF MAXIMUM DETECTED CONCENTRATIONS IN GROUNDWATER WITH SCREENING LEVELS FOR PROTECTION OF HUMAN HEALTH SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Maximum Detection 2002 Sampling Event (µg/L) | Sample Location(s) | Indoor Air Screening Value [a] (µg/L) | MCL [b] (µg/L) | EPA 2002 Guidance for Indoor Air [c] (µg/L) | 2002 Tap Water PRG Value [d] (µg/L) |
|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene [e] | 2 | SB001 | 5,800 [e] | 1.0 [e] | 24 | 12 |
| 1,3,5-Trimethylbenzene [e] | 0.6 | SB001 | 5,800 [e] | 1.0 [e] | 25 | 12 |
| 4-Methyl-2-Pentanone | 0.9 | SB006 | NA | NA | NA | NA |
| Benzene | 0.5 | SB001 & SB003 | 5,800 | 1.0 | 5.0 [f] | **0.34** |
| Bromodichloromethane | 1 | SB001 | 2,600 | NA | 2.1 | **0.18** |
| Carbon Disulfide | 0.3 | SB022 | NA | NA | 560 | 1,000 |
| Chlorodibromomethane [e] | 0.9 | SB001 | 5,800 [e] | 1.0 [e] | 3.2 | **0.18** |
| Chloroform | 1 | SB001 | 7,900 | NA | 80 | 6.2 |
| 1,1-DCE | 1 | MW-09 | 200 | 6.0 | 190 | 340 |
| 1,2-DCA | 0.4 | MW-09 | 4,700 | 0.5 | 5.0 [f] | **0.12** |
| 1,2-DCE –cis | 7 | SB024 | 130,000 | **6.0** | 210 | 61 |
| 1,2-DCE –trans | 4 | SB024 | 150,000 | 10 | 180 | 120 |
| Ethylbenzene | 1 | SB001 & SB003 | 170,000 | 680 | 700 | 2.9 |
| MTBE [g] | 0.9 | SB013 | 490,000 | 5 | 120,000 | 6.2 |
| Naphthalene | 0.5 | SB011 | 31,000 | NA | 150 | NA |
| p-Isopropyltoluene [h] | 0.6 | SB001 | 530,000 [h] | 150 [h] | NA | 120 |
| PCE | 100 | MW-10 | 3,200 | **5.0** | **5.0** [f] | **0.66** |
| TCE | 38 | SB024 | 1,300 | **5.0** | **5.0** [f] | **0.028** |
| Toluene | 9 | SB001 | 530,000 | 150 | 1500 | 120 |
| m,p-Xylenes | 6 | SB001 | 160,000 | 1750 | 22,000 | 210 |

Notes: bold = maximum concentration is greater than value

a San Francisco Regional Water Quality Control Board. "Risk-Based Screening Levels for Impacted Soil and Groundwater." December 2001. Values are for fine-grained soils.

b California Department of Health Services, "Drinking Water Standards, Primary Maximum Contaminant Levels (MCLs) and Lead and Copper Action Levels," February 19, 2002 (CDHS website).

c United States Environmental Protection Agency (EPA). "OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils." November 29. Cited values are from Table 2b for $1x10^{-6}$ risk.

d EPA, Region IX, "Preliminary Remedial Goals," October 2002. California modified PRGs are listed where available.

e Benzene used as surrogate for residential screen and MCL criteria.

f OSWER guidance default value is the federal MCL when the MCL is higher than that calculated using the indoor air model.

g The MCL criteria listed for MTBE is the secondary MCL, which is lower than the primary MCL of 13 µg/L.

h Toluene used as surrogate for residential screen and MCL criteria.

DCA Dichloroethane
DCE Dichloroethene
MCL Maximum contaminant level
µg/L Micrograms per liter
NA None available
ND Not detected
PCE Tetrachloroethene
PRG Preliminary remedial goal
TCE Trichloroethene

## TABLE 20

## COMPARISON OF MAXIMUM DETECTED CONCENTRATIONS IN GROUNDWATER WITH SCREENING LEVELS FOR PROTECTION OF FISH AND AQUATIC INVERTEBRATES SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Maximum Detection 2002 Sampling Event (µg/L) | Lowest Aquatic Life Protection [a] (µg/L) | Basis [a] | Tier II Secondary Acute Value (µg/L) [b] | Tier II Secondary Chronic Value (µg/L) [b] | Lowest Chronic Value (for all Organisms) (µg/L) [c] |
|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene [(4)] | 2 | 46 | NA | NA | NA | NA |
| 1,3,5-Trimethylbenzene [(4)] | 0.6 | 46 | US EPA Ecotox Chronic FW | NA | NA | 525,000 |
| 4-Methyl-2-Pentanone | 0.9 | NA | NA | 2,200 | 170 | 77,400 |
| Benzene | 0.5 | 46 | US EPA Ecotox Chronic FW | 2,300 | 130 | 525,000 |
| Bromodichloromethane | 1 | 6,400 | US EPA SW Chronic LOEL | NA | NA | NA |
| Carbon Disulfide | 0.3 | NA | NA | 17 | 1 | 244 |
| Chlorodibromomethane [(5)] | 0.9 | 6,400 | US EPA SW Chronic LOEL | NA | NA | NA |
| Chloroform | 1 | 28 | US DOE FW Chronic PRG | NA | NA | 1,240 |
| 1,1-Dichloroethene (DCE) | 1 | 25 | US DOE FW Chronic PRG | 450 | 25 | <2800 |
| 1,2-Dichloroethane (DCA) | 0.4 | 910 | US DOE FW Chronic PRG | 8,800 | 910 | 15,200 |
| 1,2-Dichloroethene -cis | 7 | 590 | US DOE FW Chronic PRG | NA | NA | NA |
| 1,2-Dichloroethene -trans | 4 | 590 | US DOE FW Chronic PRG | NA | NA | NA |
| Ethylbenzene | 1 | 290 | US EPA Ecotox Chronic FW | 130 | 7 | <440 |
| Methyl tertiary-butyl ether[(6)] | 0.9 | NA | NA | NA | NA | NA |
| Naphthalene[(7)] | 0.5 | 24 | US EPA Ecotox Chronic FW | 190 | 12 | 620 |
| P-isopropyltoluene [(8)] | 0.6 | 130 | US EPA Ecotox Chronic FW | 120 | 10 | 1,269 |
| Tert- Butylbenzene [(4)] | 0.4 | 46 | US EPA Ecotox Chronic FW | 2,300 | 130 | NA |
| Tetrachloroethene (PCE) | 100 | 120 | US EPA Ecotox Chronic FW | 830 | 98 | 750 |
| Toluene | 9 | 130 | US EPA Ecotox Chronic FW | 120 | 10 | 1,269 |
| Trichloroethene (TCE) | 38 | 120 | US EPA Ecotox Chronic FW | 440 | 47 | 7,257 |
| m,p-Xylenes | 6 | 13 | US DOE FW Chronic PRG | 230 | 13 | 62,308 |

## TABLE 20 (Continued)

## MAXIMUM DETECTED CONCENTRATIONS IN GROUNDWATER SCREENING LEVELS FOR PROTECTION OF FISH AND AQUATIC INVERTEBRATES SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Notes:

a San Francisco Regional Water Quality Control Board. "Risk-Based Screening Levels for Impacted Soil and Groundwater." December 2001. Aquatic Life Protection: Addresses potential impact on freshwater or marine aquatic life. Screening levels are lowest of marine and freshwater criteria.

b United States Environmental Protection Agency. 1993. "Great Lakes Water Quality Initiative Criteria Documents for protection of aquatic life in ambient water." PB93-154646. National Technical Information Service. Springfield, Virginia.

c Suter, G. W. II, and C. L. Tsao. 1996. Toxicological Benchmarks for Screening of Potential Contaminants of Concern for Effects on Aquatic Biota on Oak Ridge Reservation: 1996 Revision. Oak Ridge National Laboratory, Oak Ridge, TN. 104pp, ES/ER/TM-96/R2

| | | |
|---|---|---|
| < | Less than | US EPA Ecotox Chronic FW |
| DOE | United States Department of Energy | EPA chronic freshwater ecotoxicity value |
| EPA | United States Environmental Protection Agency | US DOE FW Chronic PRG |
| MCL | Maximum contaminant level | DOE chronic freshwater preliminary remediation goal for ecological concerns |
| µg/L | Micrograms per liter | US EPA SW Chronic LOAEL |
| NA | Not available | EPA chronic surface water lowest observed effects level |
| SWMU | Solid Waste Management Unit | |

# APPENDIX A
# SUMMARY OF ANALYTICAL RESULTS

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# TABLE A-1
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | S02MW11 | S02MW11 | S02MW11 | S05MW09 | S05MW09 | S05MW09 | S05MW10 | S05MW10 | S05MW10 | S07MW07 | S07MW07 | S07MW07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S02SB024 | S02SB025 | S02SB026 | S05SB018 | S05SB019 | S05SB020 | S05SB021 | S05SB022 | S05SB023 | S07SB013 | S07SB014 | S07SB015 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/02/1999 | 02/02/1999 | 02/02/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 01/28/1999 | 01/28/1999 | 01/28/1999 |
| Sample Depth (in feet) | 5.5 - 5.5 | 8.0 - 8.0 | 10.5 - 10.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,1,1-TRICHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 1,1,2,2-TETRACHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 1,1,2-TRICHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 1,1-DICHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 1,1-DICHLOROETHENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 1,1-DICHLOROPROPENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2,3-TRICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2,3-TRICHLOROPROPANE | 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 |
| 1,2,4-TRIMETHYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DIBROMO-3-CHLOROPROPANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DIBROMOETHANE | 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 |
| 1,2-DICHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 1,2-DICHLOROETHENE (TOTAL) | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 1,2-DICHLOROPROPANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 1,3,5-TRIMETHYLBENZENE | 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 |
| 1,3-DICHLOROPROPANE | 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-DICHLOROPROPANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-BUTANONE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 2-CHLOROTOLUENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-HEXANONE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| 4-CHLOROTOLUENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-METHYL-2-PENTANONE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| ACETONE | 12 U | 12 U | 12 U | 12 UJ | 14 UJ | 12 UJ | 12 UJ | 11 UJ | 12 UJ | 12 U | 12 U | 12 U |
| BENZENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| BROMOBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BROMOCHLOROMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BROMODICHLOROMETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| BROMOFORM | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| BROMOMETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| CARBON DISULFIDE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| CARBON TETRACHLORIDE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| CHLOROBENZENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| CHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| CHLOROFORM | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| CHLOROMETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CIS-1,3-DICHLOROPROPENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| DIBROMOCHLOROMETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| DIBROMOMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DICHLORODIFLUOROMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ETHYLBENZENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| HEXACHLOROBUTADIENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ISOPROPYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | S02MW11 | S02MW11 | S02MW11 | S05MW09 | S05MW09 | S05MW09 | S05MW10 | S05MW10 | S05MW10 | S07MW07 | S07MW07 | S07MW07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S02SB024 | S02SB025 | S02SB026 | S05SB018 | S05SB019 | S05SB020 | S05SB021 | S05SB022 | S05SB023 | S07SB013 | S07SB014 | S07SB015 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/02/1999 | 02/02/1999 | 02/02/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 01/28/1999 | 01/28/1999 | 01/28/1999 |
| Sample Depth (in feet) | 5.5 - 5.5 | 8.0 - 8.0 | 10.5 - 10.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| METHYL TERTIARY BUTYL ETHER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| METHYLENE CHLORIDE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| N-BUTYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| N-PROPYLBENZENE | 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 |
| O-XYLENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| P-ISOPROPYLTOLUENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SEC-BUTYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| STYRENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| TERT-BUTYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TETRACHLOROETHENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| TOLUENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TRANS-1,3-DICHLOROPROPENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| TRICHLOROETHENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| TRICHLOROFLUOROMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VINYL CHLORIDE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| XYLENE (TOTAL) | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 12 U | 12 U | 12 U | 12 U |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 1,2-DICHLOROBENZENE | NA | NA | NA | 190 U | 200 U | 200 U | 200 U | 190 U | 200 U | NA | NA | NA |
| 1,3-DICHLOROBENZENE | NA | NA | NA | 190 U | 200 U | 200 U | 200 U | 190 U | 200 U | NA | NA | NA |
| 1,4-DICHLOROBENZENE | NA | NA | NA | 190 U | 200 U | 200 U | 200 U | 190 U | 200 U | NA | NA | NA |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2,4,5-TRICHLOROPHENOL | NA | NA | NA | 960 U | 1,000 U | 1,000 U | 990 U | 950 U | 1,000 U | NA | NA | NA |
| 2,4,6-TRICHLOROPHENOL | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2,4-DICHLOROPHENOL | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2,4-DIMETHYLPHENOL | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2,4-DINITROPHENOL | NA | NA | NA | 960 U | 1,000 U | 1,000 U | 990 U | 950 U | 1,000 U | NA | NA | NA |
| 2,4-DINITROTOLUENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2,6-DINITROTOLUENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2-CHLORONAPHTHALENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2-CHLOROPHENOL | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2-METHYLNAPHTHALENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2-METHYLPHENOL | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 2-NITROANILINE | NA | NA | NA | 960 U | 1,000 U | 1,000 U | 990 U | 950 U | 1,000 U | NA | NA | NA |
| 2-NITROPHENOL | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 3,3'-DICHLOROBENZIDINE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 3-NITROANILINE | NA | NA | NA | 960 U | 1,000 U | 1,000 U | 990 U | 950 U | 1,000 U | NA | NA | NA |
| 4,6-DINITRO-2-METHYLPHENOL | NA | NA | NA | 960 U | 1,000 U | 1,000 U | 990 U | 950 U | 1,000 U | NA | NA | NA |
| 4-BROMOPHENYL-PHENYLETHER | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 4-CHLORO-3-METHYLPHENOL | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 4-CHLOROANILINE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 4-CHLOROPHENYL-PHENYLETHER | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 4-METHYLPHENOL | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| 4-NITROANILINE | NA | NA | NA | 960 U | 1,000 U | 1,000 U | 990 U | 950 U | 1,000 U | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | S02MW11 | S02MW11 | S02MW11 | S05MW09 | S05MW09 | S05MW09 | S05MW10 | S05MW10 | S05MW10 | S07MW07 | S07MW07 | S07MW07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S02SB024 | S02SB025 | S02SB026 | S05SB018 | S05SB019 | S05SB020 | S05SB021 | S05SB022 | S05SB023 | S07SB013 | S07SB014 | S07SB015 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/02/1999 | 02/02/1999 | 02/02/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 01/28/1999 | 01/28/1999 | 01/28/1999 |
| Sample Depth (in feet) | 5.5 - 5.5 | 8.0 - 8.0 | 10.5 - 10.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 4-NITROPHENOL | NA | NA | NA | 960 UJ | 1,000 U | 1,000 UJ | 990 UJ | 950 UJ | 1,000 UJ | NA | NA | NA |
| ACENAPHTHENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| ACENAPHTHYLENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| ANTHRACENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| BENZO(A)ANTHRACENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| BENZO(A)PYRENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| BENZO(B)FLUORANTHENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| BENZO(G,H,I)PERYLENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| BENZO(K)FLUORANTHENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| BIS(2-CHLOROETHOXY)METHANE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| BIS(2-CHLOROETHYL)ETHER | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| BIS(2-ETHYLHEXYL)PHTHALATE | NA | NA | NA | 150 U | 8,800 | 160 U | 150 U | 150 U | 160 U | NA | NA | NA |
| BUTYLBENZYLPHTHALATE | NA | NA | NA | 380 UJ | 400 U | 400 UJ | 390 UJ | 380 UJ | 400 UJ | NA | NA | NA |
| CARBAZOLE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| CHRYSENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| DI-N-BUTYLPHTHALATE | NA | NA | NA | 380 U | 400 U | 400 UJ | 390 U | 380 U | 400 U | NA | NA | NA |
| DI-N-OCTYLPHTHALATE | NA | NA | NA | 380 UJ | 400 U | 400 UJ | 390 UJ | 380 UJ | 400 UJ | NA | NA | NA |
| DIBENZ(A,H)ANTHRACENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| DIBENZOFURAN | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| DIETHYLPHTHALATE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| DIMETHYLPHTHALATE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| FLUORANTHENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| FLUORENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| HEXACHLOROBENZENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| HEXACHLOROBUTADIENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| HEXACHLOROCYCLOPENTADIENE | NA | NA | NA | 380 UJ | 400 U | 400 UJ | 390 UJ | 380 UJ | 400 UJ | NA | NA | NA |
| HEXACHLOROETHANE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| INDENO(1,2,3-CD)PYRENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| ISOPHORONE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| N-NITROSO-DI-N-PROPYLAMINE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| N-NITROSODIPHENYLAMINE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| NAPHTHALENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| NITROBENZENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| PENTACHLOROPHENOL | NA | NA | NA | 960 UJ | 1,000 U | 1,000 UJ | 990 UJ | 950 UJ | 1,000 UJ | NA | NA | NA |
| PHENANTHRENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| PHENOL | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| PYRENE | NA | NA | NA | 380 U | 400 U | 400 U | 390 U | 380 U | 400 U | NA | NA | NA |
| TOTAL HIGH MOLECULAR PAHS | NA | NA | NA | U | U | U | U | U | U | NA | NA | NA |
| TOTAL LOW MOLECULAR PAHS | NA | NA | NA | U | U | U | U | U | U | NA | NA | NA |
| TOTAL PAHS | NA | NA | NA | U | U | U | U | U | U | NA | NA | NA |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | S02MW11 | S02MW11 | S02MW11 | S05MW09 | S05MW09 | S05MW09 | S05MW10 | S05MW10 | S05MW10 | S07MW07 | S07MW07 | S07MW07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S02SB024 | S02SB025 | S02SB026 | S05SB018 | S05SB019 | S05SB020 | S05SB021 | S05SB022 | S05SB023 | S07SB013 | S07SB014 | S07SB015 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/02/1999 | 02/02/1999 | 02/02/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 01/28/1999 | 01/28/1999 | 01/28/1999 |
| Sample Depth (in feet) | 5.5 - 5.5 | 8.0 - 8.0 | 10.5 - 10.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 8 U | 8 U | 8 U | NA | NA | NA | NA | NA | NA | 8 U | 8 U | 8 U |
| GASOLINE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| GASOLINE RANGE ORGANICS | 0.5 U | 0.6 U | 0.6 U | NA | NA | NA | NA | NA | NA | 0.6 U | 0.6 U | 0.6 U |
| MOTOR OIL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL RANGE ORGANICS | 8 U | 8 U | 8 U | NA | NA | NA | NA | NA | NA | 8 U | 8 U | 8 U |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | 14,800 J | 15,500 J | 11,700 J | 15,300 | 12,000 | 17,300 | 16,900 J | 9,420 J | 11,800 J |
| ANTIMONY | NA | NA | NA | NA | 0.76 J | NA | NA | NA | 0.89 UJ | NA | NA | NA |
| ARSENIC | NA | NA | NA | 3.2 UJ | 4.2 *! | 2.7 UJ | 3.1 *! | 2.9 *! | 3.3 *! | 4.0 *! | 3.0 UJ | 3.1 UJ |
| BARIUM | NA | NA | NA | 136 J | 109 J | 110 J | 209 | 132 | 251 | 141 J | 88.0 J | 120 J |
| BERYLLIUM | NA | NA | NA | 0.22 UJ | 0.39 J | 0.18 UJ | 0.52 J | 0.34 J | 0.48 J | 0.39 J | 0.12 UJ | 0.20 UJ |
| CADMIUM | NA | NA | NA | 0.050 UJ | 0.040 UJ | 0.040 UJ | 0.080 U | 0.10 U | 0.090 U | 0.050 UJ | 0.040 UJ | 0.040 UJ |
| CALCIUM | NA | NA | NA | 2,920 J | 4,860 J | 2,190 J | 3,600 | 2,610 | 3,300 | 2,630 J | 1,930 J | 2,310 J |
| CHROMIUM | NA | NA | NA | 26.1 J | 31.2 J | 26.2 J | 27.0 | 24.9 | 33.8 | 33.1 J | 22.5 J | 21.8 J |
| COBALT | NA | NA | NA | 19.0 | 11.8 | 11.9 | 13.7 | 11.3 | 11.9 | 11.6 | 11.9 | 12.0 |
| COPPER | NA | NA | NA | 26.8 J | 33.2 J | 17.8 J | 70.9 | 33.1 | 29.3 | 25.0 J | 13.0 J | 17.7 J |
| IRON | NA | NA | NA | 16,700 J | 22,100 J | 14,900 J | 16,600 | 16,000 | 20,400 | 23,000 J | 14,300 J | 16,100 J |
| LEAD | NA | NA | NA | 5.9 | 4.9 | 4.4 | 5.3 J | 3.9 J | 4.8 J | 5.9 | 4.6 | 4.7 |
| MAGNESIUM | NA | NA | NA | 3,760 J | 6,040 J | 3,630 J | 4,080 | 3,640 | 5,280 | 5,930 J | 3,170 J | 4,150 J |
| MANGANESE | NA | NA | NA | 866 J | 378 J | 493 J | 384 J | 514 J | 485 J | 438 J | 537 J | 554 J |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S02MW11** | **S02MW11** | **S02MW11** | **S05MW09** | **S05MW09** | **S05MW09** | **S05MW10** | **S05MW10** | **S05MW10** | **S07MW07** | **S07MW07** | **S07MW07** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S02SB024 | S02SB025 | S02SB026 | S05SB018 | S05SB019 | S05SB020 | S05SB021 | S05SB022 | S05SB023 | S07SB013 | S07SB014 | S07SB015 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/02/1999 | 02/02/1999 | 02/02/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 02/01/1999 | 01/28/1999 | 01/28/1999 | 01/28/1999 |
| Sample Depth (in feet) | 5.5 - 5.5 | 8.0 - 8.0 | 10.5 - 10.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 | 5.5 - 5.5 | 10.5 - 10.5 | 15.5 - 15.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | 0.050 UJ | 0.060 UJ | 0.050 UJ | 0.13 UJ | 0.080 UJ | 0.10 UJ | 0.060 UJ | 0.050 UJ | 0.060 UJ |
| MOLYBDENUM | NA | NA | NA | 0.32 UJ | 0.31 UJ | 0.28 UJ | 0.18 U | 0.22 U | 0.19 U | 0.32 UJ | 0.31 UJ | 0.29 UJ |
| NICKEL | NA | NA | NA | 33.8 J | 36.3 J | 32.7 J | 30.8 | 34.1 | 38.8 | 37.6 J | 34.2 J | 38.9 J |
| POTASSIUM | NA | NA | NA | 1,050 J | 1,450 J | 1,300 J | 2,110 J | 1,160 J | 1,730 J | 1,590 J | 1,020 J | 1,380 J |
| SELENIUM | NA | NA | NA | 0.83 UJ | 0.79 UJ | 0.73 UJ | 0.57 UJ | 0.71 UJ | 0.62 UJ | 0.83 UJ | 0.79 UJ | 0.75 UJ |
| SILVER | NA | NA | NA | 0.23 U | 0.22 U | 0.20 U | 0.16 U | 0.20 U | 0.17 U | 0.23 U | 0.22 U | 0.21 U |
| SODIUM | NA | NA | NA | 87.4 J | 149 J | 53.2 UJ | 235 J | 93.1 J | 147 J | 472 J | 114 J | 84.8 J |
| THALLIUM | NA | NA | NA | 1.3 UJ | 1.1 UJ | 1.1 UJ | 1.5 UJ | 2.3 UJ | 1.9 UJ | 0.96 UJ | 1.1 UJ | 1.3 UJ |
| VANADIUM | NA | NA | NA | 48.3 J | 51.0 J | 35.7 J | 44.2 | 38.4 | 45.8 | 53.2 J | 35.2 J | 38.8 J |
| ZINC | NA | NA | NA | 45.8 J | 65.6 J | 130 J | 134 J | 42.7 J | 78.1 J | 50.4 J | 25.5 J | 32.8 J |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S07MW08** | **S07MW08** | **S07MW08** | **S07MW13** | **S07MW13** | **S07MW13** | **S18MW12** | **S18MW12** | **S18MW12** | **SB001** | **SB001** | **SB001** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S07MW010 | S07MW011 | S07MW012 | S07MW007 | S07MW008 | S07MW009 | S18SB029 | S18SB030 | S18SB031 | 02SB002 | 02SB003 | 02SB004 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 01/27/1999 | 01/27/1999 | 01/27/1999 | 01/26/1999 | 01/26/1999 | 01/26/1999 | 02/03/1999 | 02/03/1999 | 02/03/1999 | 02/19/2002 | 02/19/2002 | 02/19/2002 |
| Sample Depth (in feet) | 5.5 - 5.5 | 10.0 - 10.0 | 15.0 - 15.0 | 5.5 - 5.5 | 11.0 - 11.0 | 16.0 - 16.0 | 5.0 - 5.0 | 10.0 - 10.0 | 15.0 - 15.0 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,1,1-TRICHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| 1,1,2,2-TETRACHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| 1,1,2-TRICHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| 1,1-DICHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| 1,1-DICHLOROETHENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| 1,1-DICHLOROPROPENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,2,3-TRICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,2,3-TRICHLOROPROPANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,2,4-TRICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,2,4-TRIMETHYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,2-DIBROMO-3-CHLOROPROPANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,2-DIBROMOETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,2-DICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,2-DICHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| 1,2-DICHLOROETHENE (TOTAL) | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| 1,3,5-TRIMETHYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,3-DICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,3-DICHLOROPROPANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 1,4-DICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 2,2-DICHLOROPROPANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 2-BUTANONE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 100 UJ | 130 UJ | 91 UJ |
| 2-CHLOROTOLUENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 2-HEXANONE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | NA | NA | NA |
| 4-CHLOROTOLUENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| 4-METHYL-2-PENTANONE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 52 UJ | 66 UJ | 46 UJ |
| ACETONE | 12 UJ | 12 UJ | 12 U | 12 U | 12 U | 12 U | 12 UJ | 12 UJ | 11 UJ | 52 UJ | 66 UJ | 46 UJ |
| BENZENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| BROMOBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| BROMOCHLOROMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| BROMODICHLOROMETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| BROMOFORM | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| BROMOMETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| CARBON DISULFIDE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| CARBON TETRACHLORIDE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| CHLOROBENZENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| CHLOROETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| CHLOROFORM | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| CHLOROMETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 UJ | 11 UJ | 1 UJ | 1 UJ | 0.9 UJ |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| CIS-1,3-DICHLOROPROPENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| DIBROMOCHLOROMETHANE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| DIBROMOMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| DICHLORODIFLUOROMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| ETHYLBENZENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| HEXACHLOROBUTADIENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| ISOPROPYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S07MW08** | **S07MW08** | **S07MW08** | **S07MW13** | **S07MW13** | **S07MW13** | **S18MW12** | **S18MW12** | **S18MW12** | **SB001** | **SB001** | **SB001** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S07MW010 | S07MW011 | S07MW012 | S07MW007 | S07MW008 | S07MW009 | S18SB029 | S18SB030 | S18SB031 | 02SB002 | 02SB003 | 02SB004 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 01/27/1999 | 01/27/1999 | 01/27/1999 | 01/26/1999 | 01/26/1999 | 01/26/1999 | 02/03/1999 | 02/03/1999 | 02/03/1999 | 02/19/2002 | 02/19/2002 | 02/19/2002 |
| Sample Depth (in feet) | 5.5 - 5.5 | 10.0 - 10.0 | 15.0 - 15.0 | 5.5 - 5.5 | 11.0 - 11.0 | 16.0 - 16.0 | 5.0 - 5.0 | 10.0 - 10.0 | 15.0 - 15.0 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| METHYL TERTIARY BUTYL ETHER | NA | NA | NA | NA | NA | NA | NA | NA | NA | 10 UJ | 13 UJ | 9 UJ |
| METHYLENE CHLORIDE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| N-BUTYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| N-PROPYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| NAPHTHALENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| O-XYLENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| P-ISOPROPYLTOLUENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 4 J |
| SEC-BUTYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| STYRENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| TERT-BUTYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| TETRACHLOROETHENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| TOLUENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 0.8 J | 0.9 UJ |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| TRANS-1,3-DICHLOROPROPENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| TRICHLOROETHENE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| TRICHLOROFLUOROMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 UJ | 1 UJ | 0.9 UJ |
| VINYL CHLORIDE | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | 1 UJ | 1 UJ | 0.9 UJ |
| XYLENE (TOTAL) | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 11 U | NA | NA | NA |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROBENZENE | 200 U | 190 U | 190 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,3-DICHLOROBENZENE | 200 U | 190 U | 190 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,4-DICHLOROBENZENE | 200 U | 190 U | 190 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,5-TRICHLOROPHENOL | 990 U | 980 U | 950 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4,6-TRICHLOROPHENOL | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-DICHLOROPHENOL | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-DIMETHYLPHENOL | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-DINITROPHENOL | 990 U | 980 U | 950 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,4-DINITROTOLUENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2,6-DINITROTOLUENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-CHLORONAPHTHALENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-CHLOROPHENOL | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-METHYLNAPHTHALENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-METHYLPHENOL | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-NITROANILINE | 990 U | 980 U | 950 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-NITROPHENOL | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 3,3'-DICHLOROBENZIDINE | 390 UJ | 390 UJ | 380 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 3-NITROANILINE | 990 UJ | 980 UJ | 950 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,6-DINITRO-2-METHYLPHENOL | 990 U | 980 U | 950 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-BROMOPHENYL-PHENYLETHER | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLORO-3-METHYLPHENOL | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROANILINE | 390 UJ | 390 UJ | 380 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROPHENYL-PHENYLETHER | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-METHYLPHENOL | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-NITROANILINE | 990 UJ | 980 UJ | 950 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S07MW08** | **S07MW08** | **S07MW08** | **S07MW13** | **S07MW13** | **S07MW13** | **S18MW12** | **S18MW12** | **S18MW12** | **SB001** | **SB001** | **SB001** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S07MW010 | S07MW011 | S07MW012 | S07MW007 | S07MW008 | S07MW009 | S18SB029 | S18SB030 | S18SB031 | 02SB002 | 02SB003 | 02SB004 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 01/27/1999 | 01/27/1999 | 01/27/1999 | 01/26/1999 | 01/26/1999 | 01/26/1999 | 02/03/1999 | 02/03/1999 | 02/03/1999 | 02/19/2002 | 02/19/2002 | 02/19/2002 |
| Sample Depth (in feet) | 5.5 - 5.5 | 10.0 - 10.0 | 15.0 - 15.0 | 5.5 - 5.5 | 11.0 - 11.0 | 16.0 - 16.0 | 5.0 - 5.0 | 10.0 - 10.0 | 15.0 - 15.0 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 4-NITROPHENOL | 990 U | 980 U | 950 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ACENAPHTHENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ACENAPHTHYLENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTHRACENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BENZO(A)ANTHRACENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BENZO(A)PYRENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BENZO(B)FLUORANTHENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BENZO(G,H,I)PERYLENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BENZO(K)FLUORANTHENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BIS(2-CHLOROETHOXY)METHANE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BIS(2-CHLOROETHYL)ETHER | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BIS(2-ETHYLHEXYL)PHTHALATE | 150 U | 150 U | 150 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BUTYLBENZYLPHTHALATE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CARBAZOLE | 390 UJ | 390 UJ | 380 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHRYSENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DI-N-BUTYLPHTHALATE | 390 U | 390 U | 380 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DI-N-OCTYLPHTHALATE | 390 UJ | 390 UJ | 380 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DIBENZ(A,H)ANTHRACENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DIBENZOFURAN | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DIETHYLPHTHALATE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DIMETHYLPHTHALATE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| FLUORANTHENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| FLUORENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEXACHLOROBENZENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEXACHLOROBUTADIENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEXACHLOROCYCLOPENTADIENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEXACHLOROETHANE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| INDENO(1,2,3-CD)PYRENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ISOPHORONE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| N-NITROSO-DI-N-PROPYLAMINE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| N-NITROSODIPHENYLAMINE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NAPHTHALENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NITROBENZENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| PENTACHLOROPHENOL | 990 U | 980 U | 950 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| PHENANTHRENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| PHENOL | 96 J | 54 J | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| PYRENE | 390 U | 390 U | 380 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOTAL HIGH MOLECULAR PAHS | U | U | U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOTAL LOW MOLECULAR PAHS | U | U | U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOTAL PAHS | U | U | U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 4,4'-DDD | 4 U | 4 U | 4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDE | 4 U | 4 U | 4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4,4'-DDT | 4 U | 4 U | 4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ALDRIN | 2 U | 2 U | 2 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ALPHA-BHC | 2 U | 2 U | 2 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ALPHA-CHLORDANE | 2 U | 2 U | 2 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | S07MW08 | S07MW08 | S07MW08 | S07MW13 | S07MW13 | S07MW13 | S18MW12 | S18MW12 | S18MW12 | SB001 | SB001 | SB001 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S07MW010 | S07MW011 | S07MW012 | S07MW007 | S07MW008 | S07MW009 | S18SB029 | S18SB030 | S18SB031 | 02SB002 | 02SB003 | 02SB004 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 01/27/1999 | 01/27/1999 | 01/27/1999 | 01/26/1999 | 01/26/1999 | 01/26/1999 | 02/03/1999 | 02/03/1999 | 02/03/1999 | 02/19/2002 | 02/19/2002 | 02/19/2002 |
| Sample Depth (in feet) | 5.5 - 5.5 | 10.0 - 10.0 | 15.0 - 15.0 | 5.5 - 5.5 | 11.0 - 11.0 | 16.0 - 16.0 | 5.0 - 5.0 | 10.0 - 10.0 | 15.0 - 15.0 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| AROCLOR-1016 | 20 U | 20 U | 19 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1221 | 40 U | 39 U | 38 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1232 | 20 U | 20 U | 19 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1242 | 20 U | 20 U | 19 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1248 | 20 U | 20 U | 19 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1254 | 20 U | 20 U | 19 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1260 | 20 U | 20 U | 19 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BETA-BHC | 2 U | 2 U | 2 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DELTA-BHC | 2 U | 2 U | 2 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DIELDRIN | 4 U | 4 U | 4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDOSULFAN I | 2 U | 2 U | 2 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDOSULFAN II | 4 U | 4 U | 4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDOSULFAN SULFATE | 4 U | 4 U | 4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDRIN | 4 U | 4 U | 4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDRIN ALDEHYDE | 4 U | 4 U | 4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDRIN KETONE | 4 U | 4 U | 4 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| GAMMA-BHC (LINDANE) | 2 U | 2 U | 2 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| GAMMA-CHLORDANE | 2 U | 2 U | 2 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEPTACHLOR | 0.4 UJ | 0.4 UJ | 0.4 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEPTACHLOR EPOXIDE | 0.4 UJ | 0.4 UJ | 0.4 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| METHOXYCHLOR | 20 U | 20 U | 19 U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOXAPHENE | 120 U | 120 U | 110 U | 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 | U | U | U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOTAL DDTS | U | U | U | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 8 U | 8 U | 8 U | NA | NA | NA | 8 U | 8 U | 8 U | 6 J | 4 J | 4 J |
| GASOLINE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| GASOLINE RANGE ORGANICS | 0.6 U | 0.6 U | 0.6 U | NA | NA | NA | 0.5 U | 0.6 U | 0.6 U | 0.9 U | 0.7 U | 0.5 U |
| MOTOR OIL | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5 J | 12 U | 12 U |
| MOTOR OIL RANGE ORGANICS | 8 U | 8 U | 8 U | NA | NA | NA | 8 U | 8 U | 8 U | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | 20,000 J | 15,300 J | 13,200 J | NA | NA | NA | 14,100 | 15,100 | 12,700 | NA | NA | NA |
| ANTIMONY | NA | 0.69 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | 3.0 UJ | 3.7 *! | 3.1 UJ | NA | NA | NA | 1.7 J *! | 2.6 *! | 2.8 *! | NA | NA | NA |
| BARIUM | 103 J | 172 J | 155 J | NA | NA | NA | 239 | 102 | 140 | NA | NA | NA |
| BERYLLIUM | 0.49 J | 0.29 J | 0.28 J | NA | NA | NA | 0.56 J | 0.42 J | 0.43 J | NA | NA | NA |
| CADMIUM | 0.050 UJ | 0.040 UJ | 0.040 UJ | NA | NA | NA | 0.11 U | 0.12 U | 0.080 U | NA | NA | NA |
| CALCIUM | 2,610 J | 3,460 J | 2,690 J | NA | NA | NA | 4,190 | 5,750 | 3,700 | NA | NA | NA |
| CHROMIUM | 36.8 J | 40.3 J | 24.7 J | NA | NA | NA | 28.1 | 29.9 | 29.9 | NA | NA | NA |
| COBALT | 9.8 J | 12.5 | 10.7 J | NA | NA | NA | 18.0 | 12.3 | 11.7 | NA | NA | NA |
| COPPER | 25.1 J | 46.2 J | 20.2 J | NA | NA | NA | 27.6 | 52.8 | 26.3 | NA | NA | NA |
| IRON | 22,300 J | 19,900 J | 17,800 J | NA | NA | NA | 17,600 | 20,300 | 17,500 | NA | NA | NA |
| LEAD | 5.2 J | 5.2 | 4.7 | NA | NA | NA | 5.6 J | 4.4 J | 4.6 J | NA | NA | NA |
| MAGNESIUM | 5,180 J | 4,890 J | 4,420 J | NA | NA | NA | 4,480 | 5,300 | 4,120 | NA | NA | NA |
| MANGANESE | 370 J | 485 J | 430 J | NA | NA | NA | 1,070 J | 461 J | 484 J | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S07MW08** | **S07MW08** | **S07MW08** | **S07MW13** | **S07MW13** | **S07MW13** | **S18MW12** | **S18MW12** | **S18MW12** | **SB001** | **SB001** | **SB001** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S07MW010 | S07MW011 | S07MW012 | S07MW007 | S07MW008 | S07MW009 | S18SB029 | S18SB030 | S18SB031 | 02SB002 | 02SB003 | 02SB004 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 01/27/1999 | 01/27/1999 | 01/27/1999 | 01/26/1999 | 01/26/1999 | 01/26/1999 | 02/03/1999 | 02/03/1999 | 02/03/1999 | 02/19/2002 | 02/19/2002 | 02/19/2002 |
| Sample Depth (in feet) | 5.5 - 5.5 | 10.0 - 10.0 | 15.0 - 15.0 | 5.5 - 5.5 | 11.0 - 11.0 | 16.0 - 16.0 | 5.0 - 5.0 | 10.0 - 10.0 | 15.0 - 15.0 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | 0.050 UJ | 0.060 UJ | 0.050 UJ | NA | NA | NA | 0.080 UJ | 0.13 UJ | 0.080 UJ | NA | NA | NA |
| MOLYBDENUM | 0.32 UJ | 0.29 UJ | 0.31 UJ | NA | NA | NA | 0.25 U | 0.25 U | 0.18 U | NA | NA | NA |
| NICKEL | 41.9 J | 39.1 J | 34.6 J | NA | NA | NA | 46.8 | 32.9 | 34.9 | NA | NA | NA |
| POTASSIUM | 1,460 J | 1,510 J | 1,550 J | NA | NA | NA | 1,120 J | 1,360 J | 1,590 J | NA | NA | NA |
| SELENIUM | 0.81 UJ | 0.73 UJ | 0.80 UJ | NA | NA | NA | 0.80 UJ | 0.83 UJ | 0.59 UJ | NA | NA | NA |
| SILVER | 0.23 U | 0.20 U | 0.22 U | NA | NA | NA | 0.22 U | 0.23 U | 0.16 U | NA | NA | NA |
| SODIUM | 213 J | 413 J | 258 J | NA | NA | NA | 297 J | 312 J | 242 J | NA | NA | NA |
| THALLIUM | 0.95 UJ | 1.8 UJ | 1.2 UJ | NA | NA | NA | 2.5 UJ | 2.1 UJ | 2.0 UJ | NA | NA | NA |
| VANADIUM | 50.8 J | 48.3 J | 41.8 J | NA | NA | NA | 41.0 | 43.7 | 38.1 | NA | NA | NA |
| ZINC | 51.8 J | 82.2 J | 42.8 J | NA | NA | NA | 36.7 J | 80.0 J | 51.4 J | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 16.8 | 16.2 | 17.7 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB001 | SB002 | SB002 | SB002 | SB002 | SB003 | SB003 | SB003 | SB003 | SB004 | SB004 | SB004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB005 | 02SB166 | 02SB167 | 02SB168 | 02SB169 | 02SB014 | 02SB015 | 02SB016 | 02SB017 | 02SB154 | 02SB155 | 02SB156 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/19/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1,1-TRICHLOROETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1,2,2-TETRACHLOROETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1,2-TRICHLOROETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1-DICHLOROETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1-DICHLOROETHENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1-DICHLOROPROPENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2,3-TRICHLOROBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2,3-TRICHLOROPROPANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2,4-TRICHLOROBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2,4-TRIMETHYLBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DIBROMOETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DICHLOROBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DICHLOROETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,3,5-TRIMETHYLBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,3-DICHLOROBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,3-DICHLOROPROPANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,4-DICHLOROBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 2,2-DICHLOROPROPANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 2-BUTANONE | 110 UJ | 95 U | 98 UJ | 96 U | 110 UJ | 120 UJ | 120 UJ | 85 UJ | 87 UJ | 130 U | 95 U | 88 U |
| 2-CHLOROTOLUENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 4-METHYL-2-PENTANONE | 56 UJ | 47 U | 49 U | 48 U | 2 J | 59 UJ | 60 UJ | 43 UJ | 44 UJ | 67 U | 47 U | 44 U |
| ACETONE | 56 UJ | 47 UJ | 49 UJ | 48 U | 54 U | 59 UJ | 60 UJ | 43 UJ | 44 UJ | 67 UJ | 47 UJ | 44 UJ |
| BENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMOBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMOCHLOROMETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMODICHLOROMETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMOFORM | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMOMETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CARBON DISULFIDE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CARBON TETRACHLORIDE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CHLOROBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CHLOROETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CHLOROFORM | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CHLOROMETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CIS-1,2-DICHLOROETHENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CIS-1,3-DICHLOROPROPENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| DIBROMOCHLOROMETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| DIBROMOMETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| DICHLORODIFLUOROMETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| ETHYLBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| HEXACHLOROBUTADIENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| ISOPROPYLBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB001 | SB002 | SB002 | SB002 | SB002 | SB003 | SB003 | SB003 | SB003 | SB004 | SB004 | SB004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB005 | 02SB166 | 02SB167 | 02SB168 | 02SB169 | 02SB014 | 02SB015 | 02SB016 | 02SB017 | 02SB154 | 02SB155 | 02SB156 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/19/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| METHYL TERTIARY BUTYL ETHER | 11 UJ | 10 U | 10 U | 10 U | 11 U | 12 UJ | 12 UJ | 9 UJ | 9 UJ | 13 U | 10 U | 9 U |
| METHYLENE CHLORIDE | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 3 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 4 UJ | 2 UJ | 2 UJ |
| N-BUTYLBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| N-PROPYLBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| NAPHTHALENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| O-XYLENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| P-ISOPROPYLTOLUENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| SEC-BUTYLBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| STYRENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TERT-BUTYLBENZENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TETRACHLOROETHENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TOLUENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 2 | 0.9 U |
| TRANS-1,2-DICHLOROETHENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TRANS-1,3-DICHLOROPROPENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TRICHLOROETHENE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TRICHLOROFLUOROMETHANE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| VINYL CHLORIDE | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB001 | SB002 | SB002 | SB002 | SB002 | SB003 | SB003 | SB003 | SB003 | SB004 | SB004 | SB004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB005 | 02SB166 | 02SB167 | 02SB168 | 02SB169 | 02SB014 | 02SB015 | 02SB016 | 02SB017 | 02SB154 | 02SB155 | 02SB156 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/19/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB001 | SB002 | SB002 | SB002 | SB002 | SB003 | SB003 | SB003 | SB003 | SB004 | SB004 | SB004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB005 | 02SB166 | 02SB167 | 02SB168 | 02SB169 | 02SB014 | 02SB015 | 02SB016 | 02SB017 | 02SB154 | 02SB155 | 02SB156 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/19/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | 29 D | 12 U | 12 U | 12 U | 16 D | 7 J | 8 J | 11 U | 15 U | 12 U | 12 U |
| GASOLINE | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | NA | NA | NA | NA | 0.7 U | 0.5 U | 0.5 U |
| GASOLINE RANGE ORGANICS | 0.6 U | NA | NA | NA | NA | 0.6 U | 0.5 U | 0.4 U | 0.6 U | NA | NA | NA |
| MOTOR OIL | 12 U | 12 U | 12 U | 12 U | 12 U | 73 M | 12 U | 12 U | 11 U | 15 U | 12 U | 12 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB001 | SB002 | SB002 | SB002 | SB002 | SB003 | SB003 | SB003 | SB003 | SB004 | SB004 | SB004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB005 | 02SB166 | 02SB167 | 02SB168 | 02SB169 | 02SB014 | 02SB015 | 02SB016 | 02SB017 | 02SB154 | 02SB155 | 02SB156 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/19/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 14.4 | 13.3 | 17.4 | 14.5 | 18.7 | 25.9 | 15.3 | 15.3 | 11.6 | 32.4 | 16.6 | 13.6 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB004 | SB005 | SB005 | SB005 | SB005 | SB006 | SB006 | SB006 | SB006 | SB007 | SB007 | SB007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB157 | 02SB006 | 02SB007 | 02SB008 | 02SB009 | 02SB018 | 02SB019 | 02SB020 | 02SB021 | 02SB162 | 02SB163 | 02SB164 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,1,1-TRICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,1,2,2-TETRACHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,1,2-TRICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,1-DICHLOROPROPENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,2,4-TRICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,2,4-TRIMETHYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,2-DIBROMOETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,2-DICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,3-DICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,3-DICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 1,4-DICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 2,2-DICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 2-BUTANONE | 90 U | 140 UJ | 110 UJ | 100 UJ | 100 UJ | 110 UJ | 120 UJ | 100 UJ | 100 UJ | 110 U | 99 UJ | 96 U |
| 2-CHLOROTOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| 4-METHYL-2-PENTANONE | 45 U | 69 UJ | 55 UJ | 50 UJ | 0.7 J | 53 UJ | 58 UJ | 51 UJ | 51 UJ | 56 U | 49 U | 3 J |
| ACETONE | 45 UJ | 69 UJ | 55 UJ | 50 UJ | 50 UJ | 53 UJ | 58 UJ | 51 UJ | 51 UJ | 56 UJ | 49 UJ | 48 UJ |
| BENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| BROMOBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| BROMOCHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| BROMODICHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| BROMOFORM | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| BROMOMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| CARBON DISULFIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| CARBON TETRACHLORIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| CHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| CHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| CHLOROFORM | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| CHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| CIS-1,2-DICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| CIS-1,3-DICHLOROPROPENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| DIBROMOCHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| DIBROMOMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| DICHLORODIFLUOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| ETHYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| HEXACHLOROBUTADIENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| ISOPROPYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB004 | SB005 | SB005 | SB005 | SB005 | SB006 | SB006 | SB006 | SB006 | SB007 | SB007 | SB007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB157 | 02SB006 | 02SB007 | 02SB008 | 02SB009 | 02SB018 | 02SB019 | 02SB020 | 02SB021 | 02SB162 | 02SB163 | 02SB164 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| METHYL TERTIARY BUTYL ETHER | 9 U | 14 UJ | 11 UJ | 10 UJ | 10 UJ | 11 UJ | 12 UJ | 10 UJ | 10 UJ | 11 U | 10 U | 10 U |
| METHYLENE CHLORIDE | 2 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ |
| N-BUTYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| N-PROPYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| NAPHTHALENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| O-XYLENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| P-ISOPROPYLTOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| SEC-BUTYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| STYRENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| TERT-BUTYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| TETRACHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| TOLUENE | 0.7 J | 1 UJ | 0.8 J | 1 UJ | 1 J | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| TRANS-1,2-DICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| TRANS-1,3-DICHLOROPROPENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| TRICHLOROFLUOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| VINYL CHLORIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB004 | SB005 | SB005 | SB005 | SB005 | SB006 | SB006 | SB006 | SB006 | SB007 | SB007 | SB007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB157 | 02SB006 | 02SB007 | 02SB008 | 02SB009 | 02SB018 | 02SB019 | 02SB020 | 02SB021 | 02SB162 | 02SB163 | 02SB164 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB004 | SB005 | SB005 | SB005 | SB005 | SB006 | SB006 | SB006 | SB006 | SB007 | SB007 | SB007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB157 | 02SB006 | 02SB007 | 02SB008 | 02SB009 | 02SB018 | 02SB019 | 02SB020 | 02SB021 | 02SB162 | 02SB163 | 02SB164 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 8 J | 12 U | 7 J | 13 U | 12 U | 12 U |
| GASOLINE | 0.5 U | NA | NA | NA | NA | NA | NA | NA | NA | 0.6 U | 0.5 U | 0.5 U |
| GASOLINE RANGE ORGANICS | NA | 0.6 U | 0.5 U | 0.5 U | 0.5 U | 0.7 U | 0.7 U | 0.5 U | 0.5 UJ | NA | NA | NA |
| MOTOR OIL | 12 U | 120 M | 12 U | 12 U | 12 U | 12 U | 12 U | 14 M | 12 U | 13 U | 12 U | 12 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB004 | SB005 | SB005 | SB005 | SB005 | SB006 | SB006 | SB006 | SB006 | SB007 | SB007 | SB007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB157 | 02SB006 | 02SB007 | 02SB008 | 02SB009 | 02SB018 | 02SB019 | 02SB020 | 02SB021 | 02SB162 | 02SB163 | 02SB164 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/19/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 03/01/2002 | 03/01/2002 | 03/01/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 15.2 | 15.1 | 16.1 | 15.7 | 15.7 | 17.6 | 17.0 | 13.9 | 18.1 | 20.8 | 18.0 | 16.7 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB007 | SB008 | SB008 | SB008 | SB008 | SB009 | SB009 | SB009 | SB009 | SB010 | SB010 | SB010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB165 | 05SB032 | 05SB033 | 05SB034 | 05SB035 | 05SB094 | 05SB095 | 05SB096 | 05SB097 | 05SB116 | 05SB117 | 05SB118 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/01/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1,1-TRICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1,2,2-TETRACHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1,2-TRICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1-DICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1-DICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,1-DICHLOROPROPENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2,3-TRICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2,3-TRICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2,4-TRICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2,4-TRIMETHYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DIBROMOETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,3,5-TRIMETHYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,3-DICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,3-DICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 1,4-DICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 2,2-DICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 2-BUTANONE | 94 UJ | 110 UJ | 120 UJ | 110 UJ | 130 UJ | 100 UJ | 99 UJ | 94 UJ | 92 UJ | 98 U | 110 U | 93 U |
| 2-CHLOROTOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| 4-METHYL-2-PENTANONE | 47 U | 57 UJ | 3 J | 54 UJ | 65 UJ | 50 UJ | 50 UJ | 47 UJ | 46 UJ | 49 U | 54 U | 47 U |
| ACETONE | 47 UJ | 57 UJ | 62 UJ | 54 UJ | 65 UJ | 50 UJ | 50 UJ | 47 UJ | 46 UJ | 49 UJ | 54 U | 47 U |
| BENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMOBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMOCHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMODICHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMOFORM | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| BROMOMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CARBON DISULFIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CARBON TETRACHLORIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CHLOROFORM | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CIS-1,2-DICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| CIS-1,3-DICHLOROPROPENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| DIBROMOCHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| DIBROMOMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| DICHLORODIFLUOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| ETHYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| HEXACHLOROBUTADIENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| ISOPROPYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB007 | SB008 | SB008 | SB008 | SB008 | SB009 | SB009 | SB009 | SB009 | SB010 | SB010 | SB010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB165 | 05SB032 | 05SB033 | 05SB034 | 05SB035 | 05SB094 | 05SB095 | 05SB096 | 05SB097 | 05SB116 | 05SB117 | 05SB118 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/01/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| METHYL TERTIARY BUTYL ETHER | 9 U | 11 UJ | 12 UJ | 11 UJ | 13 UJ | 10 UJ | 10 UJ | 9 UJ | 9 UJ | 10 U | 11 U | 9 U |
| METHYLENE CHLORIDE | 1 UJ | 2 UJ | 3 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| N-BUTYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| N-PROPYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| NAPHTHALENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| O-XYLENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| P-ISOPROPYLTOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| SEC-BUTYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| STYRENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TERT-BUTYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TETRACHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TRANS-1,2-DICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TRANS-1,3-DICHLOROPROPENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TRICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| TRICHLOROFLUOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| VINYL CHLORIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 U | 1 U | 0.9 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB007 | SB008 | SB008 | SB008 | SB008 | SB009 | SB009 | SB009 | SB009 | SB010 | SB010 | SB010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB165 | 05SB032 | 05SB033 | 05SB034 | 05SB035 | 05SB094 | 05SB095 | 05SB096 | 05SB097 | 05SB116 | 05SB117 | 05SB118 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/01/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB007 | SB008 | SB008 | SB008 | SB008 | SB009 | SB009 | SB009 | SB009 | SB010 | SB010 | SB010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB165 | 05SB032 | 05SB033 | 05SB034 | 05SB035 | 05SB094 | 05SB095 | 05SB096 | 05SB097 | 05SB116 | 05SB117 | 05SB118 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/01/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | 12 U | 12 U | 13 U | 12 U | 11 U | 12 U | 12 U | 12 U | 10 U | 12 U | 11 U |
| GASOLINE | 0.5 U | 0.8 U | 0.6 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.4 U | 0.5 U | 0.4 U |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 12 U | 12 U | 12 U | 13 U | 12 U | 11 U | 12 U | 12 U | 12 U | 10 U | 12 U | 11 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB007 | SB008 | SB008 | SB008 | SB008 | SB009 | SB009 | SB009 | SB009 | SB010 | SB010 | SB010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02SB165 | 05SB032 | 05SB033 | 05SB034 | 05SB035 | 05SB094 | 05SB095 | 05SB096 | 05SB097 | 05SB116 | 05SB117 | 05SB118 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/01/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 16.4 | 18.0 | 17.8 | 20.9 | 16.8 | 12.8 | 17.4 | 15.9 | 15.2 | 3.9 | 16.5 | 12.2 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB010 | SB011 | SB011 | SB011 | SB011 | SB012 | SB012 | SB012 | SB012 | SB013 | SB013 | SB013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB119 | 02SB022 | 05SB023 | 05SB024 | 05SB025 | 05SB112 | 05SB113 | 05SB114 | 05SB115 | 05SB108 | 05SB109 | 05SB110 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,1,1-TRICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,1,2,2-TETRACHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,1,2-TRICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,1-DICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,1-DICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,1-DICHLOROPROPENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,2,3-TRICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,2,3-TRICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,2,4-TRICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,2,4-TRIMETHYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,2-DIBROMOETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,2-DICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,2-DICHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,3,5-TRIMETHYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,3-DICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,3-DICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 1,4-DICHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 2,2-DICHLOROPROPANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 2-BUTANONE | 91 U | 99 UJ | 110 UJ | 120 UJ | 96 UJ | 100 U | 96 U | 95 U | 94 U | 110 U | 96 U | 91 U |
| 2-CHLOROTOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| 4-METHYL-2-PENTANONE | 46 U | 49 UJ | 55 UJ | 58 UJ | 48 UJ | 51 U | 48 U | 48 U | 47 UJ | 57 U | 48 U | 45 U |
| ACETONE | 46 U | 49 UJ | 55 UJ | 58 UJ | 48 UJ | 51 UJ | 48 UJ | 48 UJ | 47 UJ | 57 UJ | 48 UJ | 45 UJ |
| BENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| BROMOBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| BROMOCHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| BROMODICHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| BROMOFORM | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| BROMOMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| CARBON DISULFIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| CARBON TETRACHLORIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| CHLOROBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| CHLOROETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| CHLOROFORM | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| CHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| CIS-1,2-DICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| CIS-1,3-DICHLOROPROPENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| DIBROMOCHLOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| DIBROMOMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| DICHLORODIFLUOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| ETHYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| HEXACHLOROBUTADIENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| ISOPROPYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB010 | SB011 | SB011 | SB011 | SB011 | SB012 | SB012 | SB012 | SB012 | SB013 | SB013 | SB013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB119 | 02SB022 | 05SB023 | 05SB024 | 05SB025 | 05SB112 | 05SB113 | 05SB114 | 05SB115 | 05SB108 | 05SB109 | 05SB110 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| METHYL TERTIARY BUTYL ETHER | 9 U | 10 UJ | 11 UJ | 12 UJ | 10 UJ | 10 U | 10 U | 10 U | 9 U | 11 U | 10 U | 9 U |
| METHYLENE CHLORIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 U | 1 U | 0.9 U |
| N-BUTYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| N-PROPYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| NAPHTHALENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| O-XYLENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| P-ISOPROPYLTOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| SEC-BUTYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| STYRENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| TERT-BUTYLBENZENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| TETRACHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| TOLUENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| TRANS-1,2-DICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| TRANS-1,3-DICHLOROPROPENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| TRICHLOROETHENE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| TRICHLOROFLUOROMETHANE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| VINYL CHLORIDE | 0.9 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB010 | SB011 | SB011 | SB011 | SB011 | SB012 | SB012 | SB012 | SB012 | SB013 | SB013 | SB013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB119 | 02SB022 | 05SB023 | 05SB024 | 05SB025 | 05SB112 | 05SB113 | 05SB114 | 05SB115 | 05SB108 | 05SB109 | 05SB110 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB010 | SB011 | SB011 | SB011 | SB011 | SB012 | SB012 | SB012 | SB012 | SB013 | SB013 | SB013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB119 | 02SB022 | 05SB023 | 05SB024 | 05SB025 | 05SB112 | 05SB113 | 05SB114 | 05SB115 | 05SB108 | 05SB109 | 05SB110 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | 11 U | 8 J | 6 J | 7 J | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U |
| GASOLINE | 0.5 U | NA | NA | NA | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| GASOLINE RANGE ORGANICS | NA | 0.5 U | 0.5 U | 0.5 U | 0.5 U | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 12 U | 11 U | 12 U | 12 U | 12 U | 120 M | 12 U | 12 U | 12 U | 23 M | 12 U | 12 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB010 | SB011 | SB011 | SB011 | SB011 | SB012 | SB012 | SB012 | SB012 | SB013 | SB013 | SB013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB119 | 02SB022 | 05SB023 | 05SB024 | 05SB025 | 05SB112 | 05SB113 | 05SB114 | 05SB115 | 05SB108 | 05SB109 | 05SB110 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/20/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 14.4 | 12.8 | 17.6 | 14.9 | 18.0 | 15.2 | 15.7 | 16.1 | 14.9 | 19.2 | 16.4 | 14.2 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB013 | SB014 | SB014 | SB014 | SB014 | SB015 | SB015 | SB015 | SB015 | SB016 | SB016 | SB016 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB111 | 05SB038 | 05SB039 | 05SB040 | 05SB041 | 05SB104 | 05SB105 | 05SB106 | 05SB107 | 05SB090 | 05SB091 | 05SB092 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,1,1-TRICHLOROETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,1,2,2-TETRACHLOROETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,1,2-TRICHLOROETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,1-DICHLOROETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,1-DICHLOROETHENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,1-DICHLOROPROPENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,2,3-TRICHLOROBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,2,3-TRICHLOROPROPANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,2,4-TRICHLOROBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,2,4-TRIMETHYLBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DIBROMOETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DICHLOROBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DICHLOROETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,3,5-TRIMETHYLBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,3-DICHLOROBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,3-DICHLOROPROPANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 1,4-DICHLOROBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 2,2-DICHLOROPROPANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 2-BUTANONE | 95 U | 110 UJ | 110 UJ | 130 UJ | 110 UJ | 100 U | 100 U | 97 U | 98 U | 97 UJ | 95 UJ | 97 UJ |
| 2-CHLOROTOLUENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| 4-METHYL-2-PENTANONE | 48 U | 55 UJ | 55 UJ | 63 UJ | 55 UJ | 50 U | 50 U | 49 U | 49 U | 49 UJ | 48 UJ | 48 UJ |
| ACETONE | 48 UJ | 55 UJ | 55 UJ | 63 UJ | 55 UJ | 50 UJ | 50 UJ | 49 UJ | 49 UJ | 49 UJ | 48 UJ | 48 UJ |
| BENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| BROMOBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| BROMOCHLOROMETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| BROMODICHLOROMETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| BROMOFORM | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| BROMOMETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| CARBON DISULFIDE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| CARBON TETRACHLORIDE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| CHLOROBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| CHLOROETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| CHLOROFORM | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| CHLOROMETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| CIS-1,2-DICHLOROETHENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| CIS-1,3-DICHLOROPROPENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| DIBROMOCHLOROMETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| DIBROMOMETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| DICHLORODIFLUOROMETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| ETHYLBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| HEXACHLOROBUTADIENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| ISOPROPYLBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB013 | SB014 | SB014 | SB014 | SB014 | SB015 | SB015 | SB015 | SB015 | SB016 | SB016 | SB016 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB111 | 05SB038 | 05SB039 | 05SB040 | 05SB041 | 05SB104 | 05SB105 | 05SB106 | 05SB107 | 05SB090 | 05SB091 | 05SB092 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| METHYL TERTIARY BUTYL ETHER | 10 U | 11 UJ | 11 UJ | 13 UJ | 11 UJ | 10 U | 10 U | 10 U | 10 U | 10 UJ | 10 UJ | 10 UJ |
| METHYLENE CHLORIDE | 1 UJ | 1 UJ | 4 UJ | 2 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| N-BUTYLBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| N-PROPYLBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| NAPHTHALENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| O-XYLENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| P-ISOPROPYLTOLUENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| SEC-BUTYLBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| STYRENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| TERT-BUTYLBENZENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| TETRACHLOROETHENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| TOLUENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| TRANS-1,2-DICHLOROETHENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| TRANS-1,3-DICHLOROPROPENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| TRICHLOROETHENE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| TRICHLOROFLUOROMETHANE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| VINYL CHLORIDE | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB013 | SB014 | SB014 | SB014 | SB014 | SB015 | SB015 | SB015 | SB015 | SB016 | SB016 | SB016 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB111 | 05SB038 | 05SB039 | 05SB040 | 05SB041 | 05SB104 | 05SB105 | 05SB106 | 05SB107 | 05SB090 | 05SB091 | 05SB092 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB013 | SB014 | SB014 | SB014 | SB014 | SB015 | SB015 | SB015 | SB015 | SB016 | SB016 | SB016 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB111 | 05SB038 | 05SB039 | 05SB040 | 05SB041 | 05SB104 | 05SB105 | 05SB106 | 05SB107 | 05SB090 | 05SB091 | 05SB092 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | 12 U | 13 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U |
| GASOLINE | 0.5 U | 0.6 U | 0.6 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.04 J | 0.5 U | 0.6 U |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 12 U | 12 U | 13 U | 12 U | 12 U | 12 U | 12 U | 12 U | 12 U | 14 M | 12 U | 12 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB013 | SB014 | SB014 | SB014 | SB014 | SB015 | SB015 | SB015 | SB015 | SB016 | SB016 | SB016 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB111 | 05SB038 | 05SB039 | 05SB040 | 05SB041 | 05SB104 | 05SB105 | 05SB106 | 05SB107 | 05SB090 | 05SB091 | 05SB092 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/26/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/26/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 15.1 | 17.0 | 22.2 | 13.8 | 17.1 | 16.8 | 18.1 | 14.7 | 14.2 | 16.5 | 15.8 | 16.4 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB016 | SB017 | SB017 | SB017 | SB017 | SB018 | SB018 | SB018 | SB018 | SB018 | SB019 | SB019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB093 | 05SB042 | 05SB043 | 05SB044 | 05SB045 | 05SB081 | 05SB082 | 05SB083 | 05SB084 | 05SB089 | 05SB085 | 05SB086 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 28.0 - 28.0 | 1.5 - 1.5 | 6.0 - 6.0 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,1,1-TRICHLOROETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,1,2,2-TETRACHLOROETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,1,2-TRICHLOROETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,1-DICHLOROETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,1-DICHLOROETHENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,1-DICHLOROPROPENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,2,3-TRICHLOROBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,2,3-TRICHLOROPROPANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,2,4-TRICHLOROBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,2,4-TRIMETHYLBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DIBROMO-3-CHLOROPROPANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DIBROMOETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DICHLOROBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DICHLOROETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,3,5-TRIMETHYLBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,3-DICHLOROBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,3-DICHLOROPROPANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 1,4-DICHLOROBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 2,2-DICHLOROPROPANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 2-BUTANONE | 92 UJ | 110 UJ | 110 U | 110 U | 110 U | 94 UJ | 100 UJ | 95 UJ | 93 UJ | 100 UJ | 100 UJ | 100 UJ |
| 2-CHLOROTOLUENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| 4-METHYL-2-PENTANONE | 1 J | 57 UJ | 53 U | 53 U | 54 U | 47 UJ | 50 UJ | 2 J | 47 UJ | 51 UJ | 50 UJ | 1 J |
| ACETONE | 46 UJ | 57 UJ | 53 U | 53 U | 54 U | 47 UJ | 50 UJ | 48 UJ | 47 UJ | 51 UJ | 50 UJ | 51 UJ |
| BENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| BROMOBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| BROMOCHLOROMETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| BROMODICHLOROMETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| BROMOFORM | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| BROMOMETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| CARBON DISULFIDE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| CARBON TETRACHLORIDE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| CHLOROBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| CHLOROETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| CHLOROFORM | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| CHLOROMETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| CIS-1,2-DICHLOROETHENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| CIS-1,3-DICHLOROPROPENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| DIBROMOCHLOROMETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| DIBROMOMETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| DICHLORODIFLUOROMETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| ETHYLBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| HEXACHLOROBUTADIENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| ISOPROPYLBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB016 | SB017 | SB017 | SB017 | SB017 | SB018 | SB018 | SB018 | SB018 | SB018 | SB019 | SB019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB093 | 05SB042 | 05SB043 | 05SB044 | 05SB045 | 05SB081 | 05SB082 | 05SB083 | 05SB084 | 05SB089 | 05SB085 | 05SB086 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 28.0 - 28.0 | 1.5 - 1.5 | 6.0 - 6.0 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| METHYL TERTIARY BUTYL ETHER | 9 UJ | 11 UJ | 11 U | 11 U | 11 U | 9 UJ | 10 UJ | 10 UJ | 9 UJ | 10 UJ | 10 UJ | 10 UJ |
| METHYLENE CHLORIDE | 0.9 UJ | 1 UJ | 2 UJ | 2 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| N-BUTYLBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| N-PROPYLBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| NAPHTHALENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| O-XYLENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| P-ISOPROPYLTOLUENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| SEC-BUTYLBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| STYRENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| TERT-BUTYLBENZENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| TETRACHLOROETHENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 2 J | 1 UJ | 1 UJ |
| TOLUENE | 1 J | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| TRANS-1,2-DICHLOROETHENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| TRANS-1,3-DICHLOROPROPENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| TRICHLOROETHENE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 J | 1 UJ | 1 UJ |
| TRICHLOROFLUOROMETHANE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| VINYL CHLORIDE | 0.9 UJ | 1 UJ | 1 U | 1 U | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB016 | SB017 | SB017 | SB017 | SB017 | SB018 | SB018 | SB018 | SB018 | SB018 | SB019 | SB019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB093 | 05SB042 | 05SB043 | 05SB044 | 05SB045 | 05SB081 | 05SB082 | 05SB083 | 05SB084 | 05SB089 | 05SB085 | 05SB086 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 28.0 - 28.0 | 1.5 - 1.5 | 6.0 - 6.0 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB016 | SB017 | SB017 | SB017 | SB017 | SB018 | SB018 | SB018 | SB018 | SB018 | SB019 | SB019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB093 | 05SB042 | 05SB043 | 05SB044 | 05SB045 | 05SB081 | 05SB082 | 05SB083 | 05SB084 | 05SB089 | 05SB085 | 05SB086 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 28.0 - 28.0 | 1.5 - 1.5 | 6.0 - 6.0 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | 13 U | 12 U | 12 U | 12 U | 12 U | 41 D | 12 U | 12 U | NA | 120 U | 12 U |
| GASOLINE | 0.5 U | 0.6 U | 0.6 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | NA | 0.5 U | 0.5 U |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 12 U | 13 U | 12 U | 12 U | 12 U | 65 M | 12 U | 12 U | 12 U | NA | 360 M | 12 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB016 | SB017 | SB017 | SB017 | SB017 | SB018 | SB018 | SB018 | SB018 | SB018 | SB019 | SB019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB093 | 05SB042 | 05SB043 | 05SB044 | 05SB045 | 05SB081 | 05SB082 | 05SB083 | 05SB084 | 05SB089 | 05SB085 | 05SB086 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 | 02/25/2002 |
| Sample Depth (in feet) | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 28.0 - 28.0 | 1.5 - 1.5 | 6.0 - 6.0 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 15.0 | 21.7 | 17.0 | 16.7 | 16.5 | 14.8 | 16.2 | 15.8 | 14.0 | 19.2 | 13.4 | 17.0 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB019 | SB019 | SB020 | SB020 | SB020 | SB020 | SB020 | SB021 | SB021 | SB021 | SB021 | SB022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB087 | 05SB088 | 05SB061 | 05SB062 | 05SB063 | 05SB064 | 05SB065 | 05SB129 | 05SB130 | 05SB131 | 05SB132 | 05SB046 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/25/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/21/2002 |
| Sample Depth (in feet) | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 6.4 - 6.4 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-TRICHLOROETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-TETRACHLOROETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-TRICHLOROETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROPROPENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROPROPANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,4-TRICHLOROBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,4-TRIMETHYLBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 610 J | 1 UJ | 1 UJ | 21,000 | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DIBROMOETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 UJ | 1 UJ | 1 UJ | 500 UJ | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 260 J | 1 UJ | 1 UJ | 5,700 | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,3-DICHLOROBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,3-DICHLOROPROPANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 1,4-DICHLOROBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 2,2-DICHLOROPROPANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 2-BUTANONE | 91 UJ | 94 UJ | 110 UJ | 62,000 UJ | 120 UJ | 97 UJ | 50,000 UJ | 87 U | 100 U | 97 U | 96 U | 110 U |
| 2-CHLOROTOLUENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| 4-METHYL-2-PENTANONE | 1 J | 47 UJ | 56 UJ | 31,000 U | 61 UJ | 49 UJ | 25,000 U | 44 U | 52 U | 49 U | 48 U | 57 U |
| ACETONE | 46 UJ | 47 UJ | 56 UJ | 31,000 UJ | 61 UJ | 49 UJ | 25,000 UJ | 44 U | 52 U | 49 U | 48 U | 57 UJ |
| BENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| BROMOBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| BROMOCHLOROMETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| BROMODICHLOROMETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| BROMOFORM | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| BROMOMETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| CARBON DISULFIDE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| CARBON TETRACHLORIDE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROFORM | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROMETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,2-DICHLOROETHENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,3-DICHLOROPROPENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| DIBROMOCHLOROMETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| DIBROMOMETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| DICHLORODIFLUOROMETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| ETHYLBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| HEXACHLOROBUTADIENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| ISOPROPYLBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 800 | 0.9 U | 1 U | 1 U | 1 U | 1 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB019 | SB019 | SB020 | SB020 | SB020 | SB020 | SB020 | SB021 | SB021 | SB021 | SB021 | SB022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB087 | 05SB088 | 05SB061 | 05SB062 | 05SB063 | 05SB064 | 05SB065 | 05SB129 | 05SB130 | 05SB131 | 05SB132 | 05SB046 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/25/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/21/2002 |
| Sample Depth (in feet) | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 6.4 - 6.4 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 0.9 UJ | 0.9 UJ | 1 UJ | 420 J | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| METHYL TERTIARY BUTYL ETHER | 9 UJ | 9 UJ | 11 UJ | 6,200 U | 12 UJ | 10 UJ | 5,000 U | 9 U | 10 U | 10 U | 10 U | 11 U |
| METHYLENE CHLORIDE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 UJ | 1 UJ | 1 UJ | 700 UJ | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ |
| N-BUTYLBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| N-PROPYLBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| NAPHTHALENE | 0.9 UJ | 0.9 UJ | 1 UJ | 460 J | 1 UJ | 1 UJ | 2,800 | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| O-XYLENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| P-ISOPROPYLTOLUENE | 0.9 UJ | 0.9 UJ | 1 UJ | 250 J | 1 UJ | 1 UJ | 7,500 | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| SEC-BUTYLBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 900 | 1 UJ | 1 UJ | 5,700 | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| STYRENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| TERT-BUTYLBENZENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| TETRACHLOROETHENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| TOLUENE | 0.9 UJ | 0.9 UJ | 1 UJ | 260 J | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 3 |
| TRANS-1,2-DICHLOROETHENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| TRANS-1,3-DICHLOROPROPENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROFLUOROMETHANE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| VINYL CHLORIDE | 0.9 UJ | 0.9 UJ | 1 UJ | 620 U | 1 UJ | 1 UJ | 500 U | 0.9 U | 1 U | 1 U | 1 U | 1 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB019 | SB019 | SB020 | SB020 | SB020 | SB020 | SB020 | SB021 | SB021 | SB021 | SB021 | SB022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB087 | 05SB088 | 05SB061 | 05SB062 | 05SB063 | 05SB064 | 05SB065 | 05SB129 | 05SB130 | 05SB131 | 05SB132 | 05SB046 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/25/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/21/2002 |
| Sample Depth (in feet) | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 6.4 - 6.4 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB019 | SB019 | SB020 | SB020 | SB020 | SB020 | SB020 | SB021 | SB021 | SB021 | SB021 | SB022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB087 | 05SB088 | 05SB061 | 05SB062 | 05SB063 | 05SB064 | 05SB065 | 05SB129 | 05SB130 | 05SB131 | 05SB132 | 05SB046 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/25/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/21/2002 |
| Sample Depth (in feet) | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 6.4 - 6.4 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | 12 U | 7 J | 1,700 D | 12 U | 12 U | NA | 12 U | 13 U | 12 U | 12 U | 12 U |
| GASOLINE | 0.5 U | 0.5 U | 0.6 U | 960 H | 0.6 U | 0.5 U | 830 H | 0.4 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 12 U | 12 U | 12 U | 120 U | 12 U | 12 U | NA | 12 U | 13 U | 12 U | 12 U | 12 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB019 | SB019 | SB020 | SB020 | SB020 | SB020 | SB020 | SB021 | SB021 | SB021 | SB021 | SB022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB087 | 05SB088 | 05SB061 | 05SB062 | 05SB063 | 05SB064 | 05SB065 | 05SB129 | 05SB130 | 05SB131 | 05SB132 | 05SB046 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/25/2002 | 02/25/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/21/2002 |
| Sample Depth (in feet) | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 6.4 - 6.4 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 14.6 | 14.3 | 19.1 | 19.2 | 18.2 | 17.8 | NA | 15.2 | 20.4 | 17.7 | 15.9 | 16.9 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB022 | SB022 | SB022 | SB023 | SB023 | SB023 | SB023 | SB024 | SB024 | SB024 | SB024 | SB025 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB047 | 05SB048 | 05SB049 | 05SB057 | 05SB058 | 05SB059 | 05SB060 | 05SB066 | 05SB067 | 05SB068 | 05SB069 | 05SB125 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,1,1-TRICHLOROETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,1,2,2-TETRACHLOROETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,1,2-TRICHLOROETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,1-DICHLOROETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,1-DICHLOROETHENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,1-DICHLOROPROPENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,2,3-TRICHLOROBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,2,3-TRICHLOROPROPANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,2,4-TRICHLOROBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,2,4-TRIMETHYLBENZENE | 0.8 J | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,2-DIBROMOETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,2-DICHLOROBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,2-DICHLOROETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,3-DICHLOROBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,3-DICHLOROPROPANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 1,4-DICHLOROBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 2,2-DICHLOROPROPANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 2-BUTANONE | 95 U | 98 U | 100 U | 110 UJ | 120 UJ | 100 UJ | 99 UJ | 100 UJ | 110 UJ | 110 UJ | 100 UJ | 98 U |
| 2-CHLOROTOLUENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| 4-METHYL-2-PENTANONE | 48 U | 49 U | 50 U | 55 UJ | 61 UJ | 51 UJ | 50 UJ | 50 UJ | 56 UJ | 53 UJ | 51 UJ | 49 U |
| ACETONE | 48 UJ | 49 U | 50 U | 55 UJ | 61 UJ | 51 UJ | 50 UJ | 50 UJ | 56 UJ | 53 UJ | 51 UJ | 49 U |
| BENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| BROMOBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| BROMOCHLOROMETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| BROMODICHLOROMETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| BROMOFORM | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| BROMOMETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| CARBON DISULFIDE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| CARBON TETRACHLORIDE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| CHLOROBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| CHLOROETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| CHLOROFORM | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| CHLOROMETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| CIS-1,2-DICHLOROETHENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| CIS-1,3-DICHLOROPROPENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| DIBROMOCHLOROMETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| DIBROMOMETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| DICHLORODIFLUOROMETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| ETHYLBENZENE | 1 U | 1 U | 1 U | 1 UJ | 0.6 J | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| HEXACHLOROBUTADIENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| ISOPROPYLBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB022 | SB022 | SB022 | SB023 | SB023 | SB023 | SB023 | SB024 | SB024 | SB024 | SB024 | SB025 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB047 | 05SB048 | 05SB049 | 05SB057 | 05SB058 | 05SB059 | 05SB060 | 05SB066 | 05SB067 | 05SB068 | 05SB069 | 05SB125 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 0.7 J | 1 U | 1 U | 1 J | 2 J | 0.9 J | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| METHYL TERTIARY BUTYL ETHER | 10 U | 10 U | 10 U | 11 UJ | 12 UJ | 10 UJ | 10 UJ | 10 UJ | 11 UJ | 11 UJ | 10 UJ | 10 U |
| METHYLENE CHLORIDE | 1 UJ | 1 U | 1 U | 1 UJ | 4 UJ | 3 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ |
| N-BUTYLBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| N-PROPYLBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| NAPHTHALENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| O-XYLENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| P-ISOPROPYLTOLUENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| SEC-BUTYLBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| STYRENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| TERT-BUTYLBENZENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| TETRACHLOROETHENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.6 J | 1 UJ | 1 UJ | 1 U |
| TOLUENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| TRANS-1,2-DICHLOROETHENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| TRANS-1,3-DICHLOROPROPENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| TRICHLOROETHENE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| TRICHLOROFLUOROMETHANE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| VINYL CHLORIDE | 1 U | 1 U | 1 U | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB022 | SB022 | SB022 | SB023 | SB023 | SB023 | SB023 | SB024 | SB024 | SB024 | SB024 | SB025 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB047 | 05SB048 | 05SB049 | 05SB057 | 05SB058 | 05SB059 | 05SB060 | 05SB066 | 05SB067 | 05SB068 | 05SB069 | 05SB125 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB022 | SB022 | SB022 | SB023 | SB023 | SB023 | SB023 | SB024 | SB024 | SB024 | SB024 | SB025 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB047 | 05SB048 | 05SB049 | 05SB057 | 05SB058 | 05SB059 | 05SB060 | 05SB066 | 05SB067 | 05SB068 | 05SB069 | 05SB125 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 11 U | 120 | 12 U | 12 U | 14 Z | 12 U | 12 U | 59 U | 13 U | 12 U | 12 U | 12 U |
| GASOLINE | 0.6 U | 0.5 U | 0.5 U | 0.6 U | 0.6 U | 0.5 U | 0.5 U | 0.5 U | 0.6 U | 0.5 U | 0.5 U | 0.5 U |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 11 U | 51 | 12 U | 12 U | 13 U | 12 U | 12 U | 750 M | 13 U | 12 U | 12 U | 12 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB022 | SB022 | SB022 | SB023 | SB023 | SB023 | SB023 | SB024 | SB024 | SB024 | SB024 | SB025 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB047 | 05SB048 | 05SB049 | 05SB057 | 05SB058 | 05SB059 | 05SB060 | 05SB066 | 05SB067 | 05SB068 | 05SB069 | 05SB125 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/21/2002 | 02/21/2002 | 02/21/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/27/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 13.0 | 16.9 | 16.5 | 17.6 | 22.9 | 16.4 | 18.2 | 15.0 | 22.6 | 18.6 | 18.2 | 17.8 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB025 | SB025 | SB025 | SB026 | SB026 | SB026 | SB026 | SB027 | SB027 | SB027 | SB027 | SB028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB126 | 05SB127 | 05SB128 | 05SB133 | 05SB134 | 05SB135 | 05SB136 | 18SB137 | 18SB138 | 18SB139 | 18SB140 | 18SB150 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/28/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1,1-TRICHLOROETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1,2,2-TETRACHLOROETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1,2-TRICHLOROETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1-DICHLOROETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1-DICHLOROETHENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1-DICHLOROPROPENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2,3-TRICHLOROBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2,3-TRICHLOROPROPANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2,4-TRICHLOROBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2,4-TRIMETHYLBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DIBROMOETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DICHLOROBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DICHLOROETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,3-DICHLOROBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,3-DICHLOROPROPANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,4-DICHLOROBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 2,2-DICHLOROPROPANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 2-BUTANONE | 110 UJ | 100 U | 100 U | 93 U | 93 U | 95 U | 92 U | 110 U | 100 U | 94 U | 94 U | 96 U |
| 2-CHLOROTOLUENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 4-METHYL-2-PENTANONE | 55 U | 51 U | 50 U | 46 U | 46 U | 48 U | 46 U | 53 U | 50 U | 47 U | 47 U | 48 U |
| ACETONE | 55 UJ | 51 U | 50 U | 46 U | 46 U | 48 U | 46 U | 53 U | 50 U | 47 U | 47 U | 48 UJ |
| BENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMOBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMOCHLOROMETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMODICHLOROMETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMOFORM | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMOMETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CARBON DISULFIDE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CARBON TETRACHLORIDE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CHLOROBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CHLOROETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CHLOROFORM | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CHLOROMETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CIS-1,2-DICHLOROETHENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CIS-1,3-DICHLOROPROPENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| DIBROMOCHLOROMETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| DIBROMOMETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| DICHLORODIFLUOROMETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| ETHYLBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| HEXACHLOROBUTADIENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| ISOPROPYLBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB025 | SB025 | SB025 | SB026 | SB026 | SB026 | SB026 | SB027 | SB027 | SB027 | SB027 | SB028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB126 | 05SB127 | 05SB128 | 05SB133 | 05SB134 | 05SB135 | 05SB136 | 18SB137 | 18SB138 | 18SB139 | 18SB140 | 18SB150 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/28/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| METHYL TERTIARY BUTYL ETHER | 11 U | 10 U | 10 U | 9 U | 9 U | 10 U | 9 U | 11 U | 10 U | 9 U | 9 U | 10 U |
| METHYLENE CHLORIDE | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 0.9 UJ | 0.9 UJ | 3 UJ |
| N-BUTYLBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| N-PROPYLBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| NAPHTHALENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| O-XYLENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| P-ISOPROPYLTOLUENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| SEC-BUTYLBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| STYRENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TERT-BUTYLBENZENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TETRACHLOROETHENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TOLUENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TRANS-1,2-DICHLOROETHENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TRANS-1,3-DICHLOROPROPENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TRICHLOROETHENE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TRICHLOROFLUOROMETHANE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| VINYL CHLORIDE | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB025 | SB025 | SB025 | SB026 | SB026 | SB026 | SB026 | SB027 | SB027 | SB027 | SB027 | SB028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB126 | 05SB127 | 05SB128 | 05SB133 | 05SB134 | 05SB135 | 05SB136 | 18SB137 | 18SB138 | 18SB139 | 18SB140 | 18SB150 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/28/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB025 | SB025 | SB025 | SB026 | SB026 | SB026 | SB026 | SB027 | SB027 | SB027 | SB027 | SB028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB126 | 05SB127 | 05SB128 | 05SB133 | 05SB134 | 05SB135 | 05SB136 | 18SB137 | 18SB138 | 18SB139 | 18SB140 | 18SB150 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/28/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 13 U | 12 U | 12 U | 11 U | 12 UJ | 12 U | 12 U | 12 U | 12 UJ | 12 U | 11 U | 12 U |
| GASOLINE | 0.6 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 |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 13 U | 12 U | 12 U | 11 U | 12 UJ | 12 U | 12 U | 12 U | 12 UJ | 12 U | 11 U | 12 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB025 | SB025 | SB025 | SB026 | SB026 | SB026 | SB026 | SB027 | SB027 | SB027 | SB027 | SB028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB126 | 05SB127 | 05SB128 | 05SB133 | 05SB134 | 05SB135 | 05SB136 | 18SB137 | 18SB138 | 18SB139 | 18SB140 | 18SB150 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/27/2002 | 02/28/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 23.9 | 18.7 | 16.2 | 10.5 | 13.6 | 15.8 | 14.8 | 18.3 | 14.3 | 14.8 | 12.9 | 16.0 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB028 | SB028 | SB028 | SB029 | SB029 | SB029 | SB029 | SB030 | SB030 | SB030 | SB030 | SB031 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB151 | 18SB152 | 18SB153 | 18SB146 | 18SB147 | 18SB148 | 18SB149 | 18SB175 | 18SB176 | 18SB177 | 18SB178 | 18SB183 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-TRICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-TETRACHLOROETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-TRICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROPROPENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,4-TRICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,4-TRIMETHYLBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DIBROMOETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3-DICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3-DICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,4-DICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2,2-DICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2-BUTANONE | 97 U | 90 U | 93 U | 110 U | 97 U | 94 U | 97 U | 97 U | 99 U | 96 U | 110 U | 99 U |
| 2-CHLOROTOLUENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 4-METHYL-2-PENTANONE | 1 J | 45 U | 46 U | 55 U | 1 J | 47 U | 49 U | 49 U | 50 U | 48 U | 54 U | 50 U |
| ACETONE | 49 UJ | 45 UJ | 46 UJ | 55 UJ | 49 UJ | 47 UJ | 49 UJ | 49 U | 50 U | 48 U | 54 U | 50 U |
| BENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOCHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMODICHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOFORM | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOMETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CARBON DISULFIDE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CARBON TETRACHLORIDE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROFORM | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,2-DICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,3-DICHLOROPROPENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DIBROMOCHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DIBROMOMETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DICHLORODIFLUOROMETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| ETHYLBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| HEXACHLOROBUTADIENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| ISOPROPYLBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB028 | SB028 | SB028 | SB029 | SB029 | SB029 | SB029 | SB030 | SB030 | SB030 | SB030 | SB031 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB151 | 18SB152 | 18SB153 | 18SB146 | 18SB147 | 18SB148 | 18SB149 | 18SB175 | 18SB176 | 18SB177 | 18SB178 | 18SB183 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| METHYL TERTIARY BUTYL ETHER | 10 U | 9 U | 9 U | 11 U | 10 U | 9 U | 10 U | 10 U | 10 U | 10 U | 11 U | 10 U |
| METHYLENE CHLORIDE | 2 UJ | 2 UJ | 2 UJ | 3 UJ | 3 UJ | 2 UJ | 2 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ |
| N-BUTYLBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| N-PROPYLBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| NAPHTHALENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-XYLENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-ISOPROPYLTOLUENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| SEC-BUTYLBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| STYRENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TERT-BUTYLBENZENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TETRACHLOROETHENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TOLUENE | 1 U | 0.9 U | 2 | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 0.9 J | 1 U | 1 U |
| TRANS-1,2-DICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRANS-1,3-DICHLOROPROPENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROFLUOROMETHANE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| VINYL CHLORIDE | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB028 | SB028 | SB028 | SB029 | SB029 | SB029 | SB029 | SB030 | SB030 | SB030 | SB030 | SB031 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB151 | 18SB152 | 18SB153 | 18SB146 | 18SB147 | 18SB148 | 18SB149 | 18SB175 | 18SB176 | 18SB177 | 18SB178 | 18SB183 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB028 | SB028 | SB028 | SB029 | SB029 | SB029 | SB029 | SB030 | SB030 | SB030 | SB030 | SB031 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB151 | 18SB152 | 18SB153 | 18SB146 | 18SB147 | 18SB148 | 18SB149 | 18SB175 | 18SB176 | 18SB177 | 18SB178 | 18SB183 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | 12 U | 12 U | 13 U | 12 U | 12 U | 12 U | 12 U | 12 U | NA | NA | NA |
| GASOLINE | 0.5 U | 0.4 U | 0.5 U | 0.6 U | 0.5 U | 0.5 U | 0.5 U | 0.5 U | 0.6 U | NA | NA | NA |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 12 U | 12 U | 12 U | 7 J | 12 U | 12 U | 12 U | 12 U | 12 U | NA | NA | NA |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB028 | SB028 | SB028 | SB029 | SB029 | SB029 | SB029 | SB030 | SB030 | SB030 | SB030 | SB031 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB151 | 18SB152 | 18SB153 | 18SB146 | 18SB147 | 18SB148 | 18SB149 | 18SB175 | 18SB176 | 18SB177 | 18SB178 | 18SB183 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | 622 | 3,680 | 120 U | 120 U | 2,720 |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | 669 | 4,390 | 120 U | 120 U | 3,770 |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | 540 | 3,130 | 120 U | 120 U | 2,140 |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 15.6 | 13.1 | 13.7 | 22.1 | 17.9 | 15.1 | 15.7 | 14.7 | 19.4 | 14.2 | 18.9 | 17.3 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB031 | SB031 | SB031 | SB032 | SB032 | SB032 | SB032 | SB033 | SB033 | SB033 | SB033 | SB034 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB184 | 18SB185 | 18SB186 | 18SB179 | 18SB180 | 18SB181 | 18SB182 | 05SB209 | 05SB210 | 05SB211 | 05SB212 | 05SB213 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1,1-TRICHLOROETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1,2,2-TETRACHLOROETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1,2-TRICHLOROETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1-DICHLOROETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1-DICHLOROETHENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,1-DICHLOROPROPENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2,3-TRICHLOROBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2,3-TRICHLOROPROPANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2,4-TRICHLOROBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2,4-TRIMETHYLBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DIBROMOETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DICHLOROBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DICHLOROETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,3-DICHLOROBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,3-DICHLOROPROPANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 1,4-DICHLOROBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 2,2-DICHLOROPROPANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 2-BUTANONE | 100 U | 92 U | 97 U | 87 U | 97 U | 99 U | 100 U | 100 U | 98 U | 92 U | 94 U | 97 U |
| 2-CHLOROTOLUENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| 4-METHYL-2-PENTANONE | 52 U | 46 U | 49 U | 44 U | 48 U | 49 U | 50 U | 50 U | 49 U | 46 U | 47 U | 48 U |
| ACETONE | 52 U | 46 U | 49 U | 44 U | 48 U | 49 U | 50 U | 50 UJ | 49 UJ | 46 UJ | 47 UJ | 48 UJ |
| BENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMOBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMOCHLOROMETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMODICHLOROMETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMOFORM | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| BROMOMETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CARBON DISULFIDE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CARBON TETRACHLORIDE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CHLOROBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CHLOROETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CHLOROFORM | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CHLOROMETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CIS-1,2-DICHLOROETHENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| CIS-1,3-DICHLOROPROPENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| DIBROMOCHLOROMETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| DIBROMOMETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| DICHLORODIFLUOROMETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| ETHYLBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| HEXACHLOROBUTADIENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| ISOPROPYLBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB031 | SB031 | SB031 | SB032 | SB032 | SB032 | SB032 | SB033 | SB033 | SB033 | SB033 | SB034 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB184 | 18SB185 | 18SB186 | 18SB179 | 18SB180 | 18SB181 | 18SB182 | 05SB209 | 05SB210 | 05SB211 | 05SB212 | 05SB213 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| METHYL TERTIARY BUTYL ETHER | 10 U | 9 U | 10 U | 9 U | 10 U | 10 U | 10 U | 10 U | 10 U | 9 U | 9 U | 10 U |
| METHYLENE CHLORIDE | 1 UJ | 0.9 UJ | 1 U | 0.9 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ |
| N-BUTYLBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| N-PROPYLBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| NAPHTHALENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| O-XYLENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| P-ISOPROPYLTOLUENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| SEC-BUTYLBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| STYRENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TERT-BUTYLBENZENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TETRACHLOROETHENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TOLUENE | 1 U | 0.9 U | 1 | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TRANS-1,2-DICHLOROETHENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TRANS-1,3-DICHLOROPROPENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TRICHLOROETHENE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| TRICHLOROFLUOROMETHANE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| VINYL CHLORIDE | 1 U | 0.9 U | 1 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 0.9 U | 0.9 U | 1 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB031 | SB031 | SB031 | SB032 | SB032 | SB032 | SB032 | SB033 | SB033 | SB033 | SB033 | SB034 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB184 | 18SB185 | 18SB186 | 18SB179 | 18SB180 | 18SB181 | 18SB182 | 05SB209 | 05SB210 | 05SB211 | 05SB212 | 05SB213 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB031 | SB031 | SB031 | SB032 | SB032 | SB032 | SB032 | SB033 | SB033 | SB033 | SB033 | SB034 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB184 | 18SB185 | 18SB186 | 18SB179 | 18SB180 | 18SB181 | 18SB182 | 05SB209 | 05SB210 | 05SB211 | 05SB212 | 05SB213 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | NA | NA | NA | NA | 12 U | NA | 12 U | NA | NA | 7 J | 12 U |
| GASOLINE | 0.5 U | NA | NA | NA | NA | 0.5 U | NA | 0.5 U | NA | NA | 0.5 U | 0.5 U |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 12 U | NA | NA | NA | NA | 12 U | NA | 100 M | NA | NA | 7 J | 10 J |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB031 | SB031 | SB031 | SB032 | SB032 | SB032 | SB032 | SB033 | SB033 | SB033 | SB033 | SB034 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 18SB184 | 18SB185 | 18SB186 | 18SB179 | 18SB180 | 18SB181 | 18SB182 | 05SB209 | 05SB210 | 05SB211 | 05SB212 | 05SB213 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/04/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | 412 | 110 U | 120 U | 533 | 120 U | 120 U | 120 U | NA | NA | NA | NA | NA |
| TOC (MAX) | 1,490 | 110 U | 120 U | 1,840 | 120 U | 120 U | 419 | NA | NA | NA | NA | NA |
| TOC (MIN) | 120 U | 110 U | 120 U | 110 U | 120 U | 120 U | 120 U | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 17.5 | 5.6 | 17.5 | 11.9 | 17.4 | 19.0 | 18.9 | 17.8 | 13.3 | 11.6 | 16.3 | 15.1 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB034 | SB034 | SB034 | SB035 | SB035 | SB035 | SB035 | SB036 | SB036 | SB036 | SB036 | SB037 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB214 | 05SB215 | 05SB216 | 05SB217 | 05SB218 | 05SB219 | 05SB220 | 05SB221 | 05SB222 | 05SB223 | 05SB224 | 05SB225 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-TRICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-TETRACHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-TRICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROPROPENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,4-TRICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,4-TRIMETHYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DIBROMOETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3-DICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3-DICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,4-DICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2,2-DICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2-BUTANONE | 95 U | 90 U | 90 U | 94 U | 96 U | 91 U | 91 U | 95 U | 110 U | 100 U | 96 U | 95 U |
| 2-CHLOROTOLUENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 4-METHYL-2-PENTANONE | 48 U | 45 U | 45 U | 47 U | 48 U | 45 U | 45 U | 48 U | 53 U | 50 U | 48 U | 47 U |
| ACETONE | 48 UJ | 45 UJ | 45 UJ | 47 UJ | 48 UJ | 45 UJ | 45 UJ | 48 UJ | 53 UJ | 50 UJ | 48 UJ | 47 UJ |
| BENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOCHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMODICHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOFORM | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CARBON DISULFIDE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CARBON TETRACHLORIDE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROFORM | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,2-DICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,3-DICHLOROPROPENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DIBROMOCHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DIBROMOMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DICHLORODIFLUOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| ETHYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| HEXACHLOROBUTADIENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| ISOPROPYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB034 | SB034 | SB034 | SB035 | SB035 | SB035 | SB035 | SB036 | SB036 | SB036 | SB036 | SB037 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB214 | 05SB215 | 05SB216 | 05SB217 | 05SB218 | 05SB219 | 05SB220 | 05SB221 | 05SB222 | 05SB223 | 05SB224 | 05SB225 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | | |
| M,P-XYLENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| METHYL TERTIARY BUTYL ETHER | 10 U | 9 U | 9 U | 9 U | 10 U | 9 U | 9 U | 10 U | 11 U | 10 U | 10 U | 10 U |
| METHYLENE CHLORIDE | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 0.9 UJ | 1 UJ | 1 UJ | 2 UJ | 1 UJ | 1 UJ | 1 UJ |
| N-BUTYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| N-PROPYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| NAPHTHALENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-XYLENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-ISOPROPYLTOLUENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| SEC-BUTYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| STYRENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TERT-BUTYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TETRACHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TOLUENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 0.6 J | 1 U | 1 U |
| TRANS-1,2-DICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRANS-1,3-DICHLOROPROPENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROFLUOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| VINYL CHLORIDE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB034 | SB034 | SB034 | SB035 | SB035 | SB035 | SB035 | SB036 | SB036 | SB036 | SB036 | SB037 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB214 | 05SB215 | 05SB216 | 05SB217 | 05SB218 | 05SB219 | 05SB220 | 05SB221 | 05SB222 | 05SB223 | 05SB224 | 05SB225 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 | 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 |
| **Pesticides (in ug/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 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB034 | SB034 | SB034 | SB035 | SB035 | SB035 | SB035 | SB036 | SB036 | SB036 | SB036 | SB037 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB214 | 05SB215 | 05SB216 | 05SB217 | 05SB218 | 05SB219 | 05SB220 | 05SB221 | 05SB222 | 05SB223 | 05SB224 | 05SB225 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | | |
| 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 |
| 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 |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 6 J | 11 U | 12 U | NA | 12 UJ | 12 U | 11 U | NA | NA | 12 U | 12 U | 11 U |
| GASOLINE | 0.5 U | 0.5 U | 0.5 U | NA | 0.5 U | 0.5 U | 0.5 U | NA | NA | 0.5 U | 0.5 U | 0.5 U |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 13 M | 8 J | 12 J | NA | 8 J | 8 J | 11 J | NA | NA | 12 U | 12 U | 12 M |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB034 | SB034 | SB034 | SB035 | SB035 | SB035 | SB035 | SB036 | SB036 | SB036 | SB036 | SB037 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB214 | 05SB215 | 05SB216 | 05SB217 | 05SB218 | 05SB219 | 05SB220 | 05SB221 | 05SB222 | 05SB223 | 05SB224 | 05SB225 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/07/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | | |
| MOISTURE | 14.8 | 12.3 | 14.1 | 12.5 | 14.7 | 13.1 | 13.0 | 14.9 | 16.9 | 13.6 | 13.8 | 12.3 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB037 | SB037 | SB037 | SB038 | SB038 | SB038 | SB038 | SB039 | SB039 | SB039 | SB039 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB226 | 05SB227 | 05SB228 | 18SB231 | 18SB232 | 18SB233 | 18SB234 | 18SB235 | 18SB236 | 18SB237 | 18SB238 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | |
| 1,1,1,2-TETRACHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-TRICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-TETRACHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-TRICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-DICHLOROPROPENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,3-TRICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,4-TRICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2,4-TRIMETHYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DIBROMOETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-DICHLOROETHENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3-DICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3-DICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,4-DICHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2,2-DICHLOROPROPANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2-BUTANONE | 110 U | 93 U | 91 U | 93 U | 100 U | 95 U | 100 U | 100 U | 100 U | 95 U | 97 U |
| 2-CHLOROTOLUENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-CHLOROTOLUENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 4-METHYL-2-PENTANONE | 54 U | 46 U | 45 U | 47 U | 51 U | 47 U | 50 U | 51 U | 51 U | 47 U | 48 U |
| ACETONE | 54 UJ | 46 UJ | 45 UJ | 47 UJ | 51 UJ | 47 UJ | 50 UJ | 51 UJ | 51 UJ | 47 UJ | 48 UJ |
| BENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOCHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMODICHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOFORM | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMOMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CARBON DISULFIDE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CARBON TETRACHLORIDE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROFORM | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,2-DICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,3-DICHLOROPROPENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DIBROMOCHLOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DIBROMOMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DICHLORODIFLUOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| ETHYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| HEXACHLOROBUTADIENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| ISOPROPYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB037 | SB037 | SB037 | SB038 | SB038 | SB038 | SB038 | SB039 | SB039 | SB039 | SB039 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB226 | 05SB227 | 05SB228 | 18SB231 | 18SB232 | 18SB233 | 18SB234 | 18SB235 | 18SB236 | 18SB237 | 18SB238 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 |
| **Volatiles (in ug/Kg)** | | | | | | | | | | | |
| M,P-XYLENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| METHYL TERTIARY BUTYL ETHER | 11 U | 9 U | 9 U | 9 U | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U |
| METHYLENE CHLORIDE | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 2 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ | 1 UJ |
| N-BUTYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| N-PROPYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| NAPHTHALENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-XYLENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-ISOPROPYLTOLUENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| SEC-BUTYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| STYRENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TERT-BUTYLBENZENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TETRACHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TOLUENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRANS-1,2-DICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRANS-1,3-DICHLOROPROPENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROFLUOROMETHANE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| VINYL CHLORIDE | 1 U | 0.9 U | 0.9 U | 0.9 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| XYLENE (TOTAL) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | 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 |
| 1,3-DICHLOROBENZENE | 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 |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 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 |
| 2,4,6-TRICHLOROPHENOL | 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 |
| 2,4-DIMETHYLPHENOL | 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 |
| 2,4-DINITROTOLUENE | 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 |
| 2-CHLORONAPHTHALENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-CHLOROPHENOL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-METHYLNAPHTHALENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-METHYLPHENOL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-NITROANILINE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 2-NITROPHENOL | 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 |
| 3-NITROANILINE | 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 |
| 4-BROMOPHENYL-PHENYLETHER | 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 |
| 4-CHLOROANILINE | 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 |
| 4-METHYLPHENOL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-NITROANILINE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB037 | SB037 | SB037 | SB038 | SB038 | SB038 | SB038 | SB039 | SB039 | SB039 | SB039 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB226 | 05SB227 | 05SB228 | 18SB231 | 18SB232 | 18SB233 | 18SB234 | 18SB235 | 18SB236 | 18SB237 | 18SB238 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 |
| **Semivolatiles (in ug/Kg)** | | | | | | | | | | | |
| 4-NITROPHENOL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ACENAPHTHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ACENAPHTHYLENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTHRACENE | 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 |
| BENZO(A)PYRENE | 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 |
| BENZO(G,H,I)PERYLENE | 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 |
| BIS(2-CHLOROETHOXY)METHANE | 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 |
| BIS(2-ETHYLHEXYL)PHTHALATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BUTYLBENZYLPHTHALATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CARBAZOLE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHRYSENE | 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 |
| DI-N-OCTYLPHTHALATE | 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 |
| DIBENZOFURAN | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DIETHYLPHTHALATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DIMETHYLPHTHALATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| FLUORANTHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| FLUORENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEXACHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEXACHLOROBUTADIENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEXACHLOROCYCLOPENTADIENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEXACHLOROETHANE | 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 |
| ISOPHORONE | 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 |
| N-NITROSODIPHENYLAMINE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NAPHTHALENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NITROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| PENTACHLOROPHENOL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| PHENANTHRENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| PHENOL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| PYRENE | 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 |
| TOTAL LOW MOLECULAR PAHS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOTAL PAHS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | |
| 4,4'-DDD | 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 |
| 4,4'-DDT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ALDRIN | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ALPHA-BHC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ALPHA-CHLORDANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB037 | SB037 | SB037 | SB038 | SB038 | SB038 | SB038 | SB039 | SB039 | SB039 | SB039 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB226 | 05SB227 | 05SB228 | 18SB231 | 18SB232 | 18SB233 | 18SB234 | 18SB235 | 18SB236 | 18SB237 | 18SB238 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 |
| **Pesticides (in ug/Kg)** | | | | | | | | | | | |
| AROCLOR-1016 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1221 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1232 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1242 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1248 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1254 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| AROCLOR-1260 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BETA-BHC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DELTA-BHC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| DIELDRIN | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDOSULFAN I | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDOSULFAN II | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDOSULFAN SULFATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDRIN | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDRIN ALDEHYDE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ENDRIN KETONE | 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 |
| GAMMA-CHLORDANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEPTACHLOR | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HEPTACHLOR EPOXIDE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| METHOXYCHLOR | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOXAPHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOTAL BHCS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOTAL CHLORDANES | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOTAL DDTS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Petroleum Indicators (in mg/Kg)** | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 12 U | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| GASOLINE | 0.5 U | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 12 U | 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 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | |
| ALUMINUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ANTIMONY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BERYLLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COBALT | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| LEAD | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB037 | SB037 | SB037 | SB038 | SB038 | SB038 | SB038 | SB039 | SB039 | SB039 | SB039 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05SB226 | 05SB227 | 05SB228 | 18SB231 | 18SB232 | 18SB233 | 18SB234 | 18SB235 | 18SB236 | 18SB237 | 18SB238 |
| Matrix | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sample Date | 03/07/2002 | 03/07/2002 | 03/07/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 | 03/08/2002 |
| Sample Depth (in feet) | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 | 1.5 - 1.5 | 6.0 - 6.0 | 9.5 - 9.5 | 13.5 - 13.5 |
| **Total Metals (in mg/Kg)** | | | | | | | | | | | |
| MERCURY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **TOC (in mg/kg)** | | | | | | | | | | | |
| TOC (AVE) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MAX) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| TOC (MIN) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Percent Moisture (percent)** | | | | | | | | | | | |
| MOISTURE | 14.6 | 12.8 | 12.9 | 13.1 | 16.2 | 16.7 | 17.7 | 19.2 | 19.6 | 16.7 | 17.3 |

# TABLE A-1 (Continued)
# FULL SOIL ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Notes:

| | |
|---|---|
| | 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 industrial use (EPA 2002). |
| * | Detected concentrations greater than preliminary remediation goals (PRG) for residential use (EPA 2002). |
| D | Pattern resembles diesel |
| H | Pattern is in the heavier hydrocarbon end of the analyte's range in the standard |
| J | Estimated value |
| M | Pattern resembles motor oil |
| NA | Not analyzed |
| U | Not detected with detection limit indicated |
| Z | Pattern does not resemble TPH pattern (single peaks) |
| mg/kg | Milligrams per kilogram |
| µg/kg | Micrograms per kilogram |

# TABLE A-2
# U.S. EPA PRELIMINARY REMEDIATION GOALS FOR SOIL
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Residential PRG | Industrial PRG |
|---|---|---|
| 1,1,1,2-TETRACHLOROETHANE | 3.19E+00 | 7.28E+00 |
| 1,1,1-TRICHLOROETHANE | 1.20E+03 | 1.20E+03 |
| 1,1,2,2-TETRACHLOROETHANE | 4.08E-01 | 9.29E-01 |
| 1,1,2-TRICHLOROETHANE | 7.29E-01 | 1.61E+00 |
| 1,1-DICHLOROETHANE | 2.79E+00 | 6.01E+00 |
| 1,1-DICHLOROETHENE | 1.24E+02 | 4.13E+02 |
| 1,2,3-TRICHLOROPROPANE | 5.02E-03 | 1.08E-02 |
| 1,2,4-TRICHLOROBENZENE | 6.50E+02 | 3.00E+03 |
| 1,2,4-TRIMETHYLBENZENE | 5.16E+01 | 1.70E+02 |
| 1,2-DIBROMO-3-CHLOROPROPANE | 1.91E-02 | 4.58E-02 |
| 1,2-DIBROMOETHANE | 6.89E-03 | 2.81E-02 |
| 1,2-DICHLOROBENZENE | 3.70E+02 | 3.70E+02 |
| 1,2-DICHLOROETHANE | 2.78E-01 | 6.03E-01 |
| 1,2-DICHLOROETHENE (TOTAL) | 4.30E+01 | ---- |
| 1,2-DICHLOROPROPANE | 3.42E-01 | 7.42E-01 |
| 1,3,5-TRIMETHYLBENZENE | 2.13E+01 | 6.97E+01 |
| 1,3-DICHLOROBENZENE | 1.59E+01 | 6.27E+01 |
| 1,4-DICHLOROBENZENE | 3.45E+00 | 7.87E+00 |
| 2,2'-OXYBIS(1-CHLOROPROPANE) | 2.88E+00 | 7.35E+00 |
| 2,4,5-TRICHLOROPHENOL | 6.11E+03 | 6.16E+04 |
| 2,4,6-TRICHLOROPHENOL | 6.95E+00 | 2.46E+01 |
| 2,4-DICHLOROPHENOL | 1.83E+02 | 1.85E+03 |
| 2,4-DIMETHYLPHENOL | 1.22E+03 | 1.23E+04 |
| 2,4-DINITROPHENOL | 1.22E+02 | 1.23E+03 |
| 2,4-DINITROTOLUENE | 1.22E+02 | 1.23E+03 |
| 2,6-DINITROTOLUENE | 6.11E+01 | 6.16E+02 |
| 2-BUTANONE | 7.33E+03 | 2.71E+04 |
| 2-CHLORONAPHTHALENE | 4.94E+03 | 2.34E+04 |
| 2-CHLOROPHENOL | 6.34E+01 | 2.36E+02 |
| 2-CHLOROTOLUENE | 1.58E+02 | 5.60E+02 |
| 2-HEXANONE | 1.10E+02 | ---- |
| 2-METHYLPHENOL | 3.06E+03 | 3.08E+04 |
| 2-NITROANILINE | 1.75E+00 | 1.76E+01 |
| 2-NITROPHENOL | 3.70E+04 | ---- |
| 3,3'-DICHLOROBENZIDINE | 1.08E+00 | 3.83E+00 |
| 3-NITROANILINE | 1.70E+00 | ---- |
| 4,4'-DDD | 2.44E+00 | 9.95E+00 |
| 4,4'-DDE | 1.72E+00 | 7.02E+00 |
| 4,4'-DDT | 1.72E+00 | 7.02E+00 |
| 4,6-DINITRO-2-METHYLPHENOL | 3.10E+03 | ---- |
| 4-BROMOPHENYL-PHENYLETHER | 1.20E+02 | ---- |
| 4-CHLORO-3-METHYLPHENOL | 3.10E+03 | ---- |
| 4-CHLOROANILINE | 2.44E+02 | 2.46E+03 |
| 4-CHLOROPHENYL-PHENYLETHER | 1.20E+02 | ---- |
| 4-METHYL-2-PENTANONE | 7.87E+02 | 2.84E+03 |
| 4-METHYLPHENOL | 3.06E+02 | 3.08E+03 |
| 4-NITROANILINE | 1.70E+00 | ---- |
| 4-NITROPHENOL | 3.70E+04 | ---- |

# TABLE A-2
# U.S. EPA PRELIMINARY REMEDIATION GOALS FOR SOIL
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Residential PRG | Industrial PRG |
|---|---|---|
| ACENAPHTHENE | 3.68E+03 | 2.92E+04 |
| ACETONE | 1.57E+03 | 6.04E+03 |
| ALDRIN | 2.86E-02 | 1.01E-01 |
| ALPHA-BHC | 9.02E-02 | 3.59E-01 |
| ALPHA-CHLORDANE | 1.62E+00 | 6.47E+00 |
| ALUMINUM | 7.61E+04 | 1.00E+05 |
| ANTHRACENE | 2.19E+04 | 1.00E+05 |
| ANTIMONY | 3.13E+01 | 4.09E+02 |
| AROCLOR-1016 | 3.93E+00 | 2.12E+01 |
| AROCLOR-1221 | 2.22E-01 | 7.44E-01 |
| AROCLOR-1232 | 2.22E-01 | 7.44E-01 |
| AROCLOR-1242 | 2.22E-01 | 7.44E-01 |
| AROCLOR-1248 | 2.22E-01 | 7.44E-01 |
| AROCLOR-1254 | 2.22E-01 | 7.44E-01 |
| AROCLOR-1260 | 2.22E-01 | 7.44E-01 |
| ARSENIC | 3.90E-01 | 1.59E+00 |
| BARIUM | 5.37E+03 | 6.66E+04 |
| BENZENE | 6.01E-01 | 1.31E+00 |
| BENZO(A)ANTHRACENE | 6.21E-01 | 2.11E+00 |
| BENZO(A)PYRENE | 6.21E-02 | 2.11E-01 |
| BENZO(B)FLUORANTHENE | 6.21E-01 | 2.11E+00 |
| BENZO(K)FLUORANTHENE | 3.78E-01 | 1.28E+00 |
| BERYLLIUM | 1.54E+02 | 1.94E+03 |
| BETA-BHC | 3.16E-01 | 1.26E+00 |
| BIS(2-CHLOROETHYL)ETHER | 2.11E-01 | 5.54E-01 |
| BIS(2-ETHYLHEXYL)PHTHALATE | 3.47E+01 | 1.23E+02 |
| BROMOBENZENE | 2.78E+01 | 9.22E+01 |
| BROMODICHLOROMETHANE | 8.24E-01 | 1.83E+00 |
| BROMOFORM | 6.16E+01 | 2.18E+02 |
| BROMOMETHANE | 3.90E+00 | 1.31E+01 |
| BUTYLBENZYLPHTHALATE | 1.22E+04 | 1.00E+05 |
| CADMIUM | 3.70E+01 | 4.51E+02 |
| CARBAZOLE | 2.43E+01 | 8.62E+01 |
| CARBON DISULFIDE | 3.55E+02 | 7.20E+02 |
| CARBON TETRACHLORIDE | 2.51E-01 | 5.49E-01 |
| CHLOROBENZENE | 1.51E+02 | 5.30E+02 |
| CHLOROETHANE | 3.03E+00 | 6.49E+00 |
| CHLOROFORM | 9.41E-01 | 2.00E+00 |
| CHLOROMETHANE | 1.23E+00 | 2.65E+00 |
| CHROMIUM | 2.11E+02 | 4.48E+02 |
| CHRYSENE | 3.78E+00 | 1.28E+01 |
| CIS-1,2-DICHLOROETHENE | 4.29E+01 | 1.46E+02 |
| CIS-1,3-DICHLOROPROPENE | 7.80E-01 | ---- |
| COBALT | 9.03E+02 | 1.92E+03 |
| COPPER | 3.13E+03 | 4.09E+04 |
| DELTA-BHC | 9.00E-02 | ---- |
| DI-N-BUTYLPHTHALATE | 6.11E+03 | 6.16E+04 |
| DI-N-OCTYLPHTHALATE | 2.44E+03 | 2.46E+04 |

## TABLE A-2
## U.S. EPA PRELIMINARY REMEDIATION GOALS FOR SOIL
## SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Residential PRG | Industrial PRG |
|---|---|---|
| DIBENZ(A,H)ANTHRACENE | 6.21E-02 | 2.11E-01 |
| DIBENZOFURAN | 2.91E+02 | 3.13E+03 |
| DIBROMOCHLOROMETHANE | 1.11E+00 | 2.55E+00 |
| DIBROMOMETHANE | 6.69E+01 | 2.34E+02 |
| DICHLORODIFLUOROMETHANE | 9.39E+01 | 3.08E+02 |
| DIELDRIN | 3.04E-02 | 1.08E-01 |
| DIETHYLPHTHALATE | 4.89E+04 | 1.00E+05 |
| DIMETHYLPHTHALATE | 1.00E+05 | 1.00E+05 |
| ENDOSULFAN I | 3.70E+02 | ---- |
| ENDOSULFAN II | 3.70E+02 | ---- |
| ENDOSULFAN SULFATE | 3.70E+02 | ---- |
| ENDRIN | 1.83E+01 | 1.85E+02 |
| ENDRIN ALDEHYDE | 1.80E+01 | ---- |
| ETHYLBENZENE | 2.30E+02 | 2.30E+02 |
| FLUORANTHENE | 2.29E+03 | 2.20E+04 |
| FLUORENE | 2.75E+03 | 2.63E+04 |
| GAMMA-BHC (LINDANE) | 4.37E-01 | 1.74E+00 |
| GAMMA-CHLORDANE | 1.62E+00 | 6.47E+00 |
| HEPTACHLOR | 1.08E-01 | 3.83E-01 |
| HEPTACHLOR EPOXIDE | 5.34E-02 | 1.89E-01 |
| HEXACHLOROBENZENE | 3.04E-01 | 1.08E+00 |
| HEXACHLOROBUTADIENE | 6.24E+00 | 2.21E+01 |
| HEXACHLOROCYCLOPENTADIENE | 3.65E+02 | 3.66E+03 |
| HEXACHLOROETHANE | 3.47E+01 | 1.23E+02 |
| INDENO(1,2,3-CD)PYRENE | 6.21E-01 | 2.11E+00 |
| IRON | 2.35E+04 | 1.00E+05 |
| ISOPHORONE | 5.12E+02 | 1.81E+03 |
| ISOPROPYLBENZENE | 5.72E+02 | 1.98E+03 |
| LEAD | 1.50E+02 | 7.50E+02 |
| MANGANESE | 1.76E+03 | 1.95E+04 |
| MERCURY | 2.35E+01 | 3.07E+02 |
| METHOXYCHLOR | 3.06E+02 | 3.08E+03 |
| METHYL TERTIARY BUTYL ETHER | 1.67E+01 | 3.64E+01 |
| METHYLENE CHLORIDE | 9.11E+00 | 2.05E+01 |
| MOLYBDENUM | 3.91E+02 | 5.11E+03 |
| N-BUTYLBENZENE | 2.40E+02 | 2.40E+02 |
| N-NITROSO-DI-N-PROPYLAMINE | 6.95E-02 | 2.46E-01 |
| N-PROPYLBENZENE | 2.40E+02 | 2.40E+02 |
| NAPHTHALENE | 5.59E+01 | 1.88E+02 |
| NICKEL | 1.56E+03 | 2.04E+04 |
| NITROBENZENE | 1.96E+01 | 1.03E+02 |
| PENTACHLOROPHENOL | 2.98E+00 | 9.00E+00 |
| PHENOL | 3.67E+04 | 1.00E+05 |
| PYRENE | 2.32E+03 | 2.91E+04 |
| SEC-BUTYLBENZENE | 2.20E+02 | 2.20E+02 |
| SELENIUM | 3.91E+02 | 5.11E+03 |
| SILVER | 3.91E+02 | 5.11E+03 |
| STYRENE | 1.70E+03 | 1.70E+03 |

## TABLE A-2
## U.S. EPA PRELIMINARY REMEDIATION GOALS FOR SOIL
## SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Residential PRG | Industrial PRG |
|---|---|---|
| TERT-BUTYLBENZENE | 3.90E+02 | 3.90E+02 |
| TETRACHLOROETHENE | 1.51E+00 | 3.42E+00 |
| THALLIUM | 5.16E+00 | 6.75E+01 |
| TOLUENE | 5.20E+02 | 5.20E+02 |
| TOXAPHENE | 4.42E-01 | 1.57E+00 |
| TRANS-1,2-DICHLOROETHENE | 6.95E+01 | 2.35E+02 |
| TRANS-1,3-DICHLOROPROPENE | 7.80E-01 | |
| TRICHLOROETHENE | 5.30E-02 | 1.15E-01 |
| TRICHLOROFLUOROMETHANE | 3.86E+02 | 2.00E+03 |
| VANADIUM | 5.47E+02 | 7.15E+03 |
| VINYL CHLORIDE | 7.91E-02 | 7.46E-01 |
| XYLENE (TOTAL) | 2.75E+02 | 4.20E+02 |
| ZINC | 2.35E+04 | 1.00E+05 |

Note:

All PRGs are expressed in units milligrams per kilogram

# TABLE A-3A
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | S01-MW-01 | S01-MW-02 | S01-MW-03 | S01-MW-03 | S01-MW-04 | S01-MW-04 | S01-MW-04 | S01-MW-05 | S01-MW-06 | S01-MW-07 | S01-MW-07 | S01-MW-07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S01GW016 | 02GW193 | S01GW022 | 01GW202 | S01GW020 | S01GW021 | 01GW205 | S01GW017 | S01GW018 | S07MW060 | S07MW080 | S07MW095 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 04/12/1995 | 03/05/2002 | 04/18/1995 | 03/06/2002 | 04/18/1995 | 04/18/1995 | 03/06/2002 | 04/12/1995 | 04/12/1995 | 04/30/1999 | 07/28/1999 | 10/26/1999 |
| **Low Level Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,1-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 U | NA | NA |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 U | NA | NA |
| TETRACHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 U | NA | NA |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 U | NA | NA |
| TRICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 U | NA | NA |
| **Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,1-DICHLOROETHENE | 10 U | 1 U | 10 U | 1 U | 10 U | 10 U | 1 U | 10 U | 10 U | NA | 10 U | 10 U |
| 1,2-DICHLOROETHANE | 10 U | 1 U | 10 U | 1 U | 10 U | 10 U | 1 U | 10 U | 10 U | NA | 10 U | 10 U |
| 1,2-DICHLOROETHENE (TOTAL) | 10 U | NA | 10 U | NA | 10 U | 10 U | NA | 10 U | 10 U | NA | 10 U | 10 U |
| CHLOROFORM | 10 U | 1 U | 10 U | 1 U | 10 U | 10 U | 1 U | 10 U | 10 U | NA | 10 U | 10 U |
| CIS-1,2-DICHLOROETHENE | NA | 1 U | NA | 1 U | NA | NA | 1 U | NA | NA | NA | NA | NA |
| TETRACHLOROETHENE | 5 J | 5 ab | 6 J ab | 6 ab | 6 J ab | 6 J ab | 4 | 6 J ab | 6 J ab | NA | 10 U | 10 U |
| TRANS-1,2-DICHLOROETHENE | NA | 1 U | NA | 1 U | NA | NA | 1 U | NA | NA | NA | NA | NA |
| TRICHLOROETHENE | 10 U | 1 U | 10 U | 1 U | 10 U | 10 U | 1 U | 10 U | 10 U | NA | 10 U | 10 U |
| **Petroleum Indicators (in mg/L)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 1 | NA | 0.1 U | NA | 0.1 U | 0.1 U | NA | 0.1 U | 0.1 U | NA | NA | NA |
| MOTOR OIL RANGE ORGANICS | 0.2 | NA | 0.1 U | NA | 0.1 U | 0.1 U | NA | 0.2 | 0.1 U | NA | NA | NA |
| **Total Metals (in ug/L)** | | | | | | | | | | | | |
| CALCIUM | NA | 71,500 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | 45.7 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | 45,400 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | 415 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | 81,100 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Dissolved Metals (in ug/L)** | | | | | | | | | | | | |
| ARSENIC | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1.8 U | 2.7 J | 1.9 U |
| BARIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 108 J | 102 J | 98.5 J |
| CADMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.30 U | 0.40 U | 0.30 U |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 41,700 | 42,200 | 43,200 |
| CHROMIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4.6 UJ | 5.7 J | 8.0 UJ |
| COPPER | NA | NA | NA | NA | NA | NA | NA | NA | NA | 8.2 UJ | 2.2 U | 2.1 J |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 42,200 | 41,800 | 43,400 |
| MANGANESE | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.40 U | 1.1 U | 0.90 U |
| MOLYBDENUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4.8 UJ | 5.4 J | 6.9 J |
| NICKEL | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1.4 UJ | 2.3 U | 2.6 U |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 560 UJ | 796 J | 871 J |
| SELENIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1.8 U | 2.9 U | 2.4 U |
| SILVER | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.90 U | 1.5 U | 1.9 U |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 134,000 | 151,000 | 137,000 |
| THALLIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 2.2 UJ | 2.7 J ab | 2.7 U |
| VANADIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | 11.5 UJ | 13.3 J | 15.2 J |
| ZINC | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5.9 UJ | 5.1 UJ | 3.9 UJ |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| CHLORIDE CL- | NA | 67.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S01-MW-01** | **S01-MW-02** | **S01-MW-03** | **S01-MW-03** | **S01-MW-04** | **S01-MW-04** | **S01-MW-04** | **S01-MW-05** | **S01-MW-06** | **S01-MW-07** | **S01-MW-07** | **S01-MW-07** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S01GW016 | 02GW193 | S01GW022 | 01GW202 | S01GW020 | S01GW021 | 01GW205 | S01GW017 | S01GW018 | S07MW060 | S07MW080 | S07MW095 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 04/12/1995 | 03/05/2002 | 04/18/1995 | 03/06/2002 | 04/18/1995 | 04/18/1995 | 03/06/2002 | 04/12/1995 | 04/12/1995 | 04/30/1999 | 07/28/1999 | 10/26/1999 |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| NITRATE | NA | 3.7 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SOLIDS, TOTAL DISSOLVED | NA | 615 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SULFATE | NA | 76.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **MISCELLANEOUS** | | | | | | | | | | | | |
| ALKALINITY | NA | 350 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HARDNESS | NA | 366 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | S01-MW-07 | S01-MW-08 | S01-MW-08 | S01-MW-08 | S01-MW-08 | S01-MW-08 | S01-MW-08 | S01-MW-08 | S01-MW-08 | S01-MW-08 | S01-MW-08 | S01-MW-09 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05GW191 | S01SW083 | S01SW098 | S05MW061 | S05MW081 | S05MW096 | S05SW062 | S05SW063 | S05SW082 | S05SW097 | 05GW192 | S05MW065 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 03/05/2002 | 07/27/1999 | 10/26/1999 | 04/29/1999 | 07/27/1999 | 10/26/1999 | 04/29/1999 | 04/29/1999 | 07/27/1999 | 10/26/1999 | 03/05/2002 | 04/30/1999 |
| **Low Level Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,1-DICHLOROETHENE | NA | NA | NA | 1 U | NA | NA | 1 U | 1 U | NA | NA | NA | 0.7 J |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | 1 U | NA | NA | 1 U | 1 U | NA | NA | NA | 1 U |
| TETRACHLOROETHENE | NA | NA | NA | 1 U | NA | NA | 1 U | 1 U | NA | NA | NA | NA |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | 1 U | NA | NA | 1 U | 1 U | NA | NA | NA | 1 U |
| TRICHLOROETHENE | NA | NA | NA | 2 | NA | NA | 2 | 2 | NA | NA | NA | 0.6 J |
| **Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,1-DICHLOROETHENE | 1 U | 10 U | 10 U | NA | 10 U | 10 U | NA | NA | 10 U | 10 U | 1 U | NA |
| 1,2-DICHLOROETHANE | 1 U | 10 U | 10 U | NA | 10 U | 10 U | NA | NA | 10 U | 10 U | 1 U | NA |
| 1,2-DICHLOROETHENE (TOTAL) | NA | 10 U | 10 U | NA | 10 U | 10 U | NA | NA | 10 U | 10 U | NA | NA |
| CHLOROFORM | 1 U | 10 U | 10 U | NA | 10 U | 10 U | NA | NA | 10 U | 10 U | 1 U | NA |
| CIS-1,2-DICHLOROETHENE | 1 U | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 U | NA |
| TETRACHLOROETHENE | 1 U | 10 U | 10 U | NA | 10 U | 10 U | NA | NA | 10 U | 10 U | 1 U | NA |
| TRANS-1,2-DICHLOROETHENE | 1 U | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 U | NA |
| TRICHLOROETHENE | 1 U | 2 J | 2 J | NA | 2 J | 2 J | NA | NA | 2 J | 2 J | 2 | NA |
| **Petroleum Indicators (in mg/L)** | | | | | | | | | | | | |
| DIESEL 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 |
| **Total Metals (in ug/L)** | | | | | | | | | | | | |
| CALCIUM | 42,100 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 69,700 | NA |
| IRON | 54.4 UJ | NA | NA | NA | NA | NA | NA | NA | NA | NA | 269 UJ | NA |
| MAGNESIUM | 40,100 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 45,300 | NA |
| POTASSIUM | 875 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | 836 J | NA |
| SODIUM | 149,000 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 118,000 | NA |
| **Dissolved Metals (in ug/L)** | | | | | | | | | | | | |
| ARSENIC | NA | 2.5 U | 1.9 U | 1.8 U | 3.0 J | 1.9 U | 1.8 U | 1.8 U | 2.5 U | 1.9 U | NA | 1.8 U |
| BARIUM | NA | 123 J | 126 J | 114 J | 124 J | 125 J | 113 J | 111 J | 120 J | 129 J | NA | 147 J |
| CADMIUM | NA | 0.40 U | 0.30 U | 0.30 U | 0.40 U | 0.30 U | 0.30 U | 0.30 U | 0.40 U | 0.30 U | NA | 0.30 U |
| CALCIUM | NA | 67,000 | 68,900 | 66,100 | 66,500 | 69,000 | 66,500 | 66,000 | 65,300 | 69,600 | NA | 95,400 |
| CHROMIUM | NA | 11.6 | 11.6 UJ | 9.1 UJ | 11.5 | 11.1 UJ | 8.5 UJ | 8.5 UJ | 11.3 | 11.6 UJ | NA | 1.2 UJ |
| COPPER | NA | 2.2 U | 1.9 U | 20.8 UJ | 2.2 U | 2.3 J | 13.1 UJ | 1.0 U | 2.2 U | 2.0 J | NA | 24.0 UJ |
| MAGNESIUM | NA | 43,700 | 46,000 | 42,400 | 43,400 | 46,000 | 42,600 | 41,600 | 42,600 | 46,500 | NA | 55,800 |
| MANGANESE | NA | 1.1 U | 0.90 U | 0.40 U | 1.1 U | 0.90 U | 0.40 U | 0.40 U | 1.1 U | 0.90 U | NA | 0.40 U |
| MOLYBDENUM | NA | 3.0 J | 1.9 J | 1.2 U | 3.2 J | 3.2 J | 1.7 UJ | 1.6 UJ | 3.1 J | 2.8 J | NA | 1.2 U |
| NICKEL | NA | 2.3 U | 2.6 U | 5.2 UJ | 2.3 U | 2.6 U | 3.8 UJ | 2.1 UJ | 2.3 U | 2.6 U | NA | 7.4 UJ |
| POTASSIUM | NA | 1,080 J | 1,030 J | 1,520 UJ | 1,140 J | 989 J | 1,490 UJ | 1,180 UJ | 1,060 J | 1,070 J | NA | 2,780 J |
| SELENIUM | NA | 2.9 U | 2.5 UJ | 1.8 U | 2.9 U | 2.4 U | 1.8 U | 1.8 U | 2.9 U | 2.4 U | NA | 1.8 U |
| SILVER | NA | 1.7 J | 1.9 U | 1.0 UJ | 1.5 U | 1.9 U | 0.90 U | 0.90 U | 1.9 J | 1.9 U | NA | 0.90 U |
| SODIUM | NA | 112,000 | 114,000 | 114,000 | 112,000 | 116,000 | 115,000 | 111,000 | 101,000 | 114,000 | NA | 116,000 |
| THALLIUM | NA | 2.2 U | 2.7 U | 7.6 UJ | 3.4 J ab | 2.7 U | 1.9 U | 4.2 UJ | 2.2 U | 2.7 U | NA | 1.9 U |
| VANADIUM | NA | 10.4 J | 11.2 J | 9.3 UJ | 10.3 J | 10.4 J | 9.0 UJ | 9.2 UJ | 9.5 J | 10.8 J | NA | 6.5 UJ |
| ZINC | NA | 3.2 UJ | 4.6 UJ | 13.8 UJ | 2.0 UJ | 3.0 UJ | 7.5 UJ | 1.8 UJ | 1.8 UJ | 4.5 UJ | NA | 17.7 UJ |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| CHLORIDE CL- | 110 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 114 | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S01-MW-07** | **S01-MW-08** | **S01-MW-08** | **S01-MW-08** | **S01-MW-08** | **S01-MW-08** | **S01-MW-08** | **S01-MW-08** | **S01-MW-08** | **S01-MW-08** | **S01-MW-08** | **S01-MW-09** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05GW191 | S01SW083 | S01SW098 | S05MW061 | S05MW081 | S05MW096 | S05SW062 | S05SW063 | S05SW082 | S05SW097 | 05GW192 | S05MW065 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 03/05/2002 | 07/27/1999 | 10/26/1999 | 04/29/1999 | 07/27/1999 | 10/26/1999 | 04/29/1999 | 04/29/1999 | 07/27/1999 | 10/26/1999 | 03/05/2002 | 04/30/1999 |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| NITRATE | 6.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 8.3 | NA |
| SOLIDS, TOTAL DISSOLVED | 688 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 718 | NA |
| SULFATE | 60.3 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 66.2 | NA |
| **MISCELLANEOUS** | | | | | | | | | | | | |
| ALKALINITY | 360 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 352 | NA |
| HARDNESS | 283 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 366 | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | S01-MW-09 | S01-MW-09 | S01-MW-09 | S01-MW-10 | S01-MW-10 | S01-MW-10 | S01-MW-10 | S01-MW-11 | S01-MW-11 | S01-MW-11 | S01-MW-11 | S01-MW-12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S05MW085 | S05MW100 | 05GW197 | S05MW066 | S05MW086 | S05MW101 | 05GW196 | S02MW067 | S02MW087 | S02MW102 | 02GW203 | S18MW068 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 07/28/1999 | 10/26/1999 | 03/05/2002 | 04/30/1999 | 07/28/1999 | 10/26/1999 | 03/05/2002 | 04/30/1999 | 07/27/1999 | 10/25/1999 | 03/06/2002 | 04/30/1999 |
| **Low Level Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,1-DICHLOROETHENE | NA | NA | NA | 1 U | NA | NA | NA | 1 U | NA | NA | NA | 1 U |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | 4 | NA | NA | NA | 1 U | NA | NA | NA | 1 U |
| TETRACHLOROETHENE | NA | NA | NA | 62 ab | NA | NA | NA | 7 ab | NA | NA | NA | 1 U |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | 2 | NA | NA | NA | 1 U | NA | NA | NA | 1 U |
| TRICHLOROETHENE | NA | NA | NA | 19 ab | NA | NA | NA | 1 U | NA | NA | NA | 1 |
| **Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,1-DICHLOROETHENE | 0.7 J | 1 J | 1 | NA | 10 U | 10 U | 1 U | NA | 10 U | 10 U | 1 U | NA |
| 1,2-DICHLOROETHANE | 10 U | 10 U | 0.4 J | NA | 10 U | 10 U | 1 U | NA | 10 U | 10 U | 1 U | NA |
| 1,2-DICHLOROETHENE (TOTAL) | 10 U | 10 U | NA | NA | 6 J | 6 J | NA | NA | 10 U | 10 U | NA | NA |
| CHLOROFORM | 10 U | 10 U | 1 U | NA | 10 U | 10 U | 1 U | NA | 10 U | 10 U | 1 U | NA |
| CIS-1,2-DICHLOROETHENE | NA | NA | 1 U | NA | NA | NA | 5 | NA | NA | NA | 1 U | NA |
| TETRACHLOROETHENE | 10 U | 10 U | 0.4 J | NA | 66 ab | 72 ab | 100 ab | NA | 7 J ab | 7 J ab | 10 ab | NA |
| TRANS-1,2-DICHLOROETHENE | NA | NA | 1 U | NA | NA | NA | 3 | NA | NA | NA | 1 U | NA |
| TRICHLOROETHENE | 0.6 J | 10 U | 0.9 J | NA | 19 ab | 22 ab | 29 ab | NA | 10 U | 10 U | 1 U | NA |
| **Petroleum Indicators (in mg/L)** | | | | | | | | | | | | |
| DIESEL 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 |
| **Total Metals (in ug/L)** | | | | | | | | | | | | |
| CALCIUM | NA | NA | NA | NA | NA | NA | 75,800 | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | 35.0 UJ | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | 44,400 | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | 735 J | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | 133,000 | NA | NA | NA | NA | NA |
| **Dissolved Metals (in ug/L)** | | | | | | | | | | | | |
| ARSENIC | 2.5 U | 1.9 U | NA | 2.0 UJ | 2.5 U | 1.9 U | NA | NA | NA | NA | NA | 1.8 U |
| BARIUM | 184 J | 196 J | NA | 74.2 J | 74.0 J | 78.6 J | NA | NA | NA | NA | NA | 151 J |
| CADMIUM | 0.40 U | 0.30 U | NA | 0.30 U | 0.40 U | 0.30 U | NA | NA | NA | NA | NA | 0.30 U |
| CALCIUM | 98,000 | 102,000 | NA | 78,900 | 76,000 | 78,400 | NA | NA | NA | NA | NA | 73,800 |
| CHROMIUM | 1.4 J | 3.1 U | NA | 0.70 U | 2.4 J | 6.5 UJ | NA | NA | NA | NA | NA | 4.6 UJ |
| COPPER | 2.2 U | 3.0 J | NA | 7.8 UJ | 2.2 U | 1.9 U | NA | NA | NA | NA | NA | 15.1 UJ |
| MAGNESIUM | 57,300 | 60,600 | NA | 47,200 | 46,600 | 49,100 | NA | NA | NA | NA | NA | 38,900 |
| MANGANESE | 24.9 | 61.2 ab | NA | 0.40 U | 1.1 U | 1.6 J | NA | NA | NA | NA | NA | 0.40 U |
| MOLYBDENUM | 1.4 U | 1.5 U | NA | 1.2 U | 1.4 U | 1.5 U | NA | NA | NA | NA | NA | 1.2 U |
| NICKEL | 2.8 J | 2.7 J | NA | 6.5 UJ | 5.3 J | 3.5 J | NA | NA | NA | NA | NA | 5.2 UJ |
| POTASSIUM | 1,360 J | 1,210 J | NA | 964 UJ | 798 J | 849 J | NA | NA | NA | NA | NA | 724 UJ |
| SELENIUM | 2.9 U | 3.4 UJ | NA | 2.1 UJ | 2.9 U | 2.4 U | NA | NA | NA | NA | NA | 1.8 U |
| SILVER | 1.5 U | 1.9 U | NA | 0.90 U | 1.5 U | 1.9 U | NA | NA | NA | NA | NA | 1.0 UJ |
| SODIUM | 80,900 | 91,100 | NA | 129,000 | 117,000 | 126,000 | NA | NA | NA | NA | NA | 98,800 |
| THALLIUM | 2.2 U | 2.7 U | NA | 6.7 UJ | 2.2 U | 2.7 U | NA | NA | NA | NA | NA | 4.3 UJ |
| VANADIUM | 8.2 J | 9.5 J | NA | 11.4 UJ | 10.4 J | 12.4 J | NA | NA | NA | NA | NA | 7.3 UJ |
| ZINC | 9.9 J | 4.7 UJ | NA | 4.1 UJ | 3.7 UJ | 5.5 UJ | NA | NA | NA | NA | NA | 13.4 UJ |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| CHLORIDE CL- | NA | NA | NA | NA | NA | NA | 54.4 | NA | NA | NA | NA | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S01-MW-09** | **S01-MW-09** | **S01-MW-09** | **S01-MW-10** | **S01-MW-10** | **S01-MW-10** | **S01-MW-10** | **S01-MW-11** | **S01-MW-11** | **S01-MW-11** | **S01-MW-11** | **S01-MW-12** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S05MW085 | S05MW100 | 05GW197 | S05MW066 | S05MW086 | S05MW101 | 05GW196 | S02MW067 | S02MW087 | S02MW102 | 02GW203 | S18MW068 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 07/28/1999 | 10/26/1999 | 03/05/2002 | 04/30/1999 | 07/28/1999 | 10/26/1999 | 03/05/2002 | 04/30/1999 | 07/27/1999 | 10/25/1999 | 03/06/2002 | 04/30/1999 |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| NITRATE | NA | NA | NA | NA | NA | NA | 7.4 | NA | NA | NA | NA | NA |
| SOLIDS, TOTAL DISSOLVED | NA | NA | NA | NA | NA | NA | 759 | NA | NA | NA | NA | NA |
| SULFATE | NA | NA | NA | NA | NA | NA | 77.2 | NA | NA | NA | NA | NA |
| **MISCELLANEOUS** | | | | | | | | | | | | |
| ALKALINITY | NA | NA | NA | NA | NA | NA | 463 | NA | NA | NA | NA | NA |
| HARDNESS | NA | NA | NA | NA | NA | NA | 378 | NA | NA | NA | NA | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | S01-MW-12 | S01-MW-12 | S01-MW-12 | S01-MW-13 | S01-MW-14 | S01-MW-14 | S01-MW-14 | S01-MW-14 | S01MW14 | S02MW11 | S05MW08 | S05MW08 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S18MW088 | S18MW103 | 18GW206 | 18GW199 | S01MW070A | S01MW090 | S01MW105 | 01GW200 | S01MW043 | S02MW035 | S05MW039 | S05MW049 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 07/28/1999 | 10/26/1999 | 03/06/2002 | 03/06/2002 | 04/30/1999 | 07/27/1999 | 10/25/1999 | 03/06/2002 | 02/08/1999 | 02/04/1999 | 02/05/1999 | 02/19/1999 |
| **Low Level Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,1-DICHLOROETHENE | NA | NA | NA | NA | 1 U | NA | NA | NA | NA | NA | NA | NA |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA | 1 U | NA | NA | NA | NA | NA | NA | NA |
| TETRACHLOROETHENE | NA | NA | NA | NA | 2 | NA | NA | NA | NA | NA | NA | NA |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA | 1 U | NA | NA | NA | NA | NA | NA | NA |
| TRICHLOROETHENE | NA | NA | NA | NA | 1 U | NA | NA | NA | NA | NA | NA | NA |
| **Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,1-DICHLOROETHENE | 10 U | 10 U | 1 U | 1 U | NA | 10 U | 10 U | 1 U | 10 U | 10 U | 10 U | 10 U |
| 1,2-DICHLOROETHANE | 10 U | 10 U | 1 U | 1 U | NA | 10 U | 10 U | 1 U | 10 U | 10 U | 10 U | 10 U |
| 1,2-DICHLOROETHENE (TOTAL) | 10 U | 10 U | NA | NA | NA | 10 U | 10 U | NA | 10 U | 10 U | 10 U | 10 U |
| CHLOROFORM | 10 U | 10 U | 1 U | 1 U | NA | 10 U | 10 U | 0.4 J | 10 U | 10 U | 10 U | 10 U |
| CIS-1,2-DICHLOROETHENE | NA | NA | 1 U | 1 U | NA | NA | NA | 1 U | NA | NA | NA | NA |
| TETRACHLOROETHENE | 10 U | 10 U | 1 U | 1 U | NA | 2 J | 2 J | 3 | 2 J | 6 J ab | 10 U | 10 U |
| TRANS-1,2-DICHLOROETHENE | NA | NA | 1 U | 1 U | NA | NA | NA | 1 U | NA | NA | NA | NA |
| TRICHLOROETHENE | 1 J | 1 J | 1 | 1 U | NA | 10 U | 10 U | 1 U | 10 U | 10 U | 2 J | 2 J |
| **Petroleum Indicators (in mg/L)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | 0.1 U | 0.1 U | 0.1 U | 0.1 U |
| **Total Metals (in ug/L)** | | | | | | | | | | | | |
| CALCIUM | NA | NA | NA | 53,200 | NA | NA | NA | 68,700 | NA | NA | NA | NA |
| IRON | NA | NA | NA | 217 | NA | NA | NA | 521 a | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | 52,900 | NA | NA | NA | 43,500 | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | 1,050 | NA | NA | NA | 765 | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | 150,000 J | NA | NA | NA | 63,400 J | NA | NA | NA | NA |
| **Dissolved Metals (in ug/L)** | | | | | | | | | | | | |
| ARSENIC | 2.5 U | 1.9 U | NA | NA | NA | NA | NA | NA | NA | NA | 3.6 J | 2.3 U |
| BARIUM | 159 J | 162 J | NA | NA | NA | NA | NA | NA | NA | NA | 127 J | 111 |
| CADMIUM | 0.40 U | 0.30 U | NA | NA | NA | NA | NA | NA | NA | NA | 0.50 U | 0.20 U |
| CALCIUM | 75,700 | 77,300 | NA | NA | NA | NA | NA | NA | NA | NA | 65,000 | 69,100 |
| CHROMIUM | 7.3 J | 9.1 UJ | NA | NA | NA | NA | NA | NA | NA | NA | 8.2 J | 10.5 |
| COPPER | 2.2 U | 2.8 J | NA | NA | NA | NA | NA | NA | NA | NA | 19.7 J | 1.4 |
| MAGNESIUM | 40,200 | 41,900 | NA | NA | NA | NA | NA | NA | NA | NA | 43,900 | 46,500 |
| MANGANESE | 1.1 U | 0.90 U | NA | NA | NA | NA | NA | NA | NA | NA | 11.6 J | 0.30 U |
| MOLYBDENUM | 2.2 J | 1.5 U | NA | NA | NA | NA | NA | NA | NA | NA | 5.8 J | 4.6 |
| NICKEL | 2.3 J | 2.6 U | NA | NA | NA | NA | NA | NA | NA | NA | 6.2 J | 2.8 |
| POTASSIUM | 824 J | 871 J | NA | NA | NA | NA | NA | NA | NA | NA | 3,460 J | 3,590 |
| SELENIUM | 2.9 U | 2.4 U | NA | NA | NA | NA | NA | NA | NA | NA | 3.6 U | 4.3 |
| SILVER | 1.5 U | 1.9 U | NA | NA | NA | NA | NA | NA | NA | NA | 1.4 UJ | 1.0 U |
| SODIUM | 90,500 | 92,800 | NA | NA | NA | NA | NA | NA | NA | NA | 137,000 | 129,000 |
| THALLIUM | 2.2 U | 2.7 U | NA | NA | NA | NA | NA | NA | NA | NA | 5.0 J ab | 3.6 U |
| VANADIUM | 8.4 J | 10.3 J | NA | NA | NA | NA | NA | NA | NA | NA | 9.2 J | 10.4 |
| ZINC | 7.6 J | 8.7 J | NA | NA | NA | NA | NA | NA | NA | NA | 12.6 J | 3.9 UJ |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| CHLORIDE CL- | NA | NA | NA | 164 | NA | NA | NA | 71.0 | NA | NA | NA | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S01-MW-12** | **S01-MW-12** | **S01-MW-12** | **S01-MW-13** | **S01-MW-14** | **S01-MW-14** | **S01-MW-14** | **S01-MW-14** | **S01MW14** | **S02MW11** | **S05MW08** | **S05MW08** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | S18MW088 | S18MW103 | 18GW206 | 18GW199 | S01MW070A | S01MW090 | S01MW105 | 01GW200 | S01MW043 | S02MW035 | S05MW039 | S05MW049 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 07/28/1999 | 10/26/1999 | 03/06/2002 | 03/06/2002 | 04/30/1999 | 07/27/1999 | 10/25/1999 | 03/06/2002 | 02/08/1999 | 02/04/1999 | 02/05/1999 | 02/19/1999 |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| NITRATE | NA | NA | NA | 4.9 | NA | NA | NA | 4.7 | NA | NA | NA | NA |
| SOLIDS, TOTAL DISSOLVED | NA | NA | NA | 808 | NA | NA | NA | 613 | NA | NA | NA | NA |
| SULFATE | NA | NA | NA | 62.3 | NA | NA | NA | 91.2 | NA | NA | NA | NA |
| **MISCELLANEOUS** | | | | | | | | | | | | |
| ALKALINITY | NA | NA | NA | 427 | NA | NA | NA | 327 | NA | NA | NA | NA |
| HARDNESS | NA | NA | NA | 406 | NA | NA | NA | 394 | NA | NA | NA | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S05MW09** | **S05MW10** | **S05MW10** | **S18MW12** |
|---|---|---|---|---|
| Sample ID | S05MW040 | S05MW045 | S05MW046 | S18MW044 |
| Matrix | WATER | WATER | WATER | WATER |
| Sample Date | 02/05/1999 | 02/08/1999 | 02/08/1999 | 02/08/1999 |
| **Low Level Volatiles (in ug/L)** | | | | |
| 1,1-DICHLOROETHENE | NA | NA | NA | NA |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA |
| TETRACHLOROETHENE | NA | NA | NA | NA |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA |
| TRICHLOROETHENE | NA | NA | NA | NA |
| **Volatiles (in ug/L)** | | | | |
| 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 | 7 J | 7 J | 10 U |
| CHLOROFORM | 10 U | 10 U | 10 U | 10 U |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA |
| TETRACHLOROETHENE | 10 U | 71 ab | 69 ab | 10 U |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA |
| TRICHLOROETHENE | 10 U | 22 ab | 21 ab | 2 J |
| **Petroleum Indicators (in mg/L)** | | | | |
| DIESEL RANGE ORGANICS | NA | NA | NA | 0.1 U |
| MOTOR OIL RANGE ORGANICS | NA | NA | NA | 0.1 U |
| **Total Metals (in ug/L)** | | | | |
| CALCIUM | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA |
| **Dissolved Metals (in ug/L)** | | | | |
| ARSENIC | 2.3 U | 2.3 U | 2.3 U | 2.3 U |
| BARIUM | 248 | 61.3 J | 66.4 J | 143 J |
| CADMIUM | 0.50 U | 0.99 J | 0.50 U | 0.50 U |
| CALCIUM | 122,000 | 76,100 | 79,400 | 77,700 |
| CHROMIUM | 10.0 J | 2.6 J | 3.0 J | 7.4 J |
| COPPER | 16.5 J | 3.9 J | 8.9 J | 12.1 J |
| MAGNESIUM | 71,600 | 50,400 | 51,900 | 43,200 |
| MANGANESE | 0.30 U | 0.30 U | 4.1 J | 0.30 U |
| MOLYBDENUM | 1.6 J | 1.4 U | 1.4 U | 1.9 J |
| NICKEL | 7.2 J | 5.1 J | 6.1 J | 2.5 UJ |
| POTASSIUM | 5,280 | 3,230 J | 3,190 J | 1,870 J |
| SELENIUM | 3.6 U | 3.6 U | 3.6 U | 3.6 U |
| SILVER | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| SODIUM | 177,000 | 147,000 | 141,000 | 108,000 |
| THALLIUM | 3.1 U | 3.1 U | 4.0 J ab | 3.1 U |
| VANADIUM | 9.7 J | 10.5 J | 10.4 J | 8.5 J |
| ZINC | 12.8 J | 4.9 J | 6.1 J | 9.2 J |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | |
| CHLORIDE CL- | NA | NA | NA | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | **S05MW09** | **S05MW10** | **S05MW10** | **S18MW12** |
|---|---|---|---|---|
| Sample ID | S05MW040 | S05MW045 | S05MW046 | S18MW044 |
| Matrix | WATER | WATER | WATER | WATER |
| Sample Date | 02/05/1999 | 02/08/1999 | 02/08/1999 | 02/08/1999 |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | |
| NITRATE | NA | NA | NA | NA |
| SOLIDS, TOTAL DISSOLVED | NA | NA | NA | NA |
| SULFATE | NA | NA | NA | NA |
| **MISCELLANEOUS** | | | | |
| ALKALINITY | NA | NA | NA | NA |
| HARDNESS | NA | NA | NA | NA |

# TABLE A-3A (Continued)
# DETECTED GROUNDWATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Notes:

| | |
|---|---|
| | Samples where no volatiles, semivolatiles, petroleum indicators, metals, pesticides, or PCBs were detected are not listed in this table. |
| | 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. |
| J | Estimated value |
| NA | Not analyzed |
| U | Not detected with detection limit indicated |
| a | Detected concentrations greater than the U.S. EPA Maximum Contaminant Level (MCL). U.S. EPA MCL listing is presented in Table A-4. |
| b | Detected concentrations greater than the California Maximum Contaminant Level. California MCL listing is presented in Table A-4. |
| mg/L | Milligrams per liter |
| µg/L | Micrograms per liter |

# TABLE A-3B
# DETECTED GRAB WATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB001 | SB002 | SB003 | SB004 | SB005 | SB006 | SB009 | SB011 | SB011 | SB012 | SB013 | SB014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 02GW010 | 02GW170 | 02GW053 | 02GW161 | 02GW011 | 02GW027 | 05GW103 | 05GW030 | 05GW031 | 05GW123 | 05GW121 | 05GW080 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 02/19/2002 | 03/01/2002 | 02/22/2002 | 03/01/2002 | 02/20/2002 | 02/20/2002 | 02/26/2002 | 02/21/2002 | 02/21/2002 | 02/27/2002 | 02/26/2002 | 02/25/2002 |
| **Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,2,4-TRIMETHYLBENZENE | 2 | 1 U | 1 | 1 U | 1 UJ | 1 U | 1 U | 2 J | 1 J | 1 U | 1 U | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 0.6 J | 1 U | 0.4 J | 1 U | 1 U | 1 U | 1 U | 0.4 J | 0.3 J | 1 U | 1 U | 1 U |
| 4-METHYL-2-PENTANONE | 50 U | 50 U | 50 U | 50 U | 50 U | 0.9 J | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U |
| BENZENE | 0.5 J | 1 U | 0.5 J | 1 U | 1 UJ | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMODICHLOROMETHANE | 1 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CARBON DISULFIDE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROFORM | 1 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,2-DICHLOROETHENE | 1 U | 1 U | 1 U | 2 | 1 U | 1 U | 3 J | 1 U | 1 U | 0.5 J | 1 U | 1 U |
| DIBROMOCHLOROMETHANE | 0.9 J | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| ETHYLBENZENE | 1 | 1 U | 1 J | 1 U | 0.6 J | 1 U | 1 U | 0.5 J | 0.5 J | 1 U | 1 U | 1 U |
| M,P-XYLENE | 6 | 1 U | 5 | 1 U | 3 UJ | 1 UJ | 1 U | 2 J | 2 J | 1 U | 1 U | 1 U |
| METHYL TERTIARY BUTYL ETHER | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U | 0.9 J | 2 J | 10 U |
| NAPHTHALENE | 0.4 J | 1 U | 0.3 J | 1 U | 1 U | 1 U | 1 U | 0.5 J | 0.4 J | 1 U | 1 U | 1 U |
| O-XYLENE | 2 | 1 U | 1 | 1 U | 1 UJ | 1 U | 1 U | 0.8 J | 0.7 J | 1 U | 1 U | 1 U |
| P-ISOPROPYLTOLUENE | 0.6 J | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TETRACHLOROETHENE | 0.6 J | 5 | 1 U | 33 ab | 1 U | 3 J | 43 J ab | 1 J | 1 J | 5 J ab | 1 J | 1 U |
| TOLUENE | 9 | 1 U | 6 | 0.4 J | 5 UJ | 1 UJ | 0.3 J | 2 J | 3 J | 1 U | 1 U | 0.4 J |
| TRANS-1,2-DICHLOROETHENE | 1 U | 1 U | 1 U | 0.9 J | 1 U | 1 U | 2 J | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | 1 U | 1 U | 1 U | 11 ab | 1 U | 0.5 J | 15 J ab | 1 U | 1 U | 4 J | 1 J | 0.7 J |
| **Petroleum Indicators (in mg/L)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | NA | NA | NA | NA | NA | NA | 0.1 U | NA | NA | 0.1 U | NA | 0.1 UJ |
| GASOLINE | NA | NA | NA | NA | NA | NA | 0.05 UJ | NA | NA | 0.05 U | NA | 0.05 U |
| GASOLINE RANGE ORGANICS | 0.05 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | NA | NA | NA | NA | NA | NA | 0.1 U | NA | NA | 0.1 U | NA | 0.1 U |
| **Total Metals (in ug/L)** | | | | | | | | | | | | |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| CHLORIDE CL- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NITRATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SOLIDS, TOTAL DISSOLVED | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SULFATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **MISCELLANEOUS** | | | | | | | | | | | | |
| ALKALINITY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HARDNESS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-3B (Continued)
# DETECTED GRAB WATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB015 | SB016 | SB018 | SB019 | SB020 | SB020 | SB021 | SB022 | SB023 | SB023 | SB024 | SB024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05GW120 | 05GW102 | 05GW099 | 05GW098 | 05GW070 | 05GW074 | 05GW142 | 05GW054 | 05GW071 | 05GW072 | 05GW073 | 05GW073A |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 02/26/2002 | 02/26/2002 | 02/25/2002 | 02/25/2002 | 02/22/2002 | 02/22/2002 | 02/28/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 | 02/22/2002 |
| **Volatiles (in ug/L)** | | | | | | | | | | | | |
| 1,2,4-TRIMETHYLBENZENE | 1 U | 1 U | 1 U | 1 U | 1 | NA | 1 U | 1 U | 1 U | 1 U | 1 U | NA |
| 1,3,5-TRIMETHYLBENZENE | 1 U | 1 U | 1 U | 1 U | 1 U | NA | 1 U | 1 U | 1 U | 1 U | 1 U | NA |
| 4-METHYL-2-PENTANONE | 50 U | 50 UJ | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA |
| BENZENE | 1 U | 1 U | 1 U | 1 U | 1 U | NA | 1 U | 1 U | 1 U | 1 U | 1 U | NA |
| BROMODICHLOROMETHANE | 1 U | 1 U | 1 U | 1 U | 1 U | NA | 1 U | 1 U | 1 U | 1 U | 1 U | NA |
| CARBON DISULFIDE | 1 U | 1 U | 1 U | 1 U | 1 U | NA | 1 U | 0.3 J | 1 U | 1 U | 1 U | NA |
| CHLOROFORM | 1 UJ | 1 U | 1 U | 1 U | 1 U | NA | 1 U | 1 U | 1 U | 1 U | 1 U | NA |
| CIS-1,2-DICHLOROETHENE | 1 U | 5 J | 1 U | 1 U | 6 | NA | 1 U | 1 U | 0.8 J | 0.8 J | 7 J b | NA |
| DIBROMOCHLOROMETHANE | 1 U | 1 U | 1 U | 1 U | 1 U | NA | 1 U | 1 U | 1 U | 1 U | 1 U | NA |
| ETHYLBENZENE | 1 U | 1 U | 1 U | 1 U | 1 U | NA | 1 U | 1 U | 1 U | 1 U | 1 U | NA |
| M,P-XYLENE | 1 U | 0.3 J | 1 U | 1 U | 1 U | NA | 1 | 1 U | 1 U | 1 U | 1 U | NA |
| METHYL TERTIARY BUTYL ETHER | 10 U | 10 U | 10 U | 10 U | 10 U | NA | 0.5 J | 10 U | 10 U | 10 U | 10 U | NA |
| NAPHTHALENE | 1 U | 1 U | 1 U | 1 U | 1 U | NA | 1 U | 1 U | 1 U | 1 U | 1 U | NA |
| O-XYLENE | 1 U | 1 U | 1 U | 1 U | 1 U | NA | 0.5 J | 1 U | 1 U | 1 U | 1 U | NA |
| P-ISOPROPYLTOLUENE | 1 U | 1 U | 1 U | 1 U | 1 U | NA | 1 U | 1 U | 1 U | 1 U | 1 U | NA |
| TETRACHLOROETHENE | 3 J | 38 J ab | 5 J ab | 1 U | 47 ab | NA | 0.6 J | 1 U | 6 J ab | 5 J ab | 86 J ab | NA |
| TOLUENE | 1 U | 0.3 J | 0.4 J | 0.3 J | 1 U | NA | 1 | 0.4 J | 1 U | 1 U | 1 U | NA |
| TRANS-1,2-DICHLOROETHENE | 1 U | 2 J | 1 U | 1 U | 2 | NA | 1 U | 1 U | 0.3 J | 1 U | 4 J | NA |
| TRICHLOROETHENE | 2 J | 18 J ab | 3 J | 1 U | 19 ab | NA | 1 U | 0.5 J | 5 J | 4 J | 38 J ab | NA |
| **Petroleum Indicators (in mg/L)** | | | | | | | | | | | | |
| DIESEL RANGE ORGANICS | 0.2 D | 0.06 J | 0.4 D | 0.1 U | NA | 0.4 D | 0.06 J | NA | NA | NA | NA | NA |
| GASOLINE | 0.05 UJ | 0.05 UJ | 0.05 U | 0.05 U | NA | NA | 0.07 UJ | NA | NA | NA | NA | 0.1 |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 0.1 U | 0.1 U | 0.1 U | 0.9 M | NA | 0.1 U | 0.1 U | NA | NA | NA | NA | NA |
| **Total Metals (in ug/L)** | | | | | | | | | | | | |
| CALCIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| IRON | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| POTASSIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SODIUM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | | | | |
| CHLORIDE CL- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NITRATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SOLIDS, TOTAL DISSOLVED | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SULFATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **MISCELLANEOUS** | | | | | | | | | | | | |
| ALKALINITY | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| HARDNESS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# TABLE A-3B (Continued)
# DETECTED GRAB WATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SB025 | SB026 | SB027 | SB028 | SB029 | SB030 | SB031 | SB032 | SB033 |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 05GW143 | 05GW144 | 18GW145 | 18GW158 | 18GW159 | 18GW188 | 18GW189 | 18GW190 | 05GW230 |
| Matrix | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER | WATER |
| Sample Date | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 02/28/2002 | 03/05/2002 | 03/05/2002 | 03/05/2002 | 03/08/2002 |
| **Volatiles (in ug/L)** | | | | | | | | | |
| 1,2,4-TRIMETHYLBENZENE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,3,5-TRIMETHYLBENZENE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 4-METHYL-2-PENTANONE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U |
| BENZENE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| BROMODICHLOROMETHANE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CARBON DISULFIDE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CHLOROFORM | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| CIS-1,2-DICHLOROETHENE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| DIBROMOCHLOROMETHANE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| ETHYLBENZENE | 1 U | 1 U | 1 U | 0.4 J | 0.9 J | 1 U | 1 U | 1 U | 1 U |
| M,P-XYLENE | 1 U | 1 U | 1 U | 2 J | 5 | 1 U | 1 U | 1 U | 0.5 J |
| METHYL TERTIARY BUTYL ETHER | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U | 10 U |
| NAPHTHALENE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-XYLENE | 1 U | 1 U | 1 U | 0.8 J | 3 | 1 U | 1 U | 1 U | 1 U |
| P-ISOPROPYLTOLUENE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TETRACHLOROETHENE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TOLUENE | 1 | 0.4 J | 0.4 J | 0.8 J | 1 | 1 U | 1 U | 1 U | 0.7 J |
| TRANS-1,2-DICHLOROETHENE | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | 1 U | 0.9 J | 0.8 J | 1 J | 2 | 1 U | 1 U | 1 U | 1 U |
| **Petroleum Indicators (in mg/L)** | | | | | | | | | |
| DIESEL RANGE ORGANICS | 0.05 J | 0.1 U | 0.1 U | NA | NA | NA | 0.06 JZ | 0.1 U | 0.1 U |
| GASOLINE | 0.05 U | 0.06 UJ | 0.07 UJ | NA | NA | NA | 0.05 U | 0.05 U | 0.05 UJ |
| GASOLINE RANGE ORGANICS | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MOTOR OIL | 0.1 U | 0.8 M | 0.06 J | NA | NA | NA | 0.1 U | 0.1 U | 2 M |
| **Total Metals (in ug/L)** | | | | | | | | | |
| CALCIUM | NA | NA | NA | NA | NA | 49,600 | 44,700 | 94,000 | NA |
| IRON | NA | NA | NA | NA | NA | 203 UJ | 306 a | 64.5 UJ | NA |
| MAGNESIUM | NA | NA | NA | NA | NA | 48,700 | 38,500 | 77,800 | NA |
| POTASSIUM | NA | NA | NA | NA | NA | 1,820 J | 2,810 J | 2,370 J | NA |
| SODIUM | NA | NA | NA | NA | NA | 162,000 | 85,800 | 173,000 | NA |
| **Anions, Solids, Sulfides, and TOC (in mg/L)** | | | | | | | | | |
| CHLORIDE CL- | NA | NA | NA | NA | NA | 150 | 54.4 | 195 | NA |
| NITRATE | NA | NA | NA | NA | NA | 4.4 | 3.9 | 4.3 | NA |
| SOLIDS, TOTAL DISSOLVED | NA | NA | NA | NA | NA | 748 | 492 | 1,010 | NA |
| SULFATE | NA | NA | NA | NA | NA | 57.1 | 21.9 | 73.6 | NA |
| **MISCELLANEOUS** | | | | | | | | | |
| ALKALINITY | NA | NA | NA | NA | NA | 390 | 354 | 498 | NA |
| HARDNESS | NA | NA | NA | NA | NA | 331 | 275 | 572 | NA |

# TABLE A-3B (Continued)
# DETECTED GRAB WATER ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Notes:

| | |
|---|---|
| | Samples where no volatiles, semivolatiles, petroleum indicators, metals, pesticides, or PCBs were detected are not listed in this table. |
| | 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. |
| J | Estimated value |
| NA | Not analyzed |
| U | Not detected with detection limit indicated |
| a | Detected concentrations greater than the U.S. EPA Maximum Contaminant Level (MCL). U.S. EPA MCL listing is presented in Table A-4. |
| b | Detected concentrations greater than the California Maximum Contaminant Level. California MCL listing is presented in Table A-4. |
| mg/L | Milligrams per liter |
| µg/L | Micrograms per liter |

# TABLE A-4
# STATE AND FEDERAL MAXIMUM CONTAMINATION LIMITS FOR DRINKING WATER
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Criteria | Concentration | Unit |
|---|---|---|---|
| 1,1,1-TRICHLOROETHANE | CALIFORNIA MCL | 200 | µg/L |
| 1,1,2,2-TETRACHLOROETHANE | CALIFORNIA MCL | 1 | µg/L |
| 1,1,2-TRICHLOROETHANE | CALIFORNIA MCL | 5 | µg/L |
| 1,1-DICHLOROETHANE | CALIFORNIA MCL | 5 | µg/L |
| 1,1-DICHLOROETHENE | CALIFORNIA MCL | 6 | µg/L |
| 1,2,4-TRICHLOROBENZENE | CALIFORNIA MCL | 70 | µg/L |
| 1,2-DIBROMO-3-CHLOROPROPANE | CALIFORNIA MCL | 0.2 | µg/L |
| 1,2-DIBROMOETHANE | CALIFORNIA MCL | 0.05 | µg/L |
| 1,2-DICHLOROBENZENE | CALIFORNIA MCL | 600 | µg/L |
| 1,2-DICHLOROETHANE | CALIFORNIA MCL | 0.5 | µg/L |
| 1,2-DICHLOROPROPANE | CALIFORNIA MCL | 5 | µg/L |
| 1,4-DICHLOROBENZENE | CALIFORNIA MCL | 5 | µg/L |
| ALUMINUM | CALIFORNIA MCL | 1000 | µg/L |
| ANTIMONY | CALIFORNIA MCL | 6 | µg/L |
| ARSENIC | CALIFORNIA MCL | 50 | µg/L |
| BARIUM | CALIFORNIA MCL | 1000 | µg/L |
| BENZENE | CALIFORNIA MCL | 1 | µg/L |
| BENZO(A)PYRENE | CALIFORNIA MCL | 0.2 | µg/L |
| BERYLLIUM | CALIFORNIA MCL | 4 | µg/L |
| BIS(2-ETHYLHEXYL)PHTHALATE | CALIFORNIA MCL | 4 | µg/L |
| BROMODICHLOROMETHANE | CALIFORNIA MCL | 100 | µg/L |
| BROMOFORM | CALIFORNIA MCL | 100 | µg/L |
| BUTYLBENZYLPHTHALATE | CALIFORNIA MCL | 100 | µg/L |
| CADMIUM | CALIFORNIA MCL | 5 | µg/L |
| CARBON TETRACHLORIDE | CALIFORNIA MCL | 0.5 | µg/L |
| CHLOROBENZENE | CALIFORNIA MCL | 70 | µg/L |
| CHLOROFORM | CALIFORNIA MCL | 100 | µg/L |
| CHROMIUM | CALIFORNIA MCL | 50 | µg/L |
| CIS-1,2-DICHLOROETHENE | CALIFORNIA MCL | 6 | µg/L |
| CIS-1,3-DICHLOROPROPENE | CALIFORNIA MCL | 0.5 | µg/L |
| COPPER | CALIFORNIA MCL | 1300 | µg/L |
| DIBROMOCHLOROMETHANE | CALIFORNIA MCL | 100 | µg/L |
| ETHYLBENZENE | CALIFORNIA MCL | 300 | µg/L |
| HEXACHLOROBENZENE | CALIFORNIA MCL | 1 | µg/L |
| HEXACHLOROCYCLOPENTADIENE | CALIFORNIA MCL | 50 | µg/L |
| LEAD | CALIFORNIA MCL | 15 | µg/L |
| MANGANESE | CALIFORNIA MCL | 50 | µg/L |
| MERCURY | CALIFORNIA MCL | 2 | µg/L |
| METHYL TERTIARY BUTYL ETHER | CALIFORNIA MCL | 13 | µg/L |
| NICKEL | CALIFORNIA MCL | 100 | µg/L |
| NITRATE | CALIFORNIA MCL | 45 | mg/L |
| NITRITE | CALIFORNIA MCL | 1 | mg/L |
| PENTACHLOROPHENOL | CALIFORNIA MCL | 1 | µg/L |
| SELENIUM | CALIFORNIA MCL | 50 | µg/L |
| SILVER | CALIFORNIA MCL | 50 | µg/L |
| STYRENE | CALIFORNIA MCL | 100 | µg/L |

## TABLE A-4
## STATE AND FEDERAL MAXIMUM CONTAMINATION LIMITS FOR DRINKING WATER
## SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Criteria | Concentration | Unit |
|---|---|---|---|
| TETRACHLOROETHENE | CALIFORNIA MCL | 5 | µg/L |
| THALLIUM | CALIFORNIA MCL | 2 | µg/L |
| TOLUENE | CALIFORNIA MCL | 150 | µg/L |
| TRANS-1,2-DICHLOROETHENE | CALIFORNIA MCL | 10 | µg/L |
| TRANS-1,3-DICHLOROPROPENE | CALIFORNIA MCL | 0.5 | µg/L |
| TRICHLOROETHENE | CALIFORNIA MCL | 5 | µg/L |
| VINYL CHLORIDE | CALIFORNIA MCL | 0.5 | µg/L |
| XYLENE (TOTAL) | CALIFORNIA MCL | 1750 | µg/L |
| 1,1,1-TRICHLOROETHANE | U.S. EPA MCL | 200 | µg/L |
| 1,1,2-TRICHLOROETHANE | U.S. EPA MCL | 5 | µg/L |
| 1,1-DICHLOROETHENE | U.S. EPA MCL | 7 | µg/L |
| 1,2,4-TRICHLOROBENZENE | U.S. EPA MCL | 70 | µg/L |
| 1,2-DIBROMO-3-CHLOROPROPANE | U.S. EPA MCL | 0.2 | µg/L |
| 1,2-DIBROMOETHANE | U.S. EPA MCL | 0.05 | µg/L |
| 1,2-DICHLOROBENZENE | U.S. EPA MCL | 600 | µg/L |
| 1,2-DICHLOROETHANE | U.S. EPA MCL | 5 | µg/L |
| 1,2-DICHLOROPROPANE | U.S. EPA MCL | 5 | µg/L |
| 1,4-DICHLOROBENZENE | U.S. EPA MCL | 75 | µg/L |
| ALUMINUM | U.S. EPA MCL | 200 | µg/L |
| ANTIMONY | U.S. EPA MCL | 6 | µg/L |
| ARSENIC | U.S. EPA MCL | 10 | µg/L |
| BARIUM | U.S. EPA MCL | 2000 | µg/L |
| BENZENE | U.S. EPA MCL | 5 | µg/L |
| BENZO(A)ANTHRACENE | U.S. EPA MCL | 0.1 | µg/L |
| BENZO(A)PYRENE | U.S. EPA MCL | 0.2 | µg/L |
| BENZO(B)FLUORANTHENE | U.S. EPA MCL | 0.2 | µg/L |
| BERYLLIUM | U.S. EPA MCL | 4 | µg/L |
| BIS(2-ETHYLHEXYL)PHTHALATE | U.S. EPA MCL | 6 | µg/L |
| BROMODICHLOROMETHANE | U.S. EPA MCL | 100 | µg/L |
| BROMOFORM | U.S. EPA MCL | 100 | µg/L |
| BUTYLBENZYLPHTHALATE | U.S. EPA MCL | 100 | µg/L |
| CADMIUM | U.S. EPA MCL | 5 | µg/L |
| CARBON TETRACHLORIDE | U.S. EPA MCL | 5 | µg/L |
| CHLOROBENZENE | U.S. EPA MCL | 100 | µg/L |
| CHLOROFORM | U.S. EPA MCL | 100 | µg/L |
| CHROMIUM | U.S. EPA MCL | 100 | µg/L |
| CIS-1,2-DICHLOROETHENE | U.S. EPA MCL | 70 | µg/L |
| COPPER | U.S. EPA MCL | 1300 | µg/L |
| DIBROMOCHLOROMETHANE | U.S. EPA MCL | 100 | µg/L |

## TABLE A-4
## STATE AND FEDERAL MAXIMUM CONTAMINATION LIMITS FOR DRINKING WATER
## SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Analyte | Criteria | Concentration | Unit |
|---|---|---|---|
| ETHYLBENZENE | U.S. EPA MCL | 700 | µg/L |
| HEXACHLOROBENZENE | U.S. EPA MCL | 1 | µg/L |
| HEXACHLOROCYCLOPENTADIENE | U.S. EPA MCL | 50 | µg/L |
| IRON | U.S. EPA MCL | 300 | µg/L |
| MANGANESE | U.S. EPA MCL | 50 | µg/L |
| MERCURY | U.S. EPA MCL | 2 | µg/L |
| METHYLENE CHLORIDE | U.S. EPA MCL | 5 | µg/L |
| NICKEL | U.S. EPA MCL | 100 | µg/L |
| NITRATE | U.S. EPA MCL | 10000 | µg/L |
| NITRITE | U.S. EPA MCL | 1000 | µg/L |
| PENTACHLOROPHENOL | U.S. EPA MCL | 1 | µg/L |
| SELENIUM | U.S. EPA MCL | 50 | µg/L |
| SILVER | U.S. EPA MCL | 100 | µg/L |
| STYRENE | U.S. EPA MCL | 100 | µg/L |
| TETRACHLOROETHENE | U.S. EPA MCL | 5 | µg/L |
| THALLIUM | U.S. EPA MCL | 2 | µg/L |
| TOLUENE | U.S. EPA MCL | 1000 | µg/L |
| TRANS-1,2-DICHLOROETHENE | U.S. EPA MCL | 100 | µg/L |
| TRICHLOROETHENE | U.S. EPA MCL | 5 | µg/L |
| VINYL CHLORIDE | U.S. EPA MCL | 2 | µg/L |
| XYLENE (TOTAL) | U.S. EPA MCL | 10000 | µg/L |
| ZINC | U.S. EPA MCL | 5000 | µg/L |

Notes:

MCL Maximium contaminant limit
µg/L Micrograms per liter
mg/L Milligrams per liter

# TABLE A-5
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG01 | SG02 | SG03 | SG04 | SG04 | SG05 | SG05 | SG06 | SG07 | SG08 | SG09 | SG09 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 324SG001 | 324SG002 | 324SG003 | 324SG004 | 324SG004C | 324SG005 | 324SG005C | 324SG006 | 324SG007 | 324SG010 | 324SG011 | 324SG011C |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 01/26/2004 | 01/26/2004 | 01/28/2004 | 01/27/2004 | 01/27/2004 | 01/26/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/27/2004 | 01/27/2004 |
| Sample Depth (in feet) | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 |
| **MOBILE LAB EPA Method TO14 (in ug/m3)** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| 1,1,2,2-TETRACHLOROETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| 1,1,2-TRICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| 1,1-DICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| 1,1-DICHLOROETHENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| 1,2-DICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| 1,2-DICHLOROPROPANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| BENZENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| BROMODICHLOROMETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| BROMOFORM | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| BROMOMETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| CARBON DISULFIDE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| CARBON TETRACHLORIDE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| CHLOROBENZENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| CHLOROETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| CHLOROFORM | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| CHLOROMETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| CIS-1,2-DICHLOROETHENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| CIS-1,3-DICHLOROPROPENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| DIBROMOCHLOROMETHANE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| ETHYLBENZENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| METHYLENE CHLORIDE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| STYRENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| TETRACHLOROETHENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| TOLUENE | 220 | 180 | 50 U | 130 | NA | 290 | NA | 50 U | 50 U | 110 | 90 | NA |
| TRANS-1,2-DICHLOROETHENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| TRANS-1,3-DICHLOROPROPENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| TRICHLOROETHENE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| VINYL CHLORIDE | 50 U | 50 U | 50 U | 50 U | NA | 50 U | NA | 50 U | 50 U | 50 U | 50 U | NA |
| XYLENE (TOTAL) | 240 | 180 | 70 | 97 | NA | 210 | NA | 60 | 50 U | 81 | 75 | NA |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | NA | NA | NA | NA | 4 U | NA | 4 U | NA | NA | NA | NA | 4 U |
| 1,1,2,2-TETRACHLOROETHANE | NA | NA | NA | NA | 5 U | NA | 6 U | NA | NA | NA | NA | 5 U |
| 1,1,2-TRICHLOROETHANE | NA | NA | NA | NA | 4 U | NA | 4 U | NA | NA | NA | NA | 4 U |
| 1,1-DICHLOROETHANE | NA | NA | NA | NA | 3 U | NA | 3 U | NA | NA | NA | NA | 3 U |
| 1,1-DICHLOROETHENE | NA | NA | NA | NA | 3 U | NA | 3 U | NA | NA | NA | NA | 3 U |
| 1,2,4-TRICHLOROBENZENE | NA | NA | NA | NA | 23 U | NA | 24 U | NA | NA | NA | NA | 21 U |
| 1,2,4-TRIMETHYLBENZENE | NA | NA | NA | NA | 7 | NA | 4 U | NA | NA | NA | NA | 3 U |
| 1,2-DIBROMOETHANE | NA | NA | NA | NA | 6 U | NA | 6 U | NA | NA | NA | NA | 5 U |
| 1,2-DICHLOROBENZENE | NA | NA | NA | NA | 5 U | NA | 5 U | NA | NA | NA | NA | 4 U |
| 1,2-DICHLOROETHANE | NA | NA | NA | NA | 3 U | NA | 3 U | NA | NA | NA | NA | 3 U |
| 1,2-DICHLOROPROPANE | NA | NA | NA | NA | 3 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| 1,3,5-TRIMETHYLBENZENE | NA | NA | NA | NA | 4 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| 1,3-BUTADIENE | NA | NA | NA | NA | 2 U | NA | 2 U | NA | NA | NA | NA | 2 U |
| 1,3-DICHLOROBENZENE | NA | NA | NA | NA | 5 U | NA | 5 U | NA | NA | NA | NA | 4 U |
| 1,4-DICHLOROBENZENE | NA | NA | NA | NA | 5 U | NA | 5 U | NA | NA | NA | NA | 4 U |
| 1,4-DIOXANE | NA | NA | NA | NA | 11 U | NA | 12 U | NA | NA | NA | NA | 10 U |

# TABLE A-5 (Continued)
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG01 | SG02 | SG03 | SG04 | SG04 | SG05 | SG05 | SG06 | SG07 | SG08 | SG09 | SG09 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 324SG001 | 324SG002 | 324SG003 | 324SG004 | 324SG004C | 324SG005 | 324SG005C | 324SG006 | 324SG007 | 324SG010 | 324SG011 | 324SG011C |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 01/26/2004 | 01/26/2004 | 01/28/2004 | 01/27/2004 | 01/27/2004 | 01/26/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/27/2004 | 01/27/2004 |
| Sample Depth (in feet) | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | | | | | | | | | |
| 2-BUTANONE | NA | NA | NA | NA | 25 UJ | NA | 45 UJ | NA | NA | NA | NA | 8 U |
| 2-HEXANONE | NA | NA | NA | NA | 12 U | NA | 13 U | NA | NA | NA | NA | 12 U |
| 2-PROPANOL | NA | NA | NA | NA | 7 U | NA | 8 U | NA | NA | NA | NA | 7 U |
| 4-ETHYLTOLUENE | NA | NA | NA | NA | 15 U | NA | 16 U | NA | NA | NA | NA | 14 U |
| 4-METHYL-2-PENTANONE | NA | NA | NA | NA | 12 U | NA | 13 U | NA | NA | NA | NA | 12 U |
| ACETONE | NA | NA | NA | NA | 180 | NA | 360 | NA | NA | NA | NA | 19 UJ |
| ALPHA-CHLOROTOLUENE | NA | NA | NA | NA | 4 U | NA | 4 U | NA | NA | NA | NA | 4 U |
| BENZENE | NA | NA | NA | NA | 3 | NA | 3 | NA | NA | NA | NA | 2 U |
| BROMODICHLOROMETHANE | NA | NA | NA | NA | 5 U | NA | 5 U | NA | NA | NA | NA | 5 U |
| BROMOFORM | NA | NA | NA | NA | 32 U | NA | 34 U | NA | NA | NA | NA | 29 U |
| BROMOMETHANE | NA | NA | NA | NA | 3 U | NA | 3 U | NA | NA | NA | NA | 3 U |
| CARBON DISULFIDE | NA | NA | NA | NA | 9 U | NA | 10 U | NA | NA | NA | NA | 9 U |
| CARBON TETRACHLORIDE | NA | NA | NA | NA | 5 U | NA | 5 U | NA | NA | NA | NA | 4 U |
| CHLOROBENZENE | NA | NA | NA | NA | 3 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| CHLOROETHANE | NA | NA | NA | NA | 2 U | NA | 2 U | NA | NA | NA | NA | 2 U |
| CHLOROFORM | NA | NA | NA | NA | 4 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| CHLOROMETHANE | NA | NA | NA | NA | 6 U | NA | 7 U | NA | NA | NA | NA | 6 U |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA | 3 U | NA | 3 U | NA | NA | NA | NA | 3 U |
| CIS-1,3-DICHLOROPROPENE | NA | NA | NA | NA | 3 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| CUMENE | NA | NA | NA | NA | 4 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| CYCLOHEXANE | NA | NA | NA | NA | 3 U | NA | 3 U | NA | NA | NA | NA | 2 U |
| DIBROMOCHLOROMETHANE | NA | NA | NA | NA | 6 U | NA | 7 U | NA | NA | NA | NA | 6 U |
| ETHANOL | NA | NA | NA | NA | 6 U | NA | 7 | NA | NA | NA | NA | 5 U |
| ETHYLBENZENE | NA | NA | NA | NA | 3 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| FREON 11 | NA | NA | NA | NA | 4 U | NA | 5 U | NA | NA | NA | NA | 4 U |
| FREON 113 | NA | NA | NA | NA | 6 U | NA | 6 U | NA | NA | NA | NA | 5 U |
| FREON 114 | NA | NA | NA | NA | 5 U | NA | 6 U | NA | NA | NA | NA | 5 U |
| FREON 12 | NA | NA | NA | NA | 4 U | NA | 4 U | NA | NA | NA | NA | 4 U |
| HEPTANE | NA | NA | NA | NA | 3 U | NA | 3 U | NA | NA | NA | NA | 3 U |
| HEXACHLOROBUTADIENE | NA | NA | NA | NA | 33 U | NA | 35 U | NA | NA | NA | NA | 30 U |
| HEXANE | NA | NA | NA | NA | 3 U | NA | 3 | NA | NA | NA | NA | 3 U |
| M,P-XYLENE | NA | NA | NA | NA | 9 | NA | 8 | NA | NA | NA | NA | 5 |
| METHYL TERTIARY BUTYL ETHER | NA | NA | NA | NA | 11 U | NA | 12 U | NA | NA | NA | NA | 10 U |
| METHYLENE CHLORIDE | NA | NA | NA | NA | 3 U | NA | 3 U | NA | NA | NA | NA | 2 U |
| O-XYLENE | NA | NA | NA | NA | 3 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| PROPYLBENZENE | NA | NA | NA | NA | 4 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| STYRENE | NA | NA | NA | NA | 3 U | NA | 3 U | NA | NA | NA | NA | 3 U |
| TETRACHLOROETHENE | NA | NA | NA | NA | 5 U | NA | 6 U | NA | NA | NA | NA | 5 U |
| TETRAHYDROFURAN | NA | NA | NA | NA | 9 U | NA | 10 U | NA | NA | NA | NA | 8 U |
| TOLUENE | NA | NA | NA | NA | 12 | NA | 11 | NA | NA | NA | NA | 6 |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA | 12 U | NA | 13 U | NA | NA | NA | NA | 11 U |
| TRANS-1,3-DICHLOROPROPENE | NA | NA | NA | NA | 3 U | NA | 4 U | NA | NA | NA | NA | 3 U |
| TRICHLOROETHENE | NA | NA | NA | NA | 4 U | NA | 4 U | NA | NA | NA | NA | 4 U |
| VINYL ACETATE | NA | NA | NA | NA | 11 U | NA | 11 U | NA | NA | NA | NA | 10 U |
| VINYL CHLORIDE | NA | NA | NA | NA | 2 U | NA | 2 U | NA | NA | NA | NA | 2 U |

# TABLE A-5 (Continued)
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG10 | SG11 | SG12 | SG13 | SG14 | SG15 | SG16 | SG17 | SG17 | SG18 | SG18 | SG19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 324SG012 | 324SG013 | 324SG014 | 324SG016 | 324SG017 | 324SG018 | 324SG019 | 324SG020 | 324SG032 | 324SG021 | 324SG021C | 324SG022 |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 01/27/2004 | 01/28/2004 | 01/26/2004 | 01/27/2004 | 01/27/2004 | 01/27/2004 | 01/28/2004 | 01/27/2004 | 01/27/2004 | 01/27/2004 | 01/27/2004 | 01/26/2004 |
| Sample Depth (in feet) | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 |
| **MOBILE LAB EPA Method TO14 (in ug/m3)** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| 1,1,2,2-TETRACHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| 1,1,2-TRICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| 1,1-DICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| 1,1-DICHLOROETHENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| 1,2-DICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| 1,2-DICHLOROPROPANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| BENZENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| BROMODICHLOROMETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| BROMOFORM | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| BROMOMETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| CARBON DISULFIDE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| CARBON TETRACHLORIDE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| CHLOROBENZENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| CHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| CHLOROFORM | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| CHLOROMETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| CIS-1,2-DICHLOROETHENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| CIS-1,3-DICHLOROPROPENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| DIBROMOCHLOROMETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| ETHYLBENZENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| METHYLENE CHLORIDE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| STYRENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| TETRACHLOROETHENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 650 | NA | 50 U |
| TOLUENE | 160 | 58 | 220 | 90 | 53 | 130 | 70 | 50 U | 50 U | 50 U | NA | 180 |
| TRANS-1,2-DICHLOROETHENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| TRANS-1,3-DICHLOROPROPENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| TRICHLOROETHENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| VINYL CHLORIDE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U |
| XYLENE (TOTAL) | 100 | 58 | 230 | 100 | 85 | 86 | 65 | 50 U | 50 U | 100 | NA | 170 |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5 U | NA |
| 1,1,2,2-TETRACHLOROETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6 U | NA |
| 1,1,2-TRICHLOROETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5 U | NA |
| 1,1-DICHLOROETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| 1,1-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| 1,2,4-TRICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26 U | NA |
| 1,2,4-TRIMETHYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| 1,2-DIBROMOETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7 U | NA |
| 1,2-DICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5 U | NA |
| 1,2-DICHLOROETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| 1,2-DICHLOROPROPANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| 1,3,5-TRIMETHYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| 1,3-BUTADIENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 2 U | NA |
| 1,3-DICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5 U | NA |
| 1,4-DICHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5 U | NA |
| 1,4-DIOXANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 13 U | NA |

# TABLE A-5 (Continued)
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG10 | SG11 | SG12 | SG13 | SG14 | SG15 | SG16 | SG17 | SG17 | SG18 | SG18 | SG19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 324SG012 | 324SG013 | 324SG014 | 324SG016 | 324SG017 | 324SG018 | 324SG019 | 324SG020 | 324SG032 | 324SG021 | 324SG021C | 324SG022 |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 01/27/2004 | 01/28/2004 | 01/26/2004 | 01/27/2004 | 01/27/2004 | 01/27/2004 | 01/28/2004 | 01/27/2004 | 01/27/2004 | 01/27/2004 | 01/27/2004 | 01/26/2004 |
| Sample Depth (in feet) | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | | | | | | | | | |
| 2-BUTANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 10 U | NA |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 15 U | NA |
| 2-PROPANOL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 9 U | NA |
| 4-ETHYLTOLUENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 17 U | NA |
| 4-METHYL-2-PENTANONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 15 U | NA |
| ACETONE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 11 UJ | NA |
| ALPHA-CHLOROTOLUENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5 U | NA |
| BENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3 U | NA |
| BROMODICHLOROMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6 U | NA |
| BROMOFORM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 37 U | NA |
| BROMOMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3 U | NA |
| CARBON DISULFIDE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 11 U | NA |
| CARBON TETRACHLORIDE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6 U | NA |
| CHLOROBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| CHLOROETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 2 U | NA |
| CHLOROFORM | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| CHLOROMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7 U | NA |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| CIS-1,3-DICHLOROPROPENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| CUMENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| CYCLOHEXANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3 U | NA |
| DIBROMOCHLOROMETHANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 8 U | NA |
| ETHANOL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7 U | NA |
| ETHYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| FREON 11 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5 U | NA |
| FREON 113 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7 U | NA |
| FREON 114 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6 U | NA |
| FREON 12 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| HEPTANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| HEXACHLOROBUTADIENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 38 U | NA |
| HEXANE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3 U | NA |
| M,P-XYLENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| METHYL TERTIARY BUTYL ETHER | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 13 U | NA |
| METHYLENE CHLORIDE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3 U | NA |
| O-XYLENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| PROPYLBENZENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| STYRENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| TETRACHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1,000 | NA |
| TETRAHYDROFURAN | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 10 U | NA |
| TOLUENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3 U | NA |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 14 U | NA |
| TRANS-1,3-DICHLOROPROPENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4 U | NA |
| TRICHLOROETHENE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 66 | NA |
| VINYL ACETATE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 13 U | NA |
| VINYL CHLORIDE | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 2 U | NA |

# TABLE A-5 (Continued)
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG20 | SG21 | SG21 | SG22 | SG23 | SG23 | SG24 | SG25 | SG25 | SG25 | SG26 | SG27 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 324SG023 | 324SG025 | 324SG025C | 324SG026 | 324SG027 | 324SG031 | 324SG029 | 324SG030 | 324SG030C | 324SG030CD | 324SG036 | 324SG034 |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/27/2004 | 01/28/2004 | 01/28/2004 | 01/27/2004 | 01/26/2004 |
| Sample Depth (in feet) | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 0.0 - 0.0 | 5.0 - 5.0 | 5.0 - 5.0 |
| **MOBILE LAB EPA Method TO14 (in ug/m3)** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| 1,1,2,2-TETRACHLOROETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| 1,1,2-TRICHLOROETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| 1,1-DICHLOROETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| 1,1-DICHLOROETHENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| 1,2-DICHLOROETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| 1,2-DICHLOROPROPANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| BENZENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| BROMODICHLOROMETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| BROMOFORM | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| BROMOMETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| CARBON DISULFIDE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| CARBON TETRACHLORIDE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| CHLOROBENZENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| CHLOROETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| CHLOROFORM | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| CHLOROMETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| CIS-1,2-DICHLOROETHENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 650 | 50 U | 50 U |
| CIS-1,3-DICHLOROPROPENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| DIBROMOCHLOROMETHANE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| ETHYLBENZENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| METHYLENE CHLORIDE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| STYRENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| TETRACHLOROETHENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 12,000 | NA | 14,000 | 50 U | 50 U |
| TOLUENE | 200 | 230 | NA | 180 | 160 | 150 | 210 | 50 U | NA | 50 U | 160 | 130 |
| TRANS-1,2-DICHLOROETHENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| TRANS-1,3-DICHLOROPROPENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| TRICHLOROETHENE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 2,400 | NA | 2,200 | 50 U | 50 U |
| VINYL CHLORIDE | 50 U | 50 U | NA | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U |
| XYLENE (TOTAL) | 220 | 210 | NA | 170 | 160 | 160 | 170 | 50 U | NA | 50 U | 150 | 130 |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | NA | NA | 4 U | NA | NA | NA | NA | NA | 78 U | NA | NA | NA |
| 1,1,2,2-TETRACHLOROETHANE | NA | NA | 5 U | NA | NA | NA | NA | NA | 98 U | NA | NA | NA |
| 1,1,2-TRICHLOROETHANE | NA | NA | 4 U | NA | NA | NA | NA | NA | 78 U | NA | NA | NA |
| 1,1-DICHLOROETHANE | NA | NA | 3 U | NA | NA | NA | NA | NA | 58 U | NA | NA | NA |
| 1,1-DICHLOROETHENE | NA | NA | 3 U | NA | NA | NA | NA | NA | 56 U | NA | NA | NA |
| 1,2,4-TRICHLOROBENZENE | NA | NA | 23 U | NA | NA | NA | NA | NA | 410 U | NA | NA | NA |
| 1,2,4-TRIMETHYLBENZENE | NA | NA | 4 U | NA | NA | NA | NA | NA | 70 U | NA | NA | NA |
| 1,2-DIBROMOETHANE | NA | NA | 6 U | NA | NA | NA | NA | NA | 110 U | NA | NA | NA |
| 1,2-DICHLOROBENZENE | NA | NA | 5 U | NA | NA | NA | NA | NA | 86 U | NA | NA | NA |
| 1,2-DICHLOROETHANE | NA | NA | 3 U | NA | NA | NA | NA | NA | 58 U | NA | NA | NA |
| 1,2-DICHLOROPROPANE | NA | NA | 4 U | NA | NA | NA | NA | NA | 66 U | NA | NA | NA |
| 1,3,5-TRIMETHYLBENZENE | NA | NA | 4 U | NA | NA | NA | NA | NA | 70 U | NA | NA | NA |
| 1,3-BUTADIENE | NA | NA | 2 U | NA | NA | NA | NA | NA | 31 U | NA | NA | NA |
| 1,3-DICHLOROBENZENE | NA | NA | 5 U | NA | NA | NA | NA | NA | 86 U | NA | NA | NA |
| 1,4-DICHLOROBENZENE | NA | NA | 5 U | NA | NA | NA | NA | NA | 86 U | NA | NA | NA |
| 1,4-DIOXANE | NA | NA | 11 U | NA | NA | NA | NA | NA | 200 U | NA | NA | NA |

# TABLE A-5 (Continued)
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG20 | SG21 | SG21 | SG22 | SG23 | SG23 | SG24 | SG25 | SG25 | SG25 | SG26 | SG27 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 324SG023 | 324SG025 | 324SG025C | 324SG026 | 324SG027 | 324SG031 | 324SG029 | 324SG030 | 324SG030C | 324SG030CD | 324SG036 | 324SG034 |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/26/2004 | 01/27/2004 | 01/28/2004 | 01/28/2004 | 01/27/2004 | 01/26/2004 |
| Sample Depth (in feet) | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 0.0 - 0.0 | 5.0 - 5.0 | 5.0 - 5.0 |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | | | | | | | | | |
| 2-BUTANONE | NA | NA | 72 | NA | NA | NA | NA | NA | 160 U | NA | NA | NA |
| 2-HEXANONE | NA | NA | 12 U | NA | NA | NA | NA | NA | 220 U | NA | NA | NA |
| 2-PROPANOL | NA | NA | 24 | NA | NA | NA | NA | NA | 130 U | NA | NA | NA |
| 4-ETHYLTOLUENE | NA | NA | 15 U | NA | NA | NA | NA | NA | 270 U | NA | NA | NA |
| 4-METHYL-2-PENTANONE | NA | NA | 12 U | NA | NA | NA | NA | NA | 220 U | NA | NA | NA |
| ACETONE | NA | NA | 700 | NA | NA | NA | NA | NA | 130 U | NA | NA | NA |
| ALPHA-CHLOROTOLUENE | NA | NA | 4 U | NA | NA | NA | NA | NA | 74 U | NA | NA | NA |
| BENZENE | NA | NA | 11 | NA | NA | NA | NA | NA | 45 U | NA | NA | NA |
| BROMODICHLOROMETHANE | NA | NA | 5 U | NA | NA | NA | NA | NA | 95 U | NA | NA | NA |
| BROMOFORM | NA | NA | 32 U | NA | NA | NA | NA | NA | 570 U | NA | NA | NA |
| BROMOMETHANE | NA | NA | 3 U | NA | NA | NA | NA | NA | 55 U | NA | NA | NA |
| CARBON DISULFIDE | NA | NA | 9 U | NA | NA | NA | NA | NA | 170 U | NA | NA | NA |
| CARBON TETRACHLORIDE | NA | NA | 5 U | NA | NA | NA | NA | NA | 90 U | NA | NA | NA |
| CHLOROBENZENE | NA | NA | 4 U | NA | NA | NA | NA | NA | 66 U | NA | NA | NA |
| CHLOROETHANE | NA | NA | 2 U | NA | NA | NA | NA | NA | 38 U | NA | NA | NA |
| CHLOROFORM | NA | NA | 4 U | NA | NA | NA | NA | NA | 69 U | NA | NA | NA |
| CHLOROMETHANE | NA | NA | 6 U | NA | NA | NA | NA | NA | 110 U | NA | NA | NA |
| CIS-1,2-DICHLOROETHENE | NA | NA | 3 U | NA | NA | NA | NA | NA | 560 | NA | NA | NA |
| CIS-1,3-DICHLOROPROPENE | NA | NA | 4 U | NA | NA | NA | NA | NA | 65 U | NA | NA | NA |
| CUMENE | NA | NA | 4 U | NA | NA | NA | NA | NA | 70 U | NA | NA | NA |
| CYCLOHEXANE | NA | NA | 3 U | NA | NA | NA | NA | NA | 49 U | NA | NA | NA |
| DIBROMOCHLOROMETHANE | NA | NA | 7 U | NA | NA | NA | NA | NA | 120 U | NA | NA | NA |
| ETHANOL | NA | NA | 11 | NA | NA | NA | NA | NA | 100 U | NA | NA | NA |
| ETHYLBENZENE | NA | NA | 4 | NA | NA | NA | NA | NA | 62 U | NA | NA | NA |
| FREON 11 | NA | NA | 4 U | NA | NA | NA | NA | NA | 80 U | NA | NA | NA |
| FREON 113 | NA | NA | 6 U | NA | NA | NA | NA | NA | 110 U | NA | NA | NA |
| FREON 114 | NA | NA | 5 U | NA | NA | NA | NA | NA | 99 U | NA | NA | NA |
| FREON 12 | NA | NA | 4 U | NA | NA | NA | NA | NA | 70 U | NA | NA | NA |
| HEPTANE | NA | NA | 3 U | NA | NA | NA | NA | NA | 58 U | NA | NA | NA |
| HEXACHLOROBUTADIENE | NA | NA | 33 U | NA | NA | NA | NA | NA | 590 U | NA | NA | NA |
| HEXANE | NA | NA | 5 | NA | NA | NA | NA | NA | 50 U | NA | NA | NA |
| M,P-XYLENE | NA | NA | 15 | NA | NA | NA | NA | NA | 62 U | NA | NA | NA |
| METHYL TERTIARY BUTYL ETHER | NA | NA | 11 U | NA | NA | NA | NA | NA | 200 U | NA | NA | NA |
| METHYLENE CHLORIDE | NA | NA | 3 U | NA | NA | NA | NA | NA | 49 U | NA | NA | NA |
| O-XYLENE | NA | NA | 5 | NA | NA | NA | NA | NA | 62 U | NA | NA | NA |
| PROPYLBENZENE | NA | NA | 4 U | NA | NA | NA | NA | NA | 70 U | NA | NA | NA |
| STYRENE | NA | NA | 3 U | NA | NA | NA | NA | NA | 61 U | NA | NA | NA |
| TETRACHLOROETHENE | NA | NA | 5 U | NA | NA | NA | NA | NA | 15,000 | NA | NA | NA |
| TETRAHYDROFURAN | NA | NA | 9 U | NA | NA | NA | NA | NA | 160 U | NA | NA | NA |
| TOLUENE | NA | NA | 25 | NA | NA | NA | NA | NA | 54 U | NA | NA | NA |
| TRANS-1,2-DICHLOROETHENE | NA | NA | 12 U | NA | NA | NA | NA | NA | 220 U | NA | NA | NA |
| TRANS-1,3-DICHLOROPROPENE | NA | NA | 4 U | NA | NA | NA | NA | NA | 65 U | NA | NA | NA |
| TRICHLOROETHENE | NA | NA | 4 U | NA | NA | NA | NA | NA | 2,200 | NA | NA | NA |
| VINYL ACETATE | NA | NA | 11 U | NA | NA | NA | NA | NA | 190 U | NA | NA | NA |
| VINYL CHLORIDE | NA | NA | 2 U | NA | NA | NA | NA | NA | 36 U | NA | NA | NA |

# TABLE A-5 (Continued)
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG28 | SG29 | SG30 | SG31 | SG32 | SG32 | SG32 | SG33 | SG34 | SG34 | SG35 | SG36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 324SG037 | 324SG038 | 324SG035 | 324SG040 | 324SG041 | 324SG042 | 324SG042C | 324SG043 | 324SG033 | 324SG044 | 324SG049 | 324SG048 |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 01/27/2004 | 01/27/2004 | 01/27/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 04/01/2004 | 04/01/2004 |
| Sample Depth (in feet) | 5.0 - 5.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 10.0 - 10.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 |
| **MOBILE LAB EPA Method TO14 (in ug/m3)** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| 1,1,2,2-TETRACHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| 1,1,2-TRICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| 1,1-DICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| 1,1-DICHLOROETHENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| 1,2-DICHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| 1,2-DICHLOROPROPANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| BENZENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| BROMODICHLOROMETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| BROMOFORM | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| BROMOMETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| CARBON DISULFIDE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| CARBON TETRACHLORIDE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| CHLOROBENZENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| CHLOROETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| CHLOROFORM | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| CHLOROMETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| CIS-1,2-DICHLOROETHENE | 50 U | 50 U | 50 U | 8,100 | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| CIS-1,3-DICHLOROPROPENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| DIBROMOCHLOROMETHANE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| ETHYLBENZENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| METHYLENE CHLORIDE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| STYRENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| TETRACHLOROETHENE | 50 U | 50 U | 50 U | 120,000 | 75 | 150 | NA | 730 | 50 U | 50 U | NA | NA |
| TOLUENE | 120 | 130 | 170 | 180 | 80 | 65 | NA | 180 | 85 | 51 | NA | NA |
| TRANS-1,2-DICHLOROETHENE | 50 U | 50 U | 50 U | 1,100 | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| TRANS-1,3-DICHLOROPROPENE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| TRICHLOROETHENE | 50 U | 50 U | 50 U | 19,000 | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| VINYL CHLORIDE | 50 U | 50 U | 50 U | 50 U | 50 U | 50 U | NA | 50 U | 50 U | 50 U | NA | NA |
| XYLENE (TOTAL) | 80 | 60 | 130 | 180 | 89 | 83 | NA | 70 | 100 | 50 U | NA | NA |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 4 U |
| 1,1,2,2-TETRACHLOROETHANE | NA | NA | NA | NA | NA | NA | 6 U | NA | NA | NA | 5 U | 5 U |
| 1,1,2-TRICHLOROETHANE | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 4 U |
| 1,1-DICHLOROETHANE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 3 U |
| 1,1-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 3 U |
| 1,2,4-TRICHLOROBENZENE | NA | NA | NA | NA | NA | NA | 28 U | NA | NA | NA | 22 U | 23 U |
| 1,2,4-TRIMETHYLBENZENE | NA | NA | NA | NA | NA | NA | 6 | NA | NA | NA | 8 | 5 |
| 1,2-DIBROMOETHANE | NA | NA | NA | NA | NA | NA | 7 U | NA | NA | NA | 6 U | 6 U |
| 1,2-DICHLOROBENZENE | NA | NA | NA | NA | NA | NA | 6 U | NA | NA | NA | 4 U | 5 U |
| 1,2-DICHLOROETHANE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 3 U |
| 1,2-DICHLOROPROPANE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 4 U |
| 1,3,5-TRIMETHYLBENZENE | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 4 U |
| 1,3-BUTADIENE | NA | NA | NA | NA | NA | NA | 3 | NA | NA | NA | 2 U | 4 |
| 1,3-DICHLOROBENZENE | NA | NA | NA | NA | NA | NA | 6 U | NA | NA | NA | 4 U | 5 U |
| 1,4-DICHLOROBENZENE | NA | NA | NA | NA | NA | NA | 6 U | NA | NA | NA | 4 U | 5 U |
| 1,4-DIOXANE | NA | NA | NA | NA | NA | NA | 14 U | NA | NA | NA | 11 U | 11 U |

# TABLE A-5 (Continued)
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG28 | SG29 | SG30 | SG31 | SG32 | SG32 | SG32 | SG33 | SG34 | SG34 | SG35 | SG36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 324SG037 | 324SG038 | 324SG035 | 324SG040 | 324SG041 | 324SG042 | 324SG042C | 324SG043 | 324SG033 | 324SG044 | 324SG049 | 324SG048 |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 01/27/2004 | 01/27/2004 | 01/27/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 01/28/2004 | 04/01/2004 | 04/01/2004 |
| Sample Depth (in feet) | 5.0 - 5.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 10.0 - 10.0 | 10.0 - 10.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 | 5.0 - 5.0 |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | | | | | | | | | |
| 2-BUTANONE | NA | NA | NA | NA | NA | NA | 11 U | NA | NA | NA | 9 U | 11 UJ |
| 2-HEXANONE | NA | NA | NA | NA | NA | NA | 15 U | NA | NA | NA | 12 U | 12 U |
| 2-PROPANOL | NA | NA | NA | NA | NA | NA | 9 U | NA | NA | NA | 7 U | 7 U |
| 4-ETHYLTOLUENE | NA | NA | NA | NA | NA | NA | 18 U | NA | NA | NA | 14 U | 15 U |
| 4-METHYL-2-PENTANONE | NA | NA | NA | NA | NA | NA | 15 U | NA | NA | NA | 12 U | 12 U |
| ACETONE | NA | NA | NA | NA | NA | NA | 39 UJ | NA | NA | NA | 16 UJ | 46 |
| ALPHA-CHLOROTOLUENE | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 4 U |
| BENZENE | NA | NA | NA | NA | NA | NA | 4 | NA | NA | NA | 3 | 3 |
| BROMODICHLOROMETHANE | NA | NA | NA | NA | NA | NA | 6 U | NA | NA | NA | 5 U | 5 U |
| BROMOFORM | NA | NA | NA | NA | NA | NA | 39 U | NA | NA | NA | 30 U | 32 U |
| BROMOMETHANE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 3 U |
| CARBON DISULFIDE | NA | NA | NA | NA | NA | NA | 12 U | NA | NA | NA | 9 U | 9 U |
| CARBON TETRACHLORIDE | NA | NA | NA | NA | NA | NA | 6 U | NA | NA | NA | 5 U | 5 U |
| CHLOROBENZENE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 4 U |
| CHLOROETHANE | NA | NA | NA | NA | NA | NA | 2 U | NA | NA | NA | 2 U | 2 U |
| CHLOROFORM | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 4 U |
| CHLOROMETHANE | NA | NA | NA | NA | NA | NA | 8 U | NA | NA | NA | 6 U | 6 U |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 15 |
| CIS-1,3-DICHLOROPROPENE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 4 U |
| CUMENE | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 4 U |
| CYCLOHEXANE | NA | NA | NA | NA | NA | NA | 3 U | NA | NA | NA | 3 U | 3 U |
| DIBROMOCHLOROMETHANE | NA | NA | NA | NA | NA | NA | 8 U | NA | NA | NA | 6 U | 7 U |
| ETHANOL | NA | NA | NA | NA | NA | NA | 7 U | NA | NA | NA | 27 | 9 |
| ETHYLBENZENE | NA | NA | NA | NA | NA | NA | 4 | NA | NA | NA | 5 | 5 |
| FREON 11 | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 4 U |
| FREON 113 | NA | NA | NA | NA | NA | NA | 7 U | NA | NA | NA | 6 U | 6 U |
| FREON 114 | NA | NA | NA | NA | NA | NA | 7 U | NA | NA | NA | 5 U | 5 U |
| FREON 12 | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 4 U |
| HEPTANE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 3 U |
| HEXACHLOROBUTADIENE | NA | NA | NA | NA | NA | NA | 40 U | NA | NA | NA | 31 U | 33 U |
| HEXANE | NA | NA | NA | NA | NA | NA | 4 | NA | NA | NA | 3 | 3 |
| M,P-XYLENE | NA | NA | NA | NA | NA | NA | 18 | NA | NA | NA | 25 | 21 |
| METHYL TERTIARY BUTYL ETHER | NA | NA | NA | NA | NA | NA | 14 U | NA | NA | NA | 11 U | 11 U |
| METHYLENE CHLORIDE | NA | NA | NA | NA | NA | NA | 3 U | NA | NA | NA | 3 U | 3 U |
| O-XYLENE | NA | NA | NA | NA | NA | NA | 7 | NA | NA | NA | 10 | 7 |
| PROPYLBENZENE | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 4 U |
| STYRENE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 3 U |
| TETRACHLOROETHENE | NA | NA | NA | NA | NA | NA | 25 | NA | NA | NA | 5 U | 41 |
| TETRAHYDROFURAN | NA | NA | NA | NA | NA | NA | 11 U | NA | NA | NA | 9 U | 9 U |
| TOLUENE | NA | NA | NA | NA | NA | NA | 10 | NA | NA | NA | 15 | 14 |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA | NA | NA | 15 U | NA | NA | NA | 12 U | 12 U |
| TRANS-1,3-DICHLOROPROPENE | NA | NA | NA | NA | NA | NA | 4 U | NA | NA | NA | 3 U | 4 U |
| TRICHLOROETHENE | NA | NA | NA | NA | NA | NA | 5 U | NA | NA | NA | 4 U | 26 |
| VINYL ACETATE | NA | NA | NA | NA | NA | NA | 13 U | NA | NA | NA | 10 U | 11 U |
| VINYL CHLORIDE | NA | NA | NA | NA | NA | NA | 2 U | NA | NA | NA | 2 U | 2 U |

# TABLE A-5 (Continued)
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG37 | SG37 | SG38 | SG39 |
|---|---|---|---|---|
| Sample ID | 324SG046 | 324SG047 | 324SG045 | 324SG050 |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 04/01/2004 | 04/01/2004 | 04/01/2004 | 04/01/2004 |
| Sample Depth (in feet) | 5.0 - 5.0 | 5.0 - 5.0 | 6.5 - 6.5 | 5.0 - 5.0 |
| **MOBILE LAB EPA Method TO14 (in ug/m3)** | | | | |
| 1,1,1-TRICHLOROETHANE | NA | NA | NA | NA |
| 1,1,2,2-TETRACHLOROETHANE | NA | NA | NA | NA |
| 1,1,2-TRICHLOROETHANE | NA | NA | NA | NA |
| 1,1-DICHLOROETHANE | NA | NA | NA | NA |
| 1,1-DICHLOROETHENE | NA | NA | NA | NA |
| 1,2-DICHLOROETHANE | NA | NA | NA | NA |
| 1,2-DICHLOROPROPANE | NA | NA | NA | NA |
| BENZENE | NA | NA | NA | NA |
| BROMODICHLOROMETHANE | NA | NA | NA | NA |
| BROMOFORM | NA | NA | NA | NA |
| BROMOMETHANE | NA | NA | NA | NA |
| CARBON DISULFIDE | NA | NA | NA | NA |
| CARBON TETRACHLORIDE | NA | NA | NA | NA |
| CHLOROBENZENE | NA | NA | NA | NA |
| CHLOROETHANE | NA | NA | NA | NA |
| CHLOROFORM | NA | NA | NA | NA |
| CHLOROMETHANE | NA | NA | NA | NA |
| CIS-1,2-DICHLOROETHENE | NA | NA | NA | NA |
| CIS-1,3-DICHLOROPROPENE | NA | NA | NA | NA |
| DIBROMOCHLOROMETHANE | NA | NA | NA | NA |
| ETHYLBENZENE | NA | NA | NA | NA |
| METHYLENE CHLORIDE | NA | NA | NA | NA |
| STYRENE | NA | NA | NA | NA |
| TETRACHLOROETHENE | NA | NA | NA | NA |
| TOLUENE | NA | NA | NA | NA |
| TRANS-1,2-DICHLOROETHENE | NA | NA | NA | NA |
| TRANS-1,3-DICHLOROPROPENE | NA | NA | NA | NA |
| TRICHLOROETHENE | NA | NA | NA | NA |
| VINYL CHLORIDE | NA | NA | NA | NA |
| XYLENE (TOTAL) | NA | NA | NA | NA |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | |
| 1,1,1-TRICHLOROETHANE | 4 U | 4 U | 4 U | 4 U |
| 1,1,2,2-TETRACHLOROETHANE | 6 U | 5 U | 5 U | 5 U |
| 1,1,2-TRICHLOROETHANE | 4 U | 4 U | 4 U | 4 U |
| 1,1-DICHLOROETHANE | 3 U | 3 U | 3 U | 3 U |
| 1,1-DICHLOROETHENE | 3 U | 3 U | 3 U | 3 U |
| 1,2,4-TRICHLOROBENZENE | 24 U | 22 U | 23 U | 23 U |
| 1,2,4-TRIMETHYLBENZENE | 7 | 7 | 7 | 7 |
| 1,2-DIBROMOETHANE | 6 U | 6 U | 6 U | 6 U |
| 1,2-DICHLOROBENZENE | 5 U | 4 U | 5 U | 5 U |
| 1,2-DICHLOROETHANE | 3 U | 3 U | 3 U | 3 U |
| 1,2-DICHLOROPROPANE | 4 U | 3 U | 3 U | 4 U |
| 1,3,5-TRIMETHYLBENZENE | 4 U | 4 U | 4 U | 4 U |
| 1,3-BUTADIENE | 2 | 2 U | 2 U | 2 |
| 1,3-DICHLOROBENZENE | 5 U | 4 U | 5 U | 5 U |
| 1,4-DICHLOROBENZENE | 5 U | 4 U | 5 U | 5 U |
| 1,4-DIOXANE | 12 U | 11 U | 11 U | 11 U |

# TABLE A-5 (Continued)
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Point ID | SG37 | SG37 | SG38 | SG39 |
|---|---|---|---|---|
| Sample ID | 324SG046 | 324SG047 | 324SG045 | 324SG050 |
| Matrix | SOIL GAS | SOIL GAS | SOIL GAS | SOIL GAS |
| Sample Date | 04/01/2004 | 04/01/2004 | 04/01/2004 | 04/01/2004 |
| Sample Depth (in feet) | 5.0 - 5.0 | 5.0 - 5.0 | 6.5 - 6.5 | 5.0 - 5.0 |
| **FIXED LAB EPA Method TO15 (in ug/m3)** | | | | |
| 2-BUTANONE | 10 U | 9 U | 11 UJ | 11 UJ |
| 2-HEXANONE | 13 U | 12 U | 12 U | 13 U |
| 2-PROPANOL | 8 U | 7 U | 7 U | 8 U |
| 4-ETHYLTOLUENE | 16 U | 14 U | 15 U | 15 U |
| 4-METHYL-2-PENTANONE | 13 U | 12 U | 12 U | 13 U |
| ACETONE | 39 UJ | 19 UJ | 46 | 43 |
| ALPHA-CHLOROTOLUENE | 4 U | 4 U | 4 U | 4 U |
| BENZENE | 4 | 2 U | 4 | 3 |
| BROMODICHLOROMETHANE | 5 U | 5 U | 5 U | 5 U |
| BROMOFORM | 34 U | 30 U | 32 U | 33 U |
| BROMOMETHANE | 3 U | 3 U | 3 U | 3 U |
| CARBON DISULFIDE | 10 U | 9 U | 9 U | 41 |
| CARBON TETRACHLORIDE | 5 U | 5 U | 5 U | 5 U |
| CHLOROBENZENE | 4 U | 3 U | 3 U | 4 U |
| CHLOROETHANE | 2 U | 2 U | 2 U | 2 U |
| CHLOROFORM | 4 U | 4 U | 4 U | 4 U |
| CHLOROMETHANE | 7 U | 6 U | 6 U | 7 U |
| CIS-1,2-DICHLOROETHENE | 5 | 3 U | 3 U | 3 U |
| CIS-1,3-DICHLOROPROPENE | 4 U | 3 U | 3 U | 4 U |
| CUMENE | 4 U | 4 U | 4 U | 4 U |
| CYCLOHEXANE | 3 U | 3 U | 3 U | 9 |
| DIBROMOCHLOROMETHANE | 7 U | 6 U | 6 U | 7 U |
| ETHANOL | 54 | 38 | 42 | 38 |
| ETHYLBENZENE | 5 | 4 | 7 | 6 |
| FREON 11 | 5 U | 4 U | 4 U | 4 U |
| FREON 113 | 6 U | 6 U | 6 U | 6 U |
| FREON 114 | 6 U | 5 U | 5 U | 6 U |
| FREON 12 | 4 U | 4 U | 4 U | 4 U |
| HEPTANE | 3 U | 3 U | 3 U | 15 |
| HEXACHLOROBUTADIENE | 35 U | 31 U | 33 U | 34 U |
| HEXANE | 3 U | 3 U | 3 U | 3 U |
| M,P-XYLENE | 25 | 16 | 27 | 26 |
| METHYL TERTIARY BUTYL ETHER | 12 U | 11 U | 11 U | 11 U |
| METHYLENE CHLORIDE | 3 U | 3 U | 3 U | 3 U |
| O-XYLENE | 8 | 5 | 9 | 8 |
| PROPYLBENZENE | 4 U | 4 U | 4 U | 4 U |
| STYRENE | 3 U | 3 U | 3 U | 3 U |
| TETRACHLOROETHENE | 17 | 7 | 67 | 5 U |
| TETRAHYDROFURAN | 10 U | 9 U | 9 U | 9 U |
| TOLUENE | 17 | 9 | 20 | 12 |
| TRANS-1,2-DICHLOROETHENE | 13 U | 12 U | 12 U | 12 U |
| TRANS-1,3-DICHLOROPROPENE | 4 U | 3 U | 3 U | 4 U |
| TRICHLOROETHENE | 7 | 4 U | 13 | 4 U |
| VINYL ACETATE | 11 U | 10 U | 11 U | 11 U |
| VINYL CHLORIDE | 2 U | 2 U | 2 U | 2 U |

# TABLE A-5
# FULL SOIL GAS ANALYTICAL RESULTS
# SOLID WASTE MANAGEMENT UNITS 1, 2, 5, 7, AND 18
# NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

Notes:

| | |
|---|---|
| | 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. |
| J | Estimated value |
| NA | Not analyzed |
| U | Not detected with detection limit indicated |
| µg/m3 | Microgram per cubic meter |

# APPENDIX B
# LITHOLOGIC LOGS

Tetra Tech EM

# Log of Boring: SB001

**Logged By:** ISRAEL/TOM
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/19/02
**Completed:** 02/19/02
**Boring Depth (feet bgs):** 25.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0–2 | | 0 | | 32402SB002 | | | | CL | SILTY CLAY; 10YR 6/8; moist; moderately stiff; moderate plasticity; some organic material<br>Distinct color change at 4' 5YR 2.5/1 |
| 3–6 | | 0 | | 32402SB003 | | | | | CLAY WITH MINOR SILT: 10 YR 6/6; slightly damp; stiff clay; moderate plasticity; organic material present with roots |
| 7–9 | | 0 | | | | | | CL | SILTY CLAY: 10YR 2/1; slightly damp to dry; stiff; moderate plasticity; 5% silt |
| 10 | | | | 32402SB004 | | | | | Color change 10YR 4/3 |
| 10–13 | | 0 | | | | | | CL | SILTY CLAY: 10YR 5/6; slightly damp to dry; stiff; moderate plasticity; 10 to 15% silt |
| 13–14 | | 0 | | 32402SB005 | | | | | |
| 14 | | | | | | | | SM | SILTY CLAY: 10YR 4/4; damp; moderately stiff; moderate plasticity |
| 15 | | 0 | | | | | | CL | SILTY SAND WITH MINOR CLAY: 10YR 4/4; low moisture; nonplastic |
| 15–18 | | | | | | | | | SILTY CLAY WITH MINOR VERY FINE SAND: 10YR 4/4; soft to slightly stiff; low plasticity; interbedded silty sandy clays; sand content > 10% |
| 18–20 | | 0 | | | | | | | Clay content increasing 85 to 90%; 10YR 4/4; slightly damp; very stiff; moderate to high plasticity |
| 20 | | | | | | | | SM | SILTY VERY FINE SAND: 10YR 4/4; slightly damp; poorly graded |
| 21–25 | | 0 | | | | | | ML | VERY FINE SANDY SILT WITH MINOR CLAY: 10YR 4/4; damp to moist; interbedded clayey sandy silts; low to slight stiffness; low to moderate plasticity; sand content 15-20%; silt 55-65%; clay 15% |
| 25 | | | | | | | | | Total depth of boring = 25 feet |

Tetra Tech EM

# Log of Boring: SB002

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 03/01/02
**Completed:** 03/01/02
**Boring Depth (feet bgs):** 19.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | | | | | | | SM | FINE SAND TO SILTY SAND: 5YR 4/4; damp to moist; loose; poorly graded; 90% fine sand; 10% silt, scattered organic matter |
| 1 | | 36 | | 32402SB166 | | | | CL | |
| 2 | | | | | 415 | | | | CLAY TO SILTY CLAY: 5YR 2.5/1; damp; medium stiff; low plasticity; moderate root/organic matter |
| 3 | | | | | | | | | |
| 4 | | 36 | | | 8.4 | | | | FINE SANDY SILTY CLAY: mottled (5YR 4/1-4/4); damp to slightly moist; stiff; low plasticity; 70% fine; 30% fine sand; abundant caliche at 7 feet |
| 5 | | | | | | | | | |
| 6 | | | | 32402SB167 | 5.7 | | | | |
| 7 | | 36 | | | 415 | | | SC/SM | CLAYEY SAND TO CLAYEY SILTY SAND: mottled (7.5YR 5/1 - 5/6); wet (saturated); loose to medium dense, poorly graded; 80% fine sand; 20% fines |
| 8 | | | | | | | | | |
| 9 | | | | | 6.2 | | | | |
| 10 | | | | 32402SB168 | | | | SW | CLEAN SAND: 7.5YR 4/4; wet (saturated); loose; poorly graded fine to medium coarse sand |
| 11 | | 36 | | | 5 | | | | |
| 12 | | | | | | | | | |
| 13 | | 36 | | | | | | SC | CLAYEY SAND: 5YR 4/4; wet; medium dense; poorly graded; 80% fine to medium coarse sand; angular to sub-rounded; 20% fines |
| 14 | | | | 32402SB169 | | | | | |
| 15 | | | | | | | | SW | |
| 16 | | 36 | | | 11.1 | | | CL | GRAVELLEY SAND: 5YR 4/3; wet; loose to medium dense; well graded; 65% medium coarse to coarse sand, 35% fine gravel; sub-angular to sub-rounded |
| 17 | | | | | 12.4 | | | | |
| 18 | | | | | 26.2 | | | | SILTY SANDY CLAY WITH SCATTERED GRAVELS: mottled (5YR 4/1 - 4/4); damp to moist; stiff; low plasticity; 70% fines 25% fine sand; 5% fine gravel; sub-angular to sub-rounded |
| 19 | | | | | 13.8 | | | | Total depth of boring = 19 feet |
| 20 | | | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | | | | | |
| 25 | | | | | | | | | |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB003

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GROPROBE
**Boring Started:** 02/20/02
**Completed:** 02/20/02
**Boring Depth (feet bgs):** 21.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | CLAY: 7.5 YR 3/3; slightly damp; stiff; moderate plasticity |
| 1 | | | | | | | | | |
| 2 | | | | 32402SB014 | 0 | | | | |
| 3 | | | | | | | | | |
| 4 | | 0 | | | 0 | | | ML | SANDY CLAYEY SILT: 10YR 5/6; slightly stiff; low plasticity |
| 5 | | | | | | | | | |
| 6 | | | | 32402SB015 | 0 | | | | |
| 7 | | 0 | | | | | | CL | SILTY CLAY: 7.5YR 4/6; slightly damp to dry; very stiff; moderate plasticity; 90% clay, |
| 8 | | | | | 0 | | | | |
| 9 | | | | | | | | | |
| 10 | | 0 | | 32402SB016 | 0 | | | | CLAY 10YR 3/1; slightly damp; very stiff; moderate plasticity; 90% clay; 10% silt |
| 11 | | | | | | | | CL | STIFF CLAY (clay content increases): 10YR 3/1; slightly damp; soft; some organic matter present, 60% clay, 40% silt |
| 12 | | | | | 0 | | | | |
| 13 | | 0 | | | | | | | SANDY SILTY CLAY: 10YR 5/6; brittle dry crumbles after excess pressure; low moderate plasticity; very fine; 50% clay; 10% silt; 10% very fine sand; noticable caliche present in upper one foot |
| 14 | | | | 32402SB017 | 0 | | | | |
| 15 | | | | | | | | | STIFF CLAY: 10YR 3/1; slightly damp; soft; some organic matter present; 60% clay; 40% silt |
| 16 | | 0 | | | 0 | | | | |
| 17 | | | | | | | | | SILTY CLAY: 10YR 5/6; dry no water present; very stiff; moderate to high plasticity; very compact; 75% clay 25% silt |
| 18 | | | | | 0 | | | | |
| 19 | | 0 | | | | | | | |
| 20 | | | | | 0 | | | | |
| 21 | | | | | | | | | Total depth of boring = 21 feet |
| 22 | | | | | | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | | | | | |
| 25 | | | | | | | | | |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB004

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/28/02
**Completed:** 02/28/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | SM | CLAYEY SILTY SAND: 2.5YR 4/3; damp, loose, moderately graded; 60% fine sand; 40% fines |
| 1 | | | | | | | | CL | |
| 2 | | | | 32402SB154 | 3.2 | | | CL/OL | CLAY. 2.5YR 2.5/1, damp to slightly moist; soft to medium stiff; high plasticity |
| 3 | | | | | 2.2 | | | | CLAY to SILTY CLAY. 2.5 YRR 3/1 - 4/3; damp; medium stiff; medium plasticity |
| 4 | | 0 | | | 46.9 | | | | |
| 5 | | | | | 3.1 | | | | Minor color change at 5.5 feet; 2.5YR 4/3 |
| 6 | | | | 32402SB155 | 1.3 | | | CL | Minor caliche at 6 feet; becomes stiff |
| 7 | | 0 | | | | | | | SANDY SILTY CLAY with fine gravel: 5YR 4/4; damp; low plasticity; 92% fines; 5% fine sand; 3% fine gravel; sub-angular to sub-rounded |
| 8 | | | | | 10.3 | | | SC | |
| 9 | | | | 32402SB156 | | | | | CLAYEY FINE SAND with scattered gravel: 2.5YR 4/4; damp to slightly moist; dense; poorly graded; 70% fine sand, 20% fines; 10% fine gravel; angular to sub-angular |
| 10 | | 0 | | | 40.8 | | | CL | |
| 11 | | | | | 1.8 | | | | SILTY CLAY with minor fine sand: 2.5 YR 4/4, dry to slightly damp; very stiff to hard; low plasticity |
| 12 | | | | | 2.7 | | | | |
| 13 | | 0 | | | 32 | | | | |
| 14 | | | | 32402SB157 | 2.4 | | | | SILTY CLAY: 2.5YR 4/4; damp; hard; low plasticity |
| 15 | | | | | 1.5 | | | | |
| 16 | | 0 | | | 21.5 | | | SC | |
| 17 | | | | | 1.3 | | | | CLAYEY SILTY FINE SAND 2.5 YR 4/4, slightly moist, dense; poorly graded, 65% fine sand; 35% fines |
| 18 | | | | | 1.2 | | | | |
| 19 | | 0 | | | 16.7 | | | | |
| 20 | | | | | 1.4 | | | | |
| 21 | | | | | 1.7 | | | SM | Sand becomes medium coarse with fine gravel (< 5%), sub-angular to sub-rounded at 22 feet |
| 22 | | 0 | | | 15.8 | | | CL | SAND TO SILTY SAND: 2.5YR 3/3; wet; medium dense; poorly graded, 85% medium coarse sand, 15% fines |
| 23 | | | | | | | | | SILTY CLAY: mottled 2.5YR 4/1 - 4/4, damp; hard; low plasticity |
| 24 | | | | | | | | | |
| 25 | | 0 | | | | | | | Minor caliche at 28 feet |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | CL | |
| 29 | | | | | | | | | CLAYEY SILT 7.5 YR 4/4; moist; medium stiff; low plasticity |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB005

**Logged By:** ISRAEL/TOM
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/19/02
**Completed:** 02/19/02
**Boring Depth (feet bgs):** 28.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | | No recovery |
| 1 | | | | | | | | CL/ML | |
| 2 | | | | 32402SB006 | 0 | | | | SILTY CLAY: 2.5 YR 4/2; dark brown to olive; slightly damp; stiff to moderate plasticity; sparse angular gravel |
| 3 | | | | | | | | | |
| 4 | | 0 | | | 0.6 | | | | |
| 5 | | | | | | | | | |
| 6 | | | | 32402SB007 | 0 | | | | FINE SANDY SILTY CLAY (> 5%); mottled dark brown (5YR 4/4); very stiff; moderate plasticity; 80% clay fines; 20% very fine sand |
| 7 | | 0 | | | | | | | Same as above except increase in sand content and dampness |
| 8 | | | | | 0 | | | | |
| 9 | | | | | | | | | |
| 10 | | | | 32402SB008 | 0 | | | | |
| 11 | | 0 | | | | | | ML/CL | SANDY SILTY CLAY: 10YR 4/6; slightly damp; moderately fine; low to moderate plasticity; moderatly stiff; 50% clay; 30% silt; 20% sand |
| 12 | | | | | 0 | | | | |
| 13 | | 0 | | | | | | | |
| 14 | | | | 32402SB009 | 0 | | | | |
| 15 | | | | 32402GW011 | | | | | |
| 16 | | 0 | | | | | | | |
| 17 | | | | | | | | SM | |
| 18 | | | | | 1.2 | | | | SILTY: 10YR 4/4; damp; very fine sand; poorly graded; low plasticity; 60% very fine sand, <10% silt |
| 19 | | 0 | | | | | | | |
| 20 | | | | | 0.6 | | | ML | |
| 21 | | | | | | | | | SANDY CLAYEY SILT: 7.5YP 4/4; damp; low strength, very slight stiffness; low to medium plasticity; clay 30%, sand 10-15%, silt 55% |
| 22 | | 0 | | | 0.2 | | | | |
| 23 | | | | | | | | CL | |
| 24 | | | | | | | | | SILTY CLAY: 7.5YR 4/4; damp to slightly damp; moderately stiff, moderate plasticity; very fine sand (sand content decreases) |
| 25 | | 0 | | | 2.7 | | | | |
| 26 | | | | | | | | | |
| 27 | | | | | | | | ML | CLAYEY FINE SANDY SILT: tan-brown to light brown (7.5YR 4/4); damp; stiff to very stiff; moderate to low plasticity; 60% fine sand and silt; 40% fines |
| 28 | | | | | | | | | Total depth of boring = 28 feet |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB006

**Logged By:** MARCOS/TOM
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/20/02
**Completed:** 02/20/02
**Boring Depth (feet bgs):** 16.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0 | | | 0 | | | | Ground Surface |
| 1 | | | | | | | | CL | Asphalt at 6" |
| 2 | | | | 32402SB018 | | | | | Baserock gravel at 6 to 10 inches |
| 3 | | | | | | | | | CLAY TO FINE SANDY CLAY: mottled dark brown to tan-orange brown (5 YR 3/2); damp; medium stiff; low to medium plasticity; 80% fines; 20% fine sand |
| 4 | | 0 | | | 0 | | | | |
| 5 | | | | | | | | | CLAY: dark brown to dark gray brown (5 YR 2.5/1); damp; stiff to very stiff; medium plasticity; organic matter; roots |
| 6 | | | | 32402SB019 | 0 | | | | |
| 7 | | | | | | | | | CLAY TO FINE SANDY SILTY CLAY: mottled gray-brown to olive brown 5 YR 4/4; damp; very stiff; medium plasticity; 75% fines, 25% fine sand, minor caliche weathering at 7 feet |
| 8 | | 0 | | | | | | CL | |
| 9 | | | | | 0 | | | SC/CL | FINE SANDY CLAY TO CLAYEY FINE SAND: mottled orange-brown to brown and gray (7.5YR 4/6); damp; very stiff; clay of low plasticity; 60% fines; 40% fine sand; minor caliche weathering throughout |
| 10 | | | | 32402SB020 | | | | | Becomes more sandy with depth to 8 feet |
| 11 | | | | | | | | | |
| 12 | | 0 | | | 0 | | | SM/CL | CLAYEY FINE SAND TO SILTY FINE SAND: orange-brown (5 YR 4/4); wet; dense; poorly graded; fine grained sand, rounded; 70% fine sand; 30% fines |
| 13 | | | | | | | | | |
| 14 | | | | 32402SB021 | 0 | | | SM | SAND TO SILTY SAND: orange-brown to tan-brown (5 YR 4/2); wet (saturated); medium dense; poorly graded; fine sands, sub-rounded to rounded, 90% fine sands, 10% fines |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | Total depth of boring = 16 feet |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | | | | | |
| 25 | | | | | | | | | |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB007

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 03/01/02
**Completed:** 03/01/02
**Boring Depth (feet bgs):** 28.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | SM | SANDY SILT: 5YR 3/3; damp to slightly moist; very fine loose; poorly graded with scattered roots and organics |
| 1 | | 0 | | | | | | | |
| 2 | | | | 32402SB162 | 19 | | | CL | |
| 3 | | | | | 24 | | | CL | CLAY TO SILTY CLAY: 5YR 2.5/1; damp, medium stiff; moderate plasticity |
| 4 | | 0 | | | 21.5 | | | | Minor caliche at 3 feet with sparse organic matter |
| 5 | | | | | 18.3 | | | | SILTY FINE SANDY CLAY: mottled (5YR 5/1-4/4); damp to slightly moist; medium stiff; low plasticity; 60% fines: 40% fine sand |
| 6 | | | | 32402SB163 | 19.2 | | | | |
| 7 | | 0 | | | | | | | CLAYEY SILT WITH MINOR FINE SAND (<8%); mottled (5YR 5/1-5/6); damp; medium stiff; low plasticity; 92% fines. 8% very fine to fine sand |
| 8 | | | | | 19.9 | | | | |
| 9 | | | | | 23.9 | | | | |
| 10 | | 0 | | 32402SB164 | 13.6 | | | | |
| 11 | | | | | 13.7 | | | | |
| 12 | | | | | 22.1 | | | | |
| 13 | | 0 | | | 16.2 | | | CL | Becomes more stiff with depth to 13 feet |
| 14 | | | | 32402SB165 | 15 | | | | |
| 15 | | | | | 55.3 | | | | SANDY GRAVELLY SILTY CLAY: 7.5YR 3/4; damp to moist; stiff; low plasticity; 20% fine gravel; 40% fine to coarse sand: 40% fines; sub-angular to sub-rounded |
| 16 | | 0 | | | 102.5 | | | | |
| 17 | | | | | 70.4 | | | | |
| 18 | | | | | 20.1 | | | CL | Sand and gravel appear in thin lenses 1-3 inches thick - otherwise sand gravel clay mixtures |
| 19 | | 0 | | | 14 | ▽ | | SM | SILTY CLAY: 7.5YR 4/6; damp; very stiff; low plasticity |
| 20 | | | | | 10.9 | | | | |
| 21 | | | | | 7.9 | | | CL | CLAYEY SILTY FINE SAND TO SILTY FINE SAND: 7.5YR 4/6; wet; medium dense to dense, poorly graded: 75% fine to very fine sand; 25% fines |
| 22 | | 0 | | | 14.2 | | | | Grades to clayey silt with minor fine sands (<2%); wet - sticky; soft to medium stiff; high plasticity |
| 23 | | | | | 10.2 | | | | |
| 24 | | | | | 11.3 | | | | |
| 25 | | 0 | | | 8.8 | | | | |
| 26 | | | | | 8.9 | | | | |
| 27 | | | | | 5.4 | | | | |
| 28 | | | | | 12.7 | | | | Same as above except becomes very stiff and damp at 28 feet |
| 29 | | | | | | | | | Total depth of boring = 28 feet |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB008

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:**
**Boring Started:** 02/21/02
**Completed:** 02/21/02
**Boring Depth (feet bgs):** 26.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | SILTY CLAY: 10YR 3/2; slightly damp; slightly stiff; mederate plasticity; 60% clay; 40% silt |
| 1 | | | | | | | | | |
| 2 | | | | 32405SB032 | 0 | | | | |
| 3 | | | | | | | | | |
| 4 | | 0 | | | 0 | | | | |
| 5 | | | | | | | | | |
| 6 | | | | 32405SB033 | 0 | | | | |
| 7 | | 0 | | | | | | | |
| 8 | | | | | 0 | | | SM | SILTY CLAY: 7.5YR 4/4; slightly damp; very stiff; 90% clay; 30% silt |
| 9 | | | | | | | | ML | SILTY CLAYEY FINE SAND WITH GRAVEL: 7.5YR 4/4; damp to moist; gravel is sub-angular 10% clay; 50% fine sand; 5% gravel; 30% silt; |
| 10 | | 0 | | 32405SB034 | 0 | | | | Fine content increasing to very fine sandy clayey silt: 7.5YR; slightly damp to dry; moderately stiff; low to medium plasticity; 75% clay; 20% silt; <5% fine sand |
| 11 | | | | | | | | | |
| 12 | | | | | 0 | | | | |
| 13 | | | | | | | | | |
| 14 | | 0 | | 32405SB035 | | | | CL | Color change to 7.5YR 2/.5 |
| 15 | | | | | | | | | SILTY CLAY: 7.5YR 4/6; dry; very stiff; moderate plasticity; tight; 80% clay; 20% silt |
| 16 | | | | | 0 | | | | |
| 17 | | 0 | | | | | | | |
| 18 | | | | | 0 | | | | |
| 19 | | | | | | | | | |
| 20 | | 0 | | | 0 | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | 0 | | | | SILTY CLAY: 7.5YR 4/6; slightly damp to dry; very stiff to tight; moderate to high plasticity; noticable caliche lenses present; 90% clay; 10% silt |
| 23 | | | | | | | | | |
| 24 | | 0 | | | 0 | | | | |
| 25 | | | | | | | | | |
| 26 | | | | | 0 | | | | Total depth of boring = 26 feet |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB009

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/25/02
**Completed:** 02/25/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | FINE SANDY SILTY CLAY WITH GRAVEL: dark brown to black (7.5YR 2.5/1); damp; medium stiff; low to medium plasticity; angular to sub-angular; 65% fines; 30% fine sand; 5% fine gravel |
| 1 | | | | | | | | | |
| 2 | | | | 32405SB094 | 16.2 | | | | SILTY CLAY: black to black brown (5 YR 2 5/1); damp; medium stiff; medium plasticity |
| 3 | | | | | | | | | |
| 4 | | 0 | | | | | | | |
| 5 | | | | | 26.1 | | | | |
| 6 | | | | 32405SB095 | | | | | CLAYEY SILT TO FINE SANDY SILTY CLAY: tan-brown to olive brown (5 YR 4/3); damp; stiff; medium to low plasticity |
| 7 | | 0 | | | 11 | | | | |
| 8 | | | | | 18.2 | | | | FINE SANDY CLAY TO SILTY CLAY: tan-brown (5 YR 3/2); damp; stiff; low plasticity |
| 9 | | | | | 18.1 | | | | |
| 10 | | 0 | | 32405SB096 | 15 | | | | |
| 11 | | | | | 18.5 | | | | Minor caliche weathering at 13 feet |
| 12 | | | | | 15.1 | | | | |
| 13 | | 0 | | | | | | CL | |
| 14 | | | | 32405SB097 | 11.1 | | | | SILTY CLAY: tan-brown (5YR 4/3); damp; very stiff; low plasticity; abundant caliche within fractures in soil |
| 15 | | | | | 12.8 | | | | |
| 16 | | 0 | | | 8.9 | | | | |
| 17 | | | | | 10.8 | | | | Becomes dry at 19 to 21 feet |
| 18 | | | | | | | | | |
| 19 | | 0 | | | | | | | |
| 20 | | | | | 7.5 | | | | |
| 21 | | | | | 9.6 | | | SP | |
| 22 | | 0 | | | 6.5 | | | | FINE SILTY SAND LENSE: tan-brown (5YR 4/4); moist; medium dense; poorly to moderately graded; 70% fine sand; 30% fines |
| 23 | | | | | | | | | |
| 24 | | | | | 7.5 | | | CL | |
| 25 | | 0 | | | 5.5 | | | | GRAVELLY CLAY TO SILTY CLAY: tan-orange (5YR 5/6); damp; very stiff; low plasticity; 15% fine to medium coarse gravels; 85% fines; sub-angular to sub-rounded |
| 26 | | | | | 9.8 | | | | |
| 27 | | | | | 5.7 | | | | SILTY FINE SANDY CLAY: tan-orange to tan-brown (5YR 4/6); moist at 26 feet; medium stiff to very stiff; damp otherwise medium plasticity; 12% fine sand; 88% fines |
| 28 | | 0 | | | 3.9 | | | | |
| 29 | | | | | | | | | SILTY SAND: tan-brown (7.5YR 4/4); dry to damp; very stiff; low plasticity |
| 30 | | | | | 4.7 | | | CL | |
| 31 | | | | | 3.8 | | | | Minor caliche at 30 feet |
| 32 | | | | | | | | | Total depth of boring = 31 feet |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB010

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/25/02
**Completed:** 02/25/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | CLAYEY SAND AND GRAVEL: 7.5YR 4/4; damp; medium dense; moderately well graded; 60% medium coarse sand; 20% fines; 20% medium coarse gravel |
| 1 | | 0 | | | | | | | |
| | | | | 32405SB116 | | | | | |
| 2 | | | | | | | | | CLAY TO SILTY CLAY: 5 YR 2.5/1; damp to slightly moist; medium stiff; medium to high plasticity; scattered fine gravels throughout (<5%); angular to sub-angular |
| 3 | | | | | | | | | |
| 4 | | 0 | | | 0 | | | | FINE SANDY SILTY CLAY: color change to 5 YR 4/3; damp; medium stiff; low plasticity; minor caliche; 80% fines; 18% fine sands; 2% coarse sands at 7 feet and below |
| 5 | | | | | 0 | | | | |
| 6 | | | | 32405SB117 | 0 | | | | |
| 7 | | 0 | | | | | | | |
| 8 | | | | | 0 | | | | FINE SANDY CLAY: 7.5YR 4/6; damp; stiff; low plasticity; 65% fines; 35% fine sands |
| 9 | | | | | 0 | | | | SILTY CLAY: 7.5YR 4/6; dry to damp; very stiff to hard; low plasticity; very minor caliche throughout to 13 feet |
| | | | | 32405SB118 | | | | | |
| 10 | | 0 | | | 0 | | | | FINE SANDY SILTY CLAY: 7.5Y 4/6; dry to slightly damp; hard; low plasticity; 90% fines; 10% fine sand |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | 0 | | | 0 | | | | |
| | | | | 32405SB119 | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | 0 | | | 0 | | | | |
| 17 | | | | | | | | | SILTY CLAY: 7.5YR 4/6; damp to moist; very stiff to hard; low plasticity; abundant caliche from 20 to 22 feet |
| 18 | | | | | 0 | | | | |
| 19 | | 0 | | | | | | | |
| 20 | | | | | | | | | FINE SANDY SILTY CLAY: 7.5YR 4/6; moist; medium stiff; high plasticity; 80% fines; 20% very fine sand |
| 21 | | | | | | | | | |
| 22 | | 0 | | | 0 | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | 0 | | | | SILTY CLAY: 7.5YR 4/6; dry to damp; very stiff to hard; low plasticity |
| 25 | | 0 | | | | | | | |
| 26 | | | | | | | | | Abundant caliche at 28 feet |
| 27 | | | | | | | | CL | |
| 28 | | 0 | | | 0 | | | | SILTY CLAY: 7.5YR 4/6; damp; medium stiff to stiff; medium plasticity |
| 29 | | | | | | | | | |
| 30 | | | | | 0 | | | | |
| 31 | | | | | | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB011

**Logged By:** MARCOS/TOM
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/20/02
**Completed:** 02/20/02
**Boring Depth (feet bgs):** 16.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | CLAY TO SANDY CLAY: mottled dark brown to orange brown (7.5YR 4/4); damp; stiff; low to medium plasticity |
| 1 | | | | | | | | | |
| | | | | 32402SB022 | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | 0 | | | | |
| 4 | | 0 | | | | | | | CLAY dark gray to dark brown (5YR 2.5/1); damp; medium stiff; medium plasticity; 98% fines, 2% fine sand |
| | | | | | 0 | | | | |
| 5 | | | | | | | | | Same as above except becomes very stiff at 10 feet |
| 6 | | | | 32405SB023 | | | | | |
| 7 | | | | | | | | | |
| 8 | | 0 | | | 0 | | | | |
| 9 | | | | | | | | | |
| | | | | 32405SB024 | | | | | |
| 10 | | | | | 0 | | | SM | CLAYEY SILTY FINE SAND: mottled orange - brown to light brown (7.5YR 4/6); damp to slightly moist; dense to very dense; poorly graded; minor caliche weathering throughout; 70% fine sand; 30% fines |
| 11 | | | | | | | | | |
| 12 | | 0 | | | | | | | SILTY CLAYEY SAND: brown to orange-brown (5 YR 4/4); moist; very dense; poorly graded; 85% fine sand; 15% fines |
| 13 | | | | | | | | | |
| | | | | 32405SB025 | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | 0 | | | | |
| 16 | | | | | | | | | Total depth of boring = 16 feet |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | | | | | |
| 25 | | | | | | | | | |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB012

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 02/26/02
**Completed:** 02/26/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | SILTY CLAY WITH PEBBLES: 7.5YR 2/1; slightly damp; moderately stiff; high plasticity; 60 clay; 40% silt |
| 1 | | | | | | | | | |
| | | | | 32405SB112 | | | | | |
| 2 | | | | | 1.2 | | | | |
| 3 | | | | | 1.5 | | | | |
| 4 | | 0 | | | .8 | | | | |
| 5 | | | | | | | | | Same as above |
| | | | | | .9 | | | | |
| 6 | | | | 32405SB113 | 1.3 | | | | |
| 7 | | 0 | | | 1.8 | | | | |
| 8 | | | | | .2 | | | CL | |
| 9 | | | | | | | | | SILTY CLAY: brown (7.5YR 4/4); slightly damp; stiff; tight; moderate plasticity; 70% clay; 30% silt |
| | | | | 32405SB114 | | | | | |
| 10 | | 0 | | | .6 | | | | |
| 11 | | | | | 1.1 | | | | SILTY CLAY: brown (7.5 YR 4/6); slightly damp to dry; stiff; tight; compact; medium plasticity; 75% clay: 25% silt |
| 12 | | | | | .3 | | | | |
| 13 | | 0 | | | .4 | | | | |
| | | | | 32405SB115 | | | | | |
| 14 | | | | | | | | | SILTY CLAY: brown (7.5YR 4/4); slightly damp to dry, stiff; tight, compact clay; medium plasticity (when wet); 80% clay: 20% silt |
| 15 | | | | | .5 | | | | |
| 16 | | 0 | | | .1 | | | | |
| 17 | | | | | .2 | | | | SILTY CLAY with minor fine sand (<5%); 7.5YR 4/6; slightly damp to dry; stiff; tight; hard; moderate plasticity (when wet); 80% clay; 15% silt; no caliche |
| 18 | | | | | | | | | |
| 19 | | 0 | | | .4 | | | | |
| 20 | | | | | | | | | Same as above |
| 21 | | | | | | | | | |
| 22 | | 0 | | | .1 | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | .2 | | | SM | |
| 25 | | 0 | | | | | | | SILTY VERY FINE SAND 7.5YR 4/4, damp; low strength; poorly graded; 75% fine sand: 35% silt |
| 26 | | | | | | | | ML | |
| 27 | | | | | | | | | CLAYEY SILT: 7.5YR 4/4; slightly damp; soft; 50% clay; 40% silt; 10% fine sand |
| | | | | | | | | SM | |
| 28 | | 0 | | | | | | | Sand stringer; silty fine sand; moist, soft; wet fine sand poorly graded at 28 feet; 60% sand; 40% clay |
| | | | | | 0 | | | | |
| 29 | | | | | | | | | SILTY SAND 7.5YR 4/6 moist to wet; very fine to fine sand; 60% silt, 40% sand |
| 30 | | | | | 0 | | | | SILTY CLAY: 7.5YR 4/6; damp to moist; soft; pliable; high plasticity |
| 31 | | | | | 0 | | | | SILTY CALY 7.5YR 4/6: slightly damp to dry; stiff; tight; compact; caliche present; 75% clay; 20% silt; <5% very fine sand |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | Moisture content decreases; sand content decreases; <10% fine sand |
| 34 | | | | | | | | | Total depth of boring = 31 feet |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB013

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** VAL MARCOS
**Boring Started:** 02/26/02
**Completed:** 02/26/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | SC | SILTY SAND with minor clay: 7.5YR 6/4; dry; poorly sorted |
| 1 | | | | | | | | | |
| 2 | | | | 32405SB108 | 5.3 | | | | |
| 3 | | | | | 5.1 | | | | |
| 4 | | 0 | | | 7.4 | | | CL | CLAY: dark brown (7.5YR 2.5/1); damp |
| 5 | | | | | 5.6 | | | | |
| 6 | | | | 32405SB109 | | | | | |
| 7 | | 0 | | | 3.9 | | | | CLAY: soft; high plasticity; 70% clay; 30% silt; some organic matter |
| 8 | | | | | 5.2 | | | | |
| 9 | | | | | 6.1 | | | | |
| 10 | | 0 | | 32405SB110 | 4.9 | | | | SILTY CLAY: brown (7.5YR 3/3); slightly damp; firm; stiff; tight; moderate to high plasticity; 70% clay; 30% silt |
| 11 | | | | | 3.9 | | | | |
| 12 | | | | | 4.1 | | | | |
| 13 | | 0 | | | 4.9 | | | | |
| 14 | | | | 32405SB111 | 3.6 | | | CL | Same as above except pebbles present |
| 15 | | | | | 2.9 | | | | CLAY: 7.5YR 4/4; slightly damp to dry; tight; hard; compact; moderate to high plasticity; 80% clay; 20% silt |
| 16 | | 0 | | | 3.5 | | | | |
| 17 | | | | | 4.9 | | | | SILTY CLAY: brown (7.5YR 4/6); slightly damp; tight; stiff |
| 18 | | | | | 2.1 | | | | |
| 19 | | 0 | | | 15.2 | | | | |
| 20 | | | | | 3.9 | | | | SILTY CLAY: 7.5YR 4/6; slightly damp; hard and compact; very tight stiff clay; moderate to high plasticity (when wet); 80% clay; 20% silt |
| 21 | | | | | 4.1 | | | CL | Becomes softer at 21 feet |
| 22 | | 0 | | | 9.8 | | | | SILTY CLAY: 7.5YR 4/4; slightly damp to dry; very hard (rockhard); stiff; tight; moderate plasticity; 80% clay; 20% silt |
| 23 | | | | | 8.7 | | | | |
| 24 | | | | | 15.5 | | | | |
| 25 | | 0 | | | 2.5 | | | | Sandy lense between 26 and 27.5 feet |
| 26 | | | | | 6.3 | | | | |
| 27 | | | | | 7.6 | | | | |
| 28 | | 0 | | | 12.4 | | | SM / CL | SILTY CLAY with very fine sand; damp to moist; soft; low plasticity; 50% very fine sand; 40% silt |
| | | | | | 7.9 | | | | |
| 29 | | | | | 5.9 | | | | SILTY CLAY: 7.5YR 4/6; slightly damp; hard; medium stiff; 80% clay; 20% silt |
| 30 | | | | | 6.7 | | | | |
| 31 | | | | | 8.1 | | | | CLAY: 7.5YR 4/6; slightly damp to dry; very stiff; compact; tight; hard; moderate plasticity (when wet); 80% clay; 20% silt |
| 32 | | | | | | | | | Total depth of boring = 31 feet |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB014

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 02/21/02
**Completed:** 02/21/02
**Boring Depth (feet bgs):** 22.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | SILTY CLAY: 7.5YR 4/2; damp to moist; slightly stiff; moderate plasticity with some backfill material |
| 1 | | | | | | | | | |
| 2 | | | | 32405SB038 | 0 | | | SM | SILTY SAND with minor clay: 7.5YR 4/2; damp to moist; fine to medium fine sand; 60% sand; 40% silt |
| 3 | | 0 | | | | | | CL | SILTY CLAY: 7.5YR 3/1; slightly damp to dry; stiff; tight; moderate to high plasticity; 70% clay; 25% silt |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | 0 | | 32405SB039 | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | 0 | | | | SILTY CLAY: 7.5YR 4/4; slightly damp to dry; tight; stiff; medium to medium high plasticity |
| 9 | | 0 | | | | | | | |
| 10 | | | | 32405SB040 | 0 | | | | |
| 11 | | | | | | | | | |
| 12 | | 0 | | | 0 | | | | |
| 13 | | | | | | | | | |
| 14 | | | | 32405SB041 | 0 | | | | |
| 15 | | 0 | | | | | | | SILTY CLAY: 7.5YR 5/4; dry; very stiff to tight; medium to medium high plasticity; 80% clay; 20% silt |
| 16 | | | | | 0 | | | | |
| 17 | | | | | | | | | |
| 18 | | 0 | | | | | | | SILTY CLAY: 7.5YR 4/6; dry; very stiff; tight; hard; medium to medium high plasticity; 80% clay; 20% silt |
| 19 | | | | | | | | | |
| 20 | | | | | 0 | | | CL | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
| 23 | | | | | | | | | Noticable caliche hardpan at 20 feet |
| 24 | | | | | | | | | Total depth of boring = 22 feet |
| 25 | | | | | | | | | |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB015

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 02/26/02
**Completed:** 02/26/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | |
| 1 | | | | | | | | | SILTY CLAY dark brown (7.5YR 2/1); slightly damp; medium stiff and light; 60% clay. 40% silt |
| 2 | | | | 32405SB104 | 21.6 | | | | |
| 3 | | | | | 16.5 | | | | |
| 4 | | 0 | | | 32.3 | | | | |
| 5 | | | | | 21.5 | | | | SILTY CLAY: 10YR 3/1; slightly damp; stiff; tight; high plasticity; 70% clay; 30% silt |
| 6 | | | | 32405SB105 | 18.6 | | | | |
| 7 | | 0 | | | | | | | |
| 8 | | | | | 59 | | | | SILTY CLAY: brown (7.5YR 3/4); slightly damp; tight; hard; moderately high plasticity; 70% clay. 30% silt |
| 9 | | | | | | | | | |
| 10 | | 0 | | 32405SB106 | 32.1 | | | | |
| 11 | | | | | | | | | SANDY SILTY CLAY: 7.5YR 4/4; slightly damp; tight; stiff; hard; very fine; 65% clay; 25% silt; 15% very fine sand |
| 12 | | | | | 18.3 | | | | |
| 13 | | 0 | | | 40.1 | | | | |
| 14 | | | | 32405SB107 | 69.7 | | | | SILTY CLAY with minor fine sand: brown (7.5YR 4/4); damp; stiff and light; compact |
| 15 | | | | | 14.5 | | | | |
| 16 | | 0 | | | | | | | |
| 17 | | | | | | | | CL | SILTY CLAY with minor fine sand brown (7.5YR 4/4); < 5% fine sand; 80% clay, 20% silt |
| 18 | | | | | 268.7 | | | | SILTY CLAY: brown (7.5YR 4/4); slightly damp; stiff; tight; compact clay; 80% clay; 20% silt |
| 19 | | 0 | | | 270 | | | | |
| 20 | | | | | 267 | | | | Sand content increases |
| 21 | | | | | | | | | |
| 22 | | 0 | | | 268 | | | | |
| 23 | | | | | | | | | SILTY CLAY: brown (7.5YR 5/6); slightly damp; clay weathering present with gray streaks. stiff; compact. tight. moderate plasticity; 80% clay; 20% silt |
| 24 | | | | | 227 | | | | Caliche present at 24.7 feet |
| 25 | | 0 | | | 224 | | | CL | |
| 26 | | | | | 268 | | | | SANDY SILTY CLAY: 7.5YR 5/6. moisture content increasing; soft; very fine; very fine sand lense; low plasticity |
| 27 | | | | | | | | | |
| 28 | | 0 | | | 268 | | | | Black flecks at 22 feet |
| 29 | | | | | 28.7 | | | CL | SANDY SILTY CLAY ends at 29 feet |
| 30 | | | | | | | | | SILTY CLAY 7.5YR 5/6; slightly damp, stiff; tight; 75% clay; 25% silt |
| 31 | | | | | 35.2 | | | | |
| 32 | | | | | | | | | Total depth of boring = 31 feet |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB016

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 02/25/02
**Completed:** 02/25/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | SILTY CLAY: dark brown (7.5YR 2/1); slightly damp; slightly stiff; firm; moderate plasticity; 60% clay; 40% silt; some organic material |
| 1 | | 0 | | | | | | | |
| | | | | 32405SB090 | | | | | |
| 2 | | | | | 0 | | | | |
| 3 | | | | | | | | | |
| 4 | | 0 | | | 0 | | | | |
| 5 | | | | | | | | | |
| 6 | | | | 32405SB091 | 0 | | | | |
| 7 | | 0 | | | | | | | SILTY CLAY: 10YR 4/4; slightly damp; stiff; tight; moderate to highly plastic; 70% clay; 30% silt |
| 8 | | | | | 0 | | | | |
| 9 | | | | | | | | | SILTY CLAY: brown (7YR 4/4); slightly damp to dry; stiff; tight; hard; moderate plasticity; 70% clay; 30% silt |
| | | | | 32405SB092 | | | | | |
| 10 | | 0 | | | 16.8 | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | 9.1 | | | | |
| 13 | | 0 | | | | | | | |
| | | | | 32405SB093 | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | CLAY: 7.5YR 4/4; dry to brittle; slightly stiff clay, coarse pebble in clay matrix; 40% clay; 60% gravel and pebbles; non plastic |
| 16 | | 0 | | | 11.4 | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | 10.8 | | | | |
| 19 | | 0 | | | | | | | |
| 20 | | | | | 15.2 | | | | SANDY SILTY CLAY (sand content increasing): 7.5YR 4/4; slightly damp to dry; tight; stiff; hard; moderate plasticity; 65% clay; 25% silt; 10% fine sand |
| 21 | | | | | | | | | |
| | | | | | | | | CL | |
| 22 | | 0 | | | 24.8 | | | ML | CLAYEY VERY FINE SANDY SILT: 7.5YR 4/4; damp to moist; soft; pliable; 50% silt; 30% very fine sand; 20% clay |
| 23 | | | | | | | | | |
| 24 | | | | | 23.1 | | | | SANDY SILTY CLAY: 7.5YR 5/6; very damp to moist; soft to slightly stiff; medium plasticity; 50% silt; 20% clay; 20% very fine sand |
| 25 | | 0 | | | 28.2 | | | ML/SM | |
| 26 | | | | | 10.1 | | | | Same as above except caliche present at 21.5 feet |
| 27 | | | | | 19.4 | | | | |
| 28 | | 0 | | | 19.9<br>14.3 | | | CL | |
| 29 | | | | | | | | | SILTY CLAY: 7.5YR 4/4; dry to slightly damp; stiff; tight; hard; compact; moderate plasticity; 80% clay; 10% silt |
| 30 | | | | | 19.2 | | | | |
| 31 | | | | | 8.3 | | | | Significant caliche present at 30 feet |
| | | | | | | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB017

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 02/21/02
**Completed:** 02/21/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | SM | VERY SILTY SAND: 10YR 5/6; slightly damp; crumbles easily; non-plastic; 50% sand, 40% silt; 10% clay |
| 1 | | | | | | | | | |
| 2 | | | | 32405SB042 | 0 | | | | |
| 3 | | | | | | | | CL | Clay content increasing |
| 4 | | 0 | | | 0 | | | | SILTY CLAY: 10YR 3/2; slightly damp; stiff; tight clay; moderate to high plasticity; 75% clay; 25% silt |
| 5 | | | | | | | | | |
| 6 | | | | 32405SB043 | 0 | | | | |
| 7 | | 0 | | | | | | | SILTY CLAY: 7.5YR 4/4; slightly damp; stiff; hard and tight clay; medium to high plasticity; 80% clay; 20% silt |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | 32405SB044 | 0 | | | | |
| 11 | | 0 | | | | | | | |
| 12 | | | | | 0 | | | ML | |
| 13 | | | | | | | | CL | CLAYEY SANDY SILT: 7.5YR 4/4; slightly damp; medium to very fine sand; poorly graded, 50% silt; 40% sand, 10% clay |
| 14 | | 0 | | 32405SB045 | | | | | SILTY CLAY with minor very fine sand: 7.5YR 4/4; slightly damp |
| 15 | | | | | | | | | SILTY CLAY: 7.5YR 4/4; slightly damp; tight; stiff, hard clay, medium to high plasticity; 80% clay; 20% silt |
| 16 | | 0 | | | 0 | | | | |
| 17 | | | | | | | | CL | Not as tight as above, slightly damp; tight and stiff |
| 18 | | | | | 0 | | | | SILTY CLAY: 7.5YR 4/4; slightly damp to dry; 80% clay; 20% silt |
| 19 | | 0 | | | | | | | |
| 20 | | | | | 0 | | | | |
| 21 | | | | | | | | | |
| 22 | | 0 | | | 0 | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | | | | | |
| 25 | | | | | | | | | Black smears, possibly organic material |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB018

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/25/02
**Completed:** 02/25/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | | |
| 1 | | 0 | | | 0 | | | CL | Asphalt debris |
| 2 | | | | 32405SB081 | | | | | CLAY TO FINE SANDY SILTY CLAY with fine scattered fine gravel: dark brown to gray brown (5YR 3/1); damp to medium stiff; angular to sub-angular; low to medium plasticity; 70% fines; 25% fine sand; 5% fine gravel |
| 3 | | | | | | | | | |
| 4 | | 36 | | | 0 | | | | CLAY TO SILTY CLAY: dark brown to dark gray brown (5YR 2.5/1); damp; medium stiff; low to medium plasticity |
| 5 | | | | | | | | | |
| 6 | | | | 32405SB082 | 0 | | | | Color change at 6.5 feet (5YR 3/2), sparse fine gravel; angular to sub-angular |
| 7 | | 36 | | | | | | SC | FINE SANDY SILTY CLAY WITH GRAVEL: brown to tan-brown (5YR 4/4); damp; stiff; angular; low plasticity; 60% fines; 30% fine sand; 10% fine gravel |
| 8 | | | | | 0 | | | | |
| 9 | | | | | | | | | |
| 10 | | 36 | | 32405SB083 | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | 36 | | | | | | | |
| 14 | | | | 32405SB084 | | | | GW | |
| 15 | | | | | 0 | | | | Caliche weathering in veins from 17 to 19 feet |
| 16 | | 36 | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | 0 | | | | FINE SANDY SILTY CLAY: brown to orange-brown; dry to damp; stiff; low plasticity; caliche weathering to 19 feet; 60% fines; 40% fine sand |
| 19 | | 36 | | | | | | SC | |
| 20 | | | | | | | | CL | Very thin lense of fine to medium coarse sandy gravel between 17 and 17.5 feet; angular to sub-angular |
| 21 | | | | | | | | | SILTY CLAY with saturated gravel; tan-orange to brown (75YR 4/6); moist; stiff; medium plasticity; 95% fines; 5% gravel; abundant caliche weathering throughout to 25 feet |
| 22 | | 36 | | | | | | | |
| 23 | | | | | 69 | | | | |
| 24 | | | | | | | | | |
| 25 | | 36 | | | | | | | |
| 26 | | | | | 269 | | | | SILTY CLAY tan-orange brown (7.5 YR 4/6); moist; medium stiff; medium plasticity; minor caliche |
| 27 | | | | | | | | | |
| 28 | | 36 | | | | | | | |
| 29 | | | | | 14.2 | | | | SILTY CLAY tan-orange brown (7.5YR 4/6); moist; medium stiff to stiff; low to medium plasticity; minor caliche |
| 30 | | | | | 30 | | | | |
| 31 | | | | | 0 | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB019

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/25/02
**Completed:** 02/25/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | Asphalt and baserock debris for 6 to 8 inches |
| 1 | | 0 | | | 5.1 | | | | |
| 2 | | | | 32405SB085 | | | | | SILTY CLAY TO SILTY FINE SAND: mottled tan-orange and brown (5YR 4/6); damp; medium stiff to dense; large gravel at 4 inches; 60% fine sand; 40% fines |
| 3 | | | | | 0 | | | | FINE SANDY SILTY CLAY: tan-brown to olive brown (5YR 4/4); damp; stiff; low plasticity; 90% fines; 10% fine sand |
| 4 | | 0 | | | | | | | |
| 5 | | | | | | | | | CLAY TO SILTY CLAY: tan-orange to brown (7.5YR 4/6); dry to slightly damp; very stiff to hard; low plasticity; abundant caliche at 31 feet |
| 6 | | | | 32405SB086 | 0 | | | | |
| 7 | | 36 | | | | | | | Becomes more sandy at 10.5 feet |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | 36 | | 32405SB087 | .7 | | | CL | |
| 11 | | | | | | | | | FINE SANDY CLAY: tan-brown (5YR 4/4); damp; stiff; low plasticity; 70% fines; 30% fine sand |
| 12 | | | | | 0 | | | | |
| 13 | | 36 | | | 0 | | | | CLAYEY SILT: brown (5YR 4/6); damp; very stiff; low plasticity |
| 14 | | | | 32405SB088 | | | | | |
| 15 | | | | | | | | | |
| 16 | | 36 | | | 0 | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | 36 | | | | | | | |
| 20 | | | | | 0 | | | | |
| 21 | | | | | 12 | | | | |
| 22 | | 36 | | | 0 | | | | Becomes very stiff to hard at 22 feet |
| 23 | | | | | | | | | Minor caliche weathering at 26 feet |
| 24 | | | | | 79 | | | | |
| 25 | | 36 | | | | | | | |
| 26 | | | | | | | | CL/OL | |
| 27 | | | | | 28 | | | | SILTY CLAY TO CLAYEY FINE SANDY SILT: tan-orange brown (2.5YR 4/4); moist; medium stiff; medium plasticity; 75% fines; 25% fine sand |
| 28 | | 36 | | | | | | CL | Becomes wet at 28 feet |
| 29 | | | | | | | | | |
| 30 | | | | | 0 | | | | SILTY FINE SANDY CLAY: dark-brown to black (7.5YR 2.5/1); damp; stiff; medium plasticity; angular to sub-angular; 80% fines; 8% fine sand; 2% fine gravel |
| 31 | | | | | 0 | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB020

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/27/02
**Completed:** 02/27/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0–1 | | 48 | | | | | | CL | Asphalt and baserock from 6 to 8 inches |
| 2 | | | | 32405SB061 | | | | | CLAY TO SILTY CLAY with scattered medium coarse gravel: gray-brown to dark brown (2.5YR 3/2); damp to slightly moist; medium stiff; medium to high plasticity; angular to sub-angular; 95% fines; 5% gravel |
| 3 | | | | | 122 | | | | |
| 4 | | 48 | | | | | | | Sparse organic debris visible, heavy petroleum odor at 6 feet |
| 6 | | | | 32405SB062 | 0 | | | | |
| 7 | | | | | | | | CL | SILTY FINE SANDY CLAY: brown to olive brown (2.5YR 4/4); damp; medium stiff to stiff; medium plasticity; 90% fines; 10% fine sand |
| 8 | | 48 | | | | | | SP/SC | |
| 9–10 | | | | 32405SB063 | 0 | | | | Thin 1 foot lense of clayey fine sand and gravel: tan-orange brown (2.5 YR 4/4); damp to slightly moist; medium dense; moderately graded. 80% fine sand and gravel sub-angular to angular; 70% fines |
| 11 | | | | | | | | SC/CL | SILTY FINE SANDY CLAYEY: tan-orange brown to gray-brown (2.5Y 4/3); damp; very stiff; low plasticity |
| 12 | | 24 | | | | | | | |
| 14 | | | | 32405SB064 | | | | SC | Graded to clayey fine sand; tan-brown (2.5YR 4/4); damp; medium dense; poorly graded |
| 31 | | | | | | | | | Total depth of boring = 31 feet |

Tetra Tech EM

# Log of Boring: SB021

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 02/27/02
**Completed:** 02/27/02
**Boring Depth (feet bgs):** 25.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 1 | | 0 | | | | | | | Brittle backfill material |
| 2 | | | | 32405SB129 | 0 | | | CL | SILTY CLAY: 10YR 3/3: moist, soft; high plasticity; 60% clay, 40% silt |
| 3 | | | | | 0 | | | | |
| 4 | | 0 | | | 0 | | | | |
| 5 | | | | | | | | | SILTY CLAY: 10YR 3/2; damp; soft to medium stiff; high plasticity; 80% clay, 20% silt |
| 6 | | | | 32405SB130 | 0 | | | | |
| 7 | | 0 | | | | | | | |
| 8 | | | | | 0 | | | | SANDY SILTY CLAY: 7.5YR 3/3; damp; stiff; firm; low plasticity; 60% clay; 25% silt; 15% very fine sand |
| 9 | | | | | | | | | |
| 10 | | | | 32405SB131 | 0 | | | | |
| 11 | | 0 | | | | | | | SILTY CLAY with minor sand: 7.5YR 1/4; damp to moist, medium to very stiff, moderate plasticity; 55% clay, 40% silt; 5% sand |
| 12 | | | | | | | | SM | SILTY CLAYEY SAND: 7.5YR 4/6; moist; slightly loose; poorly graded; 50% sand; 30% silt; 20% clay |
| 13 | | 0 | | | | | | | |
| 14 | | | | 32405SB132 | | | | SM/SP | SILT WET SAND: 7.5YR 4/6; wet; loose; poorly graded; quartz rich sub-angular to sub-rounded, 60% sand, 40% silt |
| 15 | | | | | | | | | |
| 16 | | 0 | | | 0 | | | CL | |
| 17 | | | | | | | | SC | SAND SILTY CLAY with clay content increasing: 7.5YR 4/4; damp; stiff; tight moderate plasticity |
| 18 | | | | | 0 | | | | SILTY CLAYEY VERY FINE SAND with sand content increasing: 7.5YR 4/6, damp to moist; poorly graded; low plasticity; 40% clay; 40% sand; 20% silt |
| 19 | | 0 | | | 0 | | | CL | SANDY SILTY CLAY with clay content increasing: 7.5YR 4/6; slightly damp; stiff; tight; firm; 60% clay, 30% silt, 10% very fine sand |
| 20 | | | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | 0 | | | | | | SC/SM | SILTY CLAYEY SAND with sand content increasing: 7.5YR 4/6; damp to moist; loose; quartz rich with pebbles present at 23 feet; sub-angular to sub-rounded |
| 23 | | | | | 218.1 | | | SC/CL | |
| 24 | | | | | | | | | SILTY CLAYEY VERY FINE SAND or SANDY SILTY CLAY interbedded |
| 25 | | | | | 0 | | | | Total depth of boring = 25 feet |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB022

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/21/02
**Completed:** 02/21/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 6 | | | | | | | |
| 1 | | | | | 4.2 | | | OL/CH | Asphalt |
| 2 | | | | 32405SB046 | | | | | CLAY TO SILTY CLAY: dark brown to black (5YR 2.5/1); damp to slightly moist; medium stiff; moderate plasticity; sparse pebbles rounded to subrounded at 3 feet; organic odor at 3 feet |
| 3 | | | | | | | | CL/OL | |
| 4 | | 6 | | | .2 | | | | SILTY CLAY TO FINE SANDY SILTY CLAY: dark brown to black (5YR 2.5/1); damp; stiff; low to medium plasticity; slight organic odor; 85% fines, 15% fine sands |
| 5 | | | | | | | | SC/CL | |
| 6 | | | | 32405SB047 | 0 | | | | CLAYEY SILTY FINE SAND: orange brown to tan brown (2.5YR 4/4); damp; medium dense to dense; poorly graded; 60% fine sand, 40% fines |
| 7 | | 6 | | | | | | | |
| 8 | | | | | | | | | CLAYEY SILTY FINE SAND: orange brown to tan brown (2.5YR 4/4); damp; medium dense to dense; becomes more dense with depth to 10 feet +/-; poorly graded; 65% fine sand; 35% fines |
| 9 | | | | | | | | | |
| 10 | | | | 32405SB048 | | | | | |
| | | 0 | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | 6 | | | | | | | |
| 14 | | | | 32405SB049 | | | | | |
| 15 | | | | | | | | | |
| 16 | | 0 | | | | | | CL/SC | |
| 17 | | | | | 0 | | | | CLAYEY FINE SAND TO SILTY FINE SANDY CLAY: tan-orange brown; damp; stiff to dense; low plasticity; moderately graded; fine sand with sparse coarse sand (pebbles) sub-rounded to rounded; 60% fines; 40% fine to coarse sand |
| 18 | | | | | | | | | |
| 19 | | 0 | | | | | | SC | |
| 20 | | | | | 0 | | | | CLAYEY FINE SAND: tan-brown to orange-brown (7.5YR 5/6); damp; medium dense to dense; poorly graded; 80% fine sand, 20% fines; sparse sub-angular fine gravel at 21 feet |
| 21 | | | | | | | | CL/OL | |
| 22 | | 0 | | | | | | | CLAY TO SILTY CLAY: tan-brown to orange-brown (7.5YR 5/6); dry to slightly damp; very stiff to hard; low plasticity; abundant caliche weathering throughout |
| 23 | | | | | 0 | | | | |
| 24 | | | | | | | | | CLAY TO SILTY CLAY: tan-brown to orange-brown (7.5YR 5/6); damp to slightly moist; soft to medium stiff; medium plasticity |
| 25 | | 0 | | | | | | | |
| 26 | | | | | | | | CL | |
| 27 | | | | | 0 | | | | CLAY: tan-brown to orange-brown (7.5YR 5/6); damp; very stiff to hard; medium plasticity |
| 28 | | 0 | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB023

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/23/02
**Completed:** 02/23/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 1 | | 6 | | | | | | SM | SILTY SAND: tan-brown to light brown; damp; loose to medium dense; poorly graded; 80% fine sand; 20% fines |
| 2 | | | | 32405SB057 | 0 | | | | |
| 3 | | | | | 0 | | | SC/ML | SILTY FINE SANDY CLAY gray to brown tan mottled (5YR 4/1); damp to slightly moist; medium stiff; low plasticity; 60% fines, 40% fine sands |
| 4 | | 6 | | | 0 | | | SC/CL | CLAYEY FINE SAND TO FINE SANDY SILTY CLAY: mottled tan-orange light gray to light brown (7.5YR 4/6); damp, medium stiff to dense; 50% fines, 50% fine sands |
| 5 | | | | | | | | | |
| 6 | | | | 32405SB058 | 0 | | | OH/CL | CLAY: dark-gray brown to black (5Y 2.5/1); damp; medium stiff; medium plasticity; large wood or root fragment encountered at 7 feet |
| 7 | | 6 | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | CL | CLAY TO SILTY CLAY WITH FINE GRAVEL: mottled olive-brown dark -brown and gray (5Y 3/2); damp to slightly moist; medium stiff; medium plasticity; 95% fines, 5% fine gravel sub-angular to sub -rounded |
| 10 | | 0 | | 32405SB059 | | | | | |
| 11 | | | | | 0 | | | | |
| 12 | | | | | | | | | SILTY FINE SANDY CLAY tan-brown to olive-brown (7.5YR 4/4); damp; stiff, becomes very stiff to hard with depth up to 13 feet; low plasticity; minor caliche weathering; 70% fines, 30% fine sand |
| 13 | | 6 | | | | | | | |
| 14 | | | | 32405SB060 | | | | | |
| 15 | | | | | 0 | | | CL | SILTY FINE SANDY CLAY TO SILTY CLAY. mottled tan-brown to orange- brown (7.5YR 4/6); damp to slightly moist; medium stiff to stiff, becomes very stiff to hard with depth up to 19 feet; medium plasticity |
| 16 | | 36 | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | 36 | | | | | | | |
| 20 | | | | | 0 | | | | SILTY FINE SANDY CLAY: mottled tan-oragne gray-brown (7.5YR 4/6); damp; very stiff to hard; low plasticity; 80% fines, 20% fine sand; abundant caliche weathering at 24 feet |
| 21 | | | | | | | | | |
| 22 | | 36 | | | | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | | | | | |
| 25 | | 36 | | | | | | | |
| 26 | | | | | | | | SM | |
| 27 | | | | | | | | | FINE SILTY SAND: tan-orange brown (2.5YR 4/4); moist; medium dense, poorly graded; fine to very fine sand and silt; minor caliche at 27 feet; becomes more clayey and dense to stiff at 28 feet |
| 28 | | 0 | | | | | | CL/OL | CLAY TO SILTY CLAY: tan-brown to light brown, dry to slightly damp; hard medium plasticity |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB024

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/22/02
**Completed:** 02/22/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0–1 | | 0 | | | | | | CL | Asphalt, sand and gravel (baserock) |
| 1–3 | | | | 32405SB066 | 0 | | | | SANDY CLAY TO SILTY SANDY CLAY WITH SCATTERED GRAVEL: mottled brown, dark brown tan-orange, gray (7.5YR 3/2); damp; medium stiff; low to medium plasticity; 60% fines, 30% fine sand, 10% fine gravel, angular |
| 3–4 | | | | | | | | SM/SC | THIN 1 FOOT LENSE OF SILTY FINE SAND TO FINE SANDY SILT: tan-orange (10YR 5/6); damp; loose; poorly graded |
| 4–5 | | 0 | | | 0 | | | CL | |
| 5–6 | | | | 32405SB067 | | | | | CLAY TO FINE SANDY SILTY CLAY: dark rust-brown to dark gray-brown (10YR 3/2); damp; medium stiff; low to medium plasticity; 75% fines, 25% fine sand |
| 6–7 | | | | | | | | | |
| 7–9 | | 0 | | | 0 | | | | CLAYEY SILT TO FINE SANDY SILTY CLAY: brown to olive-brown (7.5YR 4/4); dry to damp; medium stiff; becomes more stiff with depth to 10 feet; low plasticity; 70% fines, 30% very fine sands; sparse gravel (fine/angular) at 9 feet |
| 9–10 | | | | 32405SB068 | | | | | |
| 10–13 | | 0 | | | | | | | |
| 13–14 | | 0 | | 32405SB069 | | | | | |
| 14–15 | | | | | | | | | CLAY TO FINE SANDY SILTY CLAY: tan-orange, brown (10YR 4/6); damp; stiff; low to medium plasticity; 85% fines, 15% fine sand |
| 15–16 | | | | | 0 | | | | |
| 16–19 | | 0 | | | | | | SC | CLAYEY SILTY FINE SANDY LENSE: tan-orange (10YR 4/6); slightly moist; medium dense; moderately plastic clays; poorly graded sand; becomes more clayey to 19 feet |
| 19–22 | | 0 | | | | | | CL | SILTY CLAY: 10YR 4/6; slightly damp; stiff; tight; medium plasticity; 80% clay, 20% silt; abundant caliche weathering at 22 feet |
| 22–25 | | 0 | | | | | | | |
| 25–28 | | 0 | | | | | | CL/CL | CLAYEY SILT TO FINE SANDY SILTY CLAY: 10YR 4/6; moist; medium dense to stiff; moderately plastic clays; 60% fine to very fine sand, 40% poorly graded sands |
| 28–31 | | 0 | | | | | | | |
| 31 | | | | | | | | | Total depth of boring = 31 feet |

Tetra Tech EM

# Log of Boring: SB025

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 02/27/02
**Completed:** 02/27/02
**Boring Depth (feet bgs):** 25.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | | |
| 1 | | | | | | | | | |
| 2 | | | | 32405SB125 | 0 | | | CL | |
| 3 | | | | | 0 | | | | SILTY SANDY CLAY: 7.5YR 3/3; damp to moist; soft to slightly stiff; low plasticity; 60% clay, 20% sand, 20% silt |
| 4 | | 0 | | | | | | | SOFT SILTY CLAY: 10YR 2/2; moist; soft to very slight stiff; medium plasticity |
| 5 | | | | | 0 | | | | |
| 6 | | | | 32405SB126 | | | | | |
| 7 | | 0 | | | 0 | | | | |
| 8 | | | | | | | | | SILTY CLAY: 10YR 2/2; damp; moderately stiff; tight; medium to high plasticity; 70% clay, 30% silt |
| 9 | | | | | | | | | |
| 10 | | 0 | | 32405SB127 | 137.5 | | | | |
| 11 | | | | | | | | | SILTY BROWN CLAY: 7.5YR 4/4; slightly damp; moderately stiff; tight; medium to high plasticity; 70% clay, 30% silt |
| 12 | | | | | | | | | |
| 13 | | 0 | | | | | | SC/SM | |
| 14 | | | | 32405SB128 | | | | | CLAY SILTY VERY FINE SAND: 7.5YR 4/6; moist; slightly stiff; low plasticity; 40% silt, 40% sand, 20% clay |
| 15 | | | | | 0 | | | | |
| 16 | | 0 | | | 110 | | | SM | |
| 17 | | | | | 217.6 | | | | SILTY SAND: 7.5YR 4/4; wet; very fine to medium fine sand; poorly graded; 65% sand, 35% silt |
| 18 | | | | | | | | | |
| 19 | | 0 | | | 0 | | | | |
| 20 | | | | | 0 | | | | CLAYEY SILTY VERY FINE SAND: 7.5YR 4/4; wet; loose poorly graded; 50% very fine sand, 40% silt, 10% clay; quartz rich sand; sand content decreasing |
| 21 | | | | | | | | CL | |
| 22 | | 0 | | | 0 | | | | SANDY SILTY CLAY: 7.5YR 4/4; slightly damp to dry; stiff; tight; hard; plasticity when hydrated is moderate to low; 70% clay, 20% silt, 10% sand |
| 23 | | | | | | | | | |
| 24 | | | | | 0 | | | | |
| 25 | | | | | 0 | | | | Total depth of boring = 25 feet |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB026

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/27/02
**Completed:** 02/27/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| | | 0 | | | | | | | |
| 1 | | | | | 0 | | | CL | Asphalt debris and baserock |
| | | 0 | | 32405SB133 | | | | | CLAY TO SILTY CLAY WITH GRAVEL: 7.5YR 2/5; damp; medium stiff; low plasticity; 75% fines. 5% fine to medium coarse gravel, angular |
| 2 | | | | | | | | | |
| 3 | | | | | 0 | | | SP/SM | THIN LENSE OF FINE SAND TO SILTY FINE SAND: 10YR 5/4; dry to slightly damp; loose to medium dense; poorly graded |
| 4 | | 0 | | | | | | | |
| 5 | | | | | 0 | | | CL/OL | |
| 6 | | | | 32405SB134 | | | | ML/CL | CLAYEY SILT: 7.5YR 3/3; damp to slightly moist; medium stiff; medium plasticity |
| 7 | | 0 | | | 0 | | | CL | |
| 8 | | | | | | | | | SILTY CLAY with minor fine sands. 7.5YR 4/4; damp; stiff; low plasticity; 90% fines; 10% fine sand |
| 9 | | | | | 0 | | | | |
| 10 | | 0 | | 32405SB135 | 0 | | | | |
| 11 | | | | | 0 | | | | |
| 12 | | | | | | | | | Becomes sandier and more stiff at 13 feet; damp; stiff; low plasticity; 75% fines, 25% fine sand |
| 13 | | 0 | | | | | | | |
| 14 | | | | 32405SB136 | 0 | | | | FINE SANDY SILTY CLAY: mottled (7.5YR 4/4); slightly moist; medium stiff; low plasticity; 65% fines; 35% very fine sands |
| 15 | | | | | 0 | | | | |
| 16 | | 36 | | | 0 | | | CL | |
| 17 | | | | | 0 | | | | SILTY CLAY: mottled (7.5YR 4/1 - 3/4); damp; very stiff to hard; low plasticity |
| 18 | | | | | 0 | | | | Becomes very stiff at 16 feet |
| 19 | | 36 | | | 0 | | | | |
| 20 | | | | | 0 | | | | |
| 21 | | | | | 0 | | | SM | THIN LENSE OF FINE SANDY SILT TO SILTY SAND; 7.5YR 4/4; moist; poorly graded |
| 22 | | 36 | | | 0 | | | CL | |
| 23 | | | | | 0 | | | | SANDY CLAY TO SILTY SANDY CLAY: 7.5YR 4/4; dry to damp; very stiff to hard; 60% fines; 40% fine sand |
| 24 | | | | | 0 | | | | |
| 25 | | 36 | | | 0 | | | | |
| 26 | | | | | 0 | | | | CLAY TO SILTY CLAY: 7.5YR 4/4; damp to slightly moist; medium stiff to stiff; medium plasticity |
| 27 | | | | | 0 | | | | |
| 28 | | 36 | | | 0 | | | | |
| 29 | | | | | 0 | | | | SILTY CLAY TO VERY SANDY FINE SILTY CLAY: 7.5YR 4/4; damp to moist; medium stiff; moderate plasticity; 78% fines; 22% fine sand |
| 30 | | | | | 0 | | | | |
| 31 | | | | | 0 | | | | |
| 32 | | | | | | | | | SILTY CLAY: mottled (10YR 2/1-3/3); stiff; damp; low plasticity |
| 33 | | | | | | | | | Total depth of boring = 31 feet |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB027

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 02/27/02
**Completed:** 02/27/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | SM | SILTY FINE SAND: 7.5YR 4/4; dry; medium dense; partially friable/ cemented; poorly graded |
| 1 | | 0 | | | | | | | |
| 2 | | | | 32418SB137 | 0 | | | CL | |
| 3 | | | | | 0 | | | SM/CL | CLAY TO SILTY CLAY: 5YR 4/4; damp; medium stiff; medium plasticity |
| 4 | | 0 | | | 0 | | | | CLAYEY SILT TO CLAYEY FINE SANDY SILT: 2.5YR 4/4; damp; medium stiff; low plasticity; 60% fines; 40% fine sand |
| 5 | | | | | | | | | |
| 6 | | | | 32418SB138 | 0 | | | | |
| 7 | | 0 | | | | | | | |
| 8 | | | | | 0 | | | | |
| 9 | | | | | 0 | | | CL | Minor gravel at 9 feet |
| 10 | | 0 | | 32418SB139 | 0 | | | | Becomes more clayey |
| 11 | | | | | 0 | | | | SILTY CLAY WITH SCATTERED GRAVEL: 2.5YR 4/4; damp; stiff to very stiff; low plasticity; 80% fines; 20% fine to medium coarse gravel angular to sub-angular |
| 12 | | | | | | | | | |
| 13 | | 0 | | | 0 | | | | |
| 14 | | | | 32418SB140 | 0 | | | | FINE SANDY SILTY CLAY: 2.5YR 4/4; damp; very stiff; low plasticity; 75% fines; 25% fine sand |
| 15 | | | | | 0 | | | | |
| 16 | | 0 | | | | | | | |
| 17 | | | | | 0 | | | | Scattered fines gravel at 17 feet; angular to sub-angular |
| 18 | | | | | 0 | | | | Becomes harder with depth to 19 feet |
| 19 | | 0 | | | 0 | | | CL | |
| 20 | | | | | | | | | SILTY CLAY: mottled (2.5YR 4/4-3/3); damp; very stiff to hard; low plasticity; sparse coarse sand grains at 21 feet (<5%) |
| 21 | | | | | 0 | | | | |
| 22 | | 0 | | | 0 | | | | |
| 23 | | | | | 0 | | | | |
| 24 | | | | | 0 | | | | |
| 25 | | 0 | | | 0 | | | | |
| 26 | | | | | 0 | ▽ | | SM | |
| 27 | | | | | 0 | | | | SILTY VERY FINE SAND TO CLAYEY FINE SAND: 2.5YR 3/3; moist; medium dense; poorly graded; 70% fine sand; 30% fines |
| 28 | | 0 | | | | | | SM/CL | |
| 29 | | | | | | | | | SANDY SILT TO SILTY SAND: wet; medium dense; poorly graded |
| 30 | | | | | | | | CL | |
| 31 | | | | | | | | | CLAY: 7.5YR 4/4; very stiff to hard; low plasticity |
| 32 | | | | | | | | | Total depth of boring = 31 feet |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB028

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 02/28/02
**Completed:** 02/28/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | | |
| 1 | | | | | | | | | Backfill |
| | | | | | | | | CL/SC | |
| 2 | | | | 32418SB150 | 5.4 | | | | SILTY SANDY CLAY: 10YR 5/4, damp to moist; medium to high plasticity; 50% clay; 20% sand, 30% silt; coarse gravel present |
| 3 | | | | | | | | CL/ML | color change at 3' |
| 4 | | 0 | | | 43.1 | | | | SILTY CLAY 5YR 3/1; moist, moderately stiff; medium to high plasticity; 60% clay, 40% silt |
| 5 | | | | | 11.4 | | | | |
| 6 | | | | 32418SB151 | 63.3 | | | | |
| 7 | | 0 | | | 10.8 | | | | |
| 8 | | | | | 410 | | | | SILTY CLAY 7.5YR 4/6; slightly damp; stiff; tight; compact; medium plasticity; 70% clay, 30% silt; some minor coarse sand present less then 5% |
| 9 | | | | | | | | | |
| | | | | 32418SB152 | | | | | |
| 10 | | 0 | | | 375 | | | ML/CL | |
| 11 | | | | | 416 | | | | SILTY CLAY: 7.5YR 4/6; damp to moist to 11.5 feet then dry at 12 feet; soft, easily penetrated with thumb; high plasticity |
| 12 | | | | | 259.7 | | | | |
| 13 | | 0 | | | 415 | | | CL | |
| 14 | | | | 32418SB153 | | | | | SILTY CLAY 7.5YR 4/6; slightly damp to dry; very stiff; tight; compact; 70% clay, 25% silt, less then 5% very fine sand |
| 15 | | | | | 415 | | | | |
| 16 | | 0 | | | | | | CL/ML | |
| 17 | | | | | 417 | | | | SILTY CLAY WITH LESS THEN 5% VERY FINE SAND: 7.5YR 4/4; stiff; tight; hard; dry; medium plasticity when hydrated |
| 18 | | | | | 416 | | | | |
| 19 | | 0 | | | 416 | | | | |
| 20 | | | | | | | | | SILTY CLAY: 7.5YR 4/4; dry, stiff; tight; firm to brittle; medium plasticity when hydrated; 80% clay, 20% silt; at 22.5 to 23 feet sand/silt stringer |
| 21 | | | | | 415 | | | | |
| 22 | | 0 | | | 312 | | | | |
| 23 | | | | | 417 | | | | |
| 24 | | | | | 416 | | | | |
| 25 | | 0 | | | | | | | |
| 26 | | | | | 119.8 | | | | SILTY CLAY: 7.5YR 4/4; dry; hard; tight; low to medium plasticity; 80% clay, 20% silt |
| 27 | | | | | 131.3 | ▽ | | ML/CL | |
| | | | | | | | | ML/SM | SAND, SILTY CLAY with sand content increasing. 7.5YR 4/4; damp to moist; soft; high plasticity |
| 28 | | 0 | | | 76.7<br>379 | | | SM | |
| 29 | | | | | 174 | | | | SANDY CLAYEY SILT: 7.5YR 4/4; damp to moist; soft; high plasticity |
| 30 | | | | | | | | | CLAYEY SILTY FINE SAND: 10YR 3/6; wet; 60% fine to very fine sand; 40% silt; 10% clay |
| 31 | | | | | 113.7 | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

**Tetra Tech EM**

# Log of Boring: SB029

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 02/28/02
**Completed:** 02/28/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | | Backfill |
| 1 | | | | | | | | | |
| 2 | | | | 32418SB146 | 130.6 | | | | |
| 3 | | | | | | | | ML | SANDY SILT CLAY WITH GRAVEL: 2.5YR 3/2; dry; soft; moderate to high plasticity; 40% clay, 20% sand; 40% silt |
| 4 | | 0 | | | 191.4 | | | ML/CL | |
| 5 | | | | | | | | | SILTY CLAY: 5YR 2.5/1; damp, medium stiff; high plasticity |
| 6 | | | | 32418SB147 | 395 | | | | |
| 7 | | 0 | | | 283 | | | | |
| 8 | | | | | 417 | | | | SILTY CLAY: 7.5YR 4/4; damp; stiff to very stiff; tight; firm; medium to high plasticity; 60% clay, 40% silt |
| 9 | | | | | 414 | | | | |
| 10 | | 0 | | 32418SB148 | 420 | | | | |
| 11 | | | | | | | | | SILTY CLAY: 7.5YR 4/6; slightly damp; moderate, stiff; light; firm; moderate to high plasticity; 70% clay, 30% silt |
| 12 | | | | | 417 | | | | |
| 13 | | 0 | | | 424 | | | CL | SILTY CLAY: 7.5YR 3/4; slightly damp to dry; stiff; tight; hard; high plasticity when hydrated; 80% clay, 20% silt |
| 14 | | | | 32418SB149 | 414 | | | | |
| 15 | | | | | 415 | | | | |
| 16 | | 0 | | | | | | ML | SANDY SILT MINOR CLAY PRESENT with sand content increasing: 7.5YR 4/6; slightly damp; non-plastic; 60% silt, 30% very fine sand, 10% clay |
| 17 | | | | | 419 | | | ML/CL | |
| 18 | | | | | 379 | | | | VERY FINE SANDY SILTY CLAY with sand content decreasing: 7.5YR 4/6; slightly damp to dry; moderately stiff; tight; compact; moderate plasticity; 50% clay; 40% silt; 10% very fine sand |
| 19 | | 0 | | | | | | | |
| 20 | | | | | 415 | | | | SILTY CLAY WITH MINOR VERY FINE SAND LESS THEN 5%: 7.5YR 5/4; dry; very stiff; firm; hard/compact; low to moderate plasticity; 60% clay, 40% silt |
| 21 | | | | | 419 | | | | |
| 22 | | 0 | | | | | | CL/ML | SILTY CLAY: 7.5YR 5/6; dry; very stiff to hard; tight; medium to medium high plasticity; 60% clay, 40% silt |
| 23 | | | | | 416 | | | | |
| 24 | | | | | 15.5 | | | | |
| 25 | | 0 | | | 412 | | | | |
| 26 | | | | | 105 | | | CL | SILTY CLAY: moist; soft; very high plasticity; 80% to 90% clay, 10% to 20% silt |
| 27 | | | | | 61.3 | | | ML/CL | |
| 28 | | 0 | | | 56.9<br>60.9 | | | SM/SC | VERY FINE SANDY SILTY CLAY: 10YR 5/4; moist to damp; soft and pliable; high plasticity; 55% clay, 35% silt; 15% sand |
| 29 | | | | | | | | | |
| 30 | | | | | | | | ML/CL | SILTY VERY FINE SAND WITH CLAY: 10YR 4/6; wet to moist; soft and pliable; low to medium plasticity; 40% silt, 50% very fine sand, 10% clay |
| 31 | | | | | 18.9 | | | | SILTY CLAY WITH MINOR VERY FINE SAND, becoming firmer |
| 32 | | | | | | | | | Total depth of boring = 31 feet |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB030

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 03/04/02
**Completed:** 03/04/02
**Boring Depth (feet bgs):** 58.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | SW | CLAYEY GRAVELLY SAND: 2.5YR 3/6; damp; moderately ?; 60% fine to medium coarse sand, 20% fines, 20% medium coarse gravel; angular to sub-angular; scattered organic matter (roots) |
| 1 | | 6 | | | | | | | |
| | | | | 32418SB175 | | | | | |
| 2 | | | | | 17.5 | | | | |
| 3 | | | | | 14.6 | | | | |
| 4 | | 6 | | | 14.5 | | | CL | CLAY TO SILTY CLAY: 2.5YR 3/4; damp; soft to medium stiff; medium plastic; moderate organic matter (roots) |
| 5 | | | | | 18.5 | | | ML/OL | |
| 6 | | | | 32418SB176 | 12.7 | | | CL | CLAYEY SILT WITH WEATHERED GRAVEL: 5YR 5/6; dry to damp; stiff; low plasticity |
| 7 | | 6 | | | 14.9 | | | | SILTY CLAY TO SILTY FINE SANDY CLAY: 5Y 4/4; dry to slightly damp; hard; partially friable; 92% fines, 7% fine sand, 1% fine gravel; sub-angular; highly weathered; abundant caliche weathering throughout to 13 feet |
| 8 | | | | | 5.7 | | | | |
| 9 | | | | | 7.2 | | | | |
| | | | | 32418SB177 | | | | | |
| 10 | | 0 | | | 8.7 | | | | |
| 11 | | | | | 12.1 | | | | |
| 12 | | | | | 7.4 | | | | |
| 13 | | 6 | | | | | | CL/OL | SILT TO CLAYEY SILT: 2.5YR 5/4; dry; hard, partially friable, possibly weathered siltstone; abundant caliche weathering to completely weathered |
| | | | | 32418SB178 | | | | | |
| 14 | | | | | 9.6 | | | | |
| 15 | | | | | 10.4 | | | | |
| 16 | | 0 | | | 10.9 | | | | |
| 17 | | | | | 10.1 | | | CL | SILTY CLAY: 2.5YR 6/4 to 6/3; damp; medium stiff; becomes more stiff with depth to 22 feet; low plasticity; 60% fines, 40% silt; moderate caliche |
| 18 | | | | | 178.2 | | | | |
| 19 | | 0 | | | 14.2 | | | | |
| 20 | | | | | 56.8 | | | | |
| 21 | | | | | 51.7 | | | | |
| 22 | | 0 | | | 137.1 | | | | |
| 23 | | | | | | | | | SILTY CLAY WITH MINOR VERY FINE SAND: mottled 2.5YR 5/1 to 5/4; dry to damp; stiff; low plasticity; less then 2% fine sand |
| 24 | | | | | 23.6 | | | | no change to 28' |
| 25 | | 0 | | | 66.9 | | | | |
| 26 | | | | | | | | | |
| 27 | | | | | 84.7 | | | | |
| 28 | | 36 | | | 160.5 | | | | |
| 29 | | | | | 181 | | | | No significant change to 34'<br>Moderate caliche weathering; dry; very stiff to hard silty clay with minor fine sands |
| 30 | | | | | 7.9 | | | | color change to 2.5Y 4/3 |
| 31 | | 36 | | | | | | | |
| 32 | | | | | 5.2 | | | | |
| 33 | | | | | 120.3 | | | | |
| 34 | | 0 | | | 11.6 | | | | |
| 35 | | | | | 84 | | | | Becoming softer at 45 feet to possibly 55 feet changes to more compact |

**Tetra Tech EM Inc.**

## *Log of Boring: SB030*

***Project:*** REMEDIAL INVESTIGATION
***Location:*** SWMU 5
***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 36 | | 0 | | | 63 | | | | |
| 37 | | | | | 18.7 | | | | |
| 38 | | 0 | | | | | | | |
| 39 | | | | | | | | | |
| 40 | | | | | | | | | |
| 41 | | 0 | | | | | | | |
| 42 | | | | | | | | | |
| 43 | | | | | | | | | |
| 44 | | 0 | | | | | | | |
| 45 | | | | | | | | | |
| 46 | | | | | | | | | |
| 47 | | 0 | | | | | | | |
| 48 | | | | | | | | | |
| 49 | | | | | | | | | |
| 50 | | 0 | | | | | | | |
| 51 | | | | | | | | | |
| 52 | | | | | | | | | |
| 53 | | 0 | | | | | | | |
| 54 | | | | | | | | | |
| 55 | | | | | | | | | |
| 56 | | 0 | | | | | | | |
| 57 | | | | | | | | | |
| 58 | | | | | | | | | Total depth of boring = 58 feet |
| 59 | | | | | | | | | |
| 60 | | | | | | | | | |
| 61 | | | | | | | | | |
| 62 | | | | | | | | | |
| 63 | | | | | | | | | |
| 64 | | | | | | | | | |
| 65 | | | | | | | | | |
| 66 | | | | | | | | | |
| 67 | | | | | | | | | |
| 68 | | | | | | | | | |
| 69 | | | | | | | | | |
| 70 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB031

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 03/04/02
**Completed:** 03/04/02
**Boring Depth (feet bgs):** 37.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| | | 0 | | | | | | | |
| 1 | | 6 | | | | | | CL | |
| 2 | | | | 32418SB183 | | | | | CLAY TO SILTY CLAY: mottled (7.5YR 3/3 to 2.5/1); damp, medium stiff; low plasticity; sparse organic matter |
| 3 | | | | | 7.4 | | | | FINE SANDY CLAY 5YR 5/4; damp to slightly moist; medium stiff; low plasticity; 70% fines, 30% fine sand |
| 4 | | 6 | | | 1.2 | | | | |
| 5 | | | | | 8.4 | | | | THIN LENSE OF CLAY: 7.5YR 4/4; damp; stiff, low plasticity |
| 6 | | | | 32418SB184 | 4 | | | SM | |
| 7 | | 6 | | | 68.9 | | | | SILTY SANDY TO SILTY GRAVELLY SAND: 7.5YR 5/4, damp, loose to medium dense; poorly graded to well graded; 70% fine sand; 20% fines; 10% fine to medium coarse gravel angular to sub-angular |
| 8 | | | | | | | | | |
| 9 | | | | | 4.9 | | | SC | |
| 10 | | | | 32418SB185 | 1.4 | | | | CLAYEY SILTY FINE SAND: 7.5YR 4/6; damp; medium dense; clays of low plasticity; poorly graded sand; 75% fine sand, 25% fines |
| | | 0 | | | 60.2 | | | | |
| | | | | | 6.3 | | | SW | GRAVELLY SAND: 7.5YR 4/5; damp; loose to medium dense, well graded fine to coarse sands and gravel; angular to sub-angular |
| 13 | | 6 | | | | | | | |
| 14 | | | | 32418SB186 | 1.4 | | | CL | |
| 15 | | | | | 4.5 | | | | CLAY TO SILTY CLAY WITH SCATTERED GRAVEL and minor fine sand (greater >5%): 7.5 YR 5/6 damp to slightly moist; medium stiff; moderate plasticity; 95% fines, 3% fine sand, 2% fine gravel (highly weathered, angular to sub-angular |
| | | 0 | | | 1.5 | | | | |
| | | | | | 1.8 | | | | |
| 18 | | | | | 2.4 | | | | |
| 19 | | 0 | | | 2.2 | | | | CLAY mottled 7.5YR 5/1 to 4/4; dry to damp; very stiff; low plasticity, abundant caliche throughout |
| | | | | | .4 | | | | FINE SANDY CLAY 7.5YR 5/8; damp, very stiff to hard, low plasticity, 80% fines, 20% fine sand; abundant caliche throughout |
| | | | | | 2.9 | | | | |
| | | 0 | | | 0 | | | | |
| 23 | | | | | .6 | | | | |
| 24 | | | | | 3.3 | | | | |
| 25 | | 0 | | | .5 | | | | |
| 26 | | | | | .5 | | | | |
| 27 | | | | | 2.7 | | | SW | |
| 28 | | 0 | | | 1.7 | | | CL | GRAVELLY SAND: 7 5YR 4/6; damp to slightly moist; dense; well graded; 80% fine to coarse sand, 20% fine gravel; angular to sub-angular |
| 29 | | | | | .4 | | | | SILTY CLAY mottled 7 5YR 5/1 to 5/6, dry, hard, low plasticity, moderate caliche |
| 30 | | | | | 1.7 | | | | |
| 31 | | 0 | | | .1 | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | 0 | | | .7 | | | | |
| 35 | | | | | .3 | | | | |

Tetra Tech EM Inc.

## Log of Boring: SB031

**Project:** REMEDIAL INVESTIGATION
**Location:** SWMU 5
**Project No:** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 36 | | 0 | | | 2.1 | | | | |
| 37 | | | | | .7 | | | | Total depth of boring = 37 feet |
| 38 | | | | | | | | | |
| 39 | | | | | | | | | |
| 40 | | | | | | | | | |
| 41 | | | | | | | | | |
| 42 | | | | | | | | | |
| 43 | | | | | | | | | |
| 44 | | | | | | | | | |
| 45 | | | | | | | | | |
| 46 | | | | | | | | | |
| 47 | | | | | | | | | |
| 48 | | | | | | | | | |
| 49 | | | | | | | | | |
| 50 | | | | | | | | | |
| 51 | | | | | | | | | |
| 52 | | | | | | | | | |
| 53 | | | | | | | | | |
| 54 | | | | | | | | | |
| 55 | | | | | | | | | |
| 56 | | | | | | | | | |
| 57 | | | | | | | | | |
| 58 | | | | | | | | | |
| 59 | | | | | | | | | |
| 60 | | | | | | | | | |
| 61 | | | | | | | | | |
| 62 | | | | | | | | | |
| 63 | | | | | | | | | |
| 64 | | | | | | | | | |
| 65 | | | | | | | | | |
| 66 | | | | | | | | | |
| 67 | | | | | | | | | |
| 68 | | | | | | | | | |
| 69 | | | | | | | | | |
| 70 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB032

**Logged By:**
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** GEOPROBE
**Boring Started:** 03/04/02
**Completed:** 03/04/02
**Boring Depth (feet bgs):** 37.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | Asphalt debris and baserock |
| 1 | | 6 | | 32418SB179 | .7 | | | | CLAY TO SANDY CLAY: 5YR 5/6; damp; stiff; low plasticity; 85% fines, 15% fine to coarse sand, abundant caliche throughout |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | 6 | | | 1.4 | | | | FINE SANDY SILTY CLAY TO SILTY CLAY: 5YR 4/6; damp; very stiff; low plasticity; 90% fines, 10% fine sand, abundant caliche throughout in distinct veins |
| 5 | | | | | 1.5 | | | | |
| 6 | | | | 32418SB180 | 16.6 | | | CL/OL | SILTY CLAY: 5YR 5/6; dry to slightly damp; very stiff to hard; low plasticity; moderate caliche |
| 7 | | 6 | | | 1.2 | | | | |
| 8 | | | | | 1.7 | | | | |
| 9 | | | | | 8.9 | | | | |
| 10 | | 0 | | 32418SB181 | 1.3 | | | | |
| 11 | | | | | .7 | | | | |
| 12 | | | | | 5.4 | | | | |
| 13 | | 36 | | | 1 | | | | |
| 14 | | | | 32418SB182 | 1.2 | | | | |
| 15 | | | | | 7.7 | | | | |
| 16 | | 36 | | | 3.7 | | | | SILTY CLAY: mottled 5YR 5/1 to 5/6; dry; low plasticity; moderate caliche throughout |
| 17 | | | | | | | | | |
| 18 | | | | | 6.9 | | | | |
| 19 | | 36 | | | | | | | |
| 20 | | | | | 96.9 | | | | |
| 21 | | | | | 6.5 | | | | |
| 22 | | 36 | | | 8.6 | | | SC/CL | FINE SANDY CLAY TO CLAYEY SILTY FINE SAND: 2.5YR 5/6; damp to slightly moist; medium stiff to stiff; clays of low plasticity, poorly graded sands; 60% fines, 40% fine sand; very minor caliche throughout |
| 23 | | | | | 1.9 | | | | |
| 24 | | | | | 7.9 | | | | |
| 25 | | 0 | | | 2.9 | | | | |
| 26 | | | | | 1.6 | | | CL/OL | SILTY CLAY: 7.5YR 5/8; dry to slightly damp; very stiff to hard; low plasticity |
| 27 | | | | | 5.9 | | | | |
| 28 | | 0 | | | 24.2 | | | SC | CLAYEY SILTY FINE SAND: 5YR 5/6; slightly damp; dense; poorly graded; 68% fine sands, 32% fines |
| 29 | | | | | 1.5 | | | | |
| 30 | | | | | 4.8 | | | | |
| 31 | | 36 | | | | | | | |
| 32 | | | | | 1.2 | ▽ | | SW CL | THIN LENSE OF FINE SAND: 5YR 5/4; wet; medium dense; poorly graded |
| 33 | | | | | 3.9 | | | | SILTY CLAY: mottled 7.5YR 5/1 to 5/6; dry to slightly damp; very stiff to hard; low plasticity; minor caliche weathering; presence of caliche increases with depth |
| 34 | | 36 | | | 2.5 | | | | |
| 35 | | | | | 1.7 | | | | |

Tetra Tech EM Inc.

## Log of Boring: SB032

***Project:*** REMEDIAL INVESTIGATION ***Project No:*** G0069.324.B.05.01
***Location:*** SWMU 5

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 36 | | 36 | | | 5.9 | | | | |
| 37 | | | | | 1.2 | | | | Total depth of boring = 37 feet |
| 38 | | | | | | | | | |
| 39 | | | | | | | | | |
| 40 | | | | | | | | | |
| 41 | | | | | | | | | |
| 42 | | | | | | | | | |
| 43 | | | | | | | | | |
| 44 | | | | | | | | | |
| 45 | | | | | | | | | |
| 46 | | | | | | | | | |
| 47 | | | | | | | | | |
| 48 | | | | | | | | | |
| 49 | | | | | | | | | |
| 50 | | | | | | | | | |
| 51 | | | | | | | | | |
| 52 | | | | | | | | | |
| 53 | | | | | | | | | |
| 54 | | | | | | | | | |
| 55 | | | | | | | | | |
| 56 | | | | | | | | | |
| 57 | | | | | | | | | |
| 58 | | | | | | | | | |
| 59 | | | | | | | | | |
| 60 | | | | | | | | | |
| 61 | | | | | | | | | |
| 62 | | | | | | | | | |
| 63 | | | | | | | | | |
| 64 | | | | | | | | | |
| 65 | | | | | | | | | |
| 66 | | | | | | | | | |
| 67 | | | | | | | | | |
| 68 | | | | | | | | | |
| 69 | | | | | | | | | |
| 70 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB033

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 03/07/02
**Completed:** 03/07/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0 | | | | | | | Ground Surface |
| | | | | | | | | SW | |
| 1 | | 0 | | | | | | CL | Coarse sand and gravel, wet |
| | | | | 32405SB209 | | | | | |
| 2 | | | | | 12.5 | | | | FINE SANDY SILTY CLAY: 7.5YR 5/6; damp to moist; medium stiff; low plasticity; 60% fines; 40% fine sand |
| 3 | | | | | | | | | |
| 4 | | 36 | | | 12.4 | | | | CLAY TO SILTY CLAY: 7.5YR 2.5/1; damp; medium stiff to stiff; medium plasticity |
| 5 | | | | | 8.8 | | | | |
| 6 | | | | 32405SB210 | | | | | FINE SANDY CLAY with MINOR GRAVEL: 7.5YR 4/4; damp; very stiff; low plasticity; 70% fines; 25% fine sand; 5% fine gravel; sub-angular |
| 7 | | 36 | | | 11 | | | | |
| 8 | | | | | 10.1 | | | | |
| 9 | | | | | 8.5 | | | | |
| | | | | 32405SB211 | | | | | |
| 10 | | 36 | | | 7.8 | | | | Becomes less stiff at 11 feet; no gravel |
| 11 | | | | | 7.7 | | | CL | SILTY CLAY: 7.5YR 4/6; damp; stiff to very stiff; low plasticity |
| 12 | | | | | 8.7 | | | | |
| 13 | | 36 | | | 11.2 | | | | |
| | | | | 32405SB212 | | | | | |
| 14 | | | | | 6.7 | | | | |
| 15 | | | | | 19.1 | | | | |
| 16 | | 36 | | | 38.7 | | | | |
| 17 | | | | | 5.8 | | | | SILTY CLAY: mottled 7.5YR 4/1 - 4/6; damp; very stiff; medium plasticity; minor caliche visible in distinct thin veins |
| 18 | | | | | 11.1 | | | | |
| 19 | | 36 | | | 71.6 | | | | VERY FINE SANDY SILTY CLAY: 7.5 4/6; damp; stiff; low plasticity; 78% fines; 22% fine sands; no caliche; very sparse coarse sands throughout (<1%) |
| 20 | | | | | 26.7 | | | | |
| 21 | | | | | 154 | | | | |
| 22 | | 0 | | | 9.8 | | | | |
| 23 | | | | | 10.3 | | | | |
| 24 | | | | | | | | | |
| 25 | | 0 | | | 4.6 | | | CL | Becomes very stiff to hard at 25 feet |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | SILTY CLAY: 7.5YR 4/6; damp to slightly moist; medium stiff; high plasticity |
| 28 | | 0 | | | 4.4 | | | | |
| 29 | | | | | | | | | CLAY TO SILTY CLAY: 7.5YR 4/6; damp; medium stiff to low stiff; high plasticity; moderate caliche weathering |
| 30 | | | | | 5.9 | | | | |
| 31 | | | | | | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB034

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 03/07/02
**Completed:** 03/07/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | CL | |
| 1 | | 0 | | | | | | | CLAY TO SANDY CLAY: 5YR 3/2; damp, medium stiff; medium plasticity, 20% fines; 30% fine sand |
| 2 | | | | 32405SB213 | | | | | |
| 3 | | | | | 66 | | | | |
| 4 | | 0 | | | 54.2 | | | | |
| 5 | | | | | 53.8 | | | | CLAY TO SILTY CLAY: mottled (5YR 3/4 - 2.5/2); damp; medium stiff; medium plasticity |
| 6 | | | | 32405SB214 | 81.1 | | | | |
| 7 | | 0 | | | 28.7 | | | | SANDY CLAY TO SILTY SANDY CLAY: 7.5YR 4/4; damp; stiff; low plasticity; 65% fines; 35% fine sand |
| 8 | | | | | 11.4 | | | | |
| 9 | | | | | 57.7 | | | | |
| 10 | | 0 | | 32405SB215 | 16.9 | | | | |
| 11 | | | | | 8.2 | | | | Becomes very stiff to hard with depth to 13 feet; minor caliche visible |
| 12 | | | | | 13.9 | | | | |
| 13 | | 0 | | | | | | | |
| 14 | | | | 32405SB216 | 69 | | | | |
| 15 | | | | | 90.1 | | | | |
| 16 | | 0 | | | 17.8 | | | | SANDY CLAY TO VERY FINE SANDY SILTY CLAY: 7.5YR 4/6; very stiff to stiff; medium plasticity; 80% fines; 20% very fine sand |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | 0 | | | | | | | |
| 20 | | | | | | | | | Becomes harder with depth; abundant caliche throughout from 20 feet |
| 21 | | | | | | | | | |
| 22 | | 0 | | | 41.8 | | | | |
| 23 | | | | | 70.0 | | | | |
| 24 | | | | | 36.1 | | | | |
| 25 | | 0 | | | 37.7 | | | | |
| 26 | | | | | 105 | | | | SILTY CLAY: 7.5YR 4/4; moist; medium stiff; medium to high plasticity; minor caliche at 28 feet |
| 27 | | | | | 47.2 | | | | |
| 28 | | 0 | | | 127 | | | | |
| 29 | | | | | 14.8 | | | | |
| 30 | | | | | 41 | | | | |
| 31 | | | | | 11.7 | | | | |
| | | | | | | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB035

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 03/07/02
**Completed:** 03/07/02
**Boring Depth (feet bgs):** 28.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | SC | CLAYEY SAND AND GRAVEL: 7.5YR 3/3; damp; loose; well graded; medium coarse sand and coarse gravel; angular to sub-angular |
| 1 | | 0 | | | | | | | |
| | | | | 32405SB217 | | | | | |
| 2 | | | | | 6.1 | | | CL | CLAY TO SILTY CLAY: 7.5YR 2.5/1; damp; medium stiff; medium plasticity |
| 3 | | | | | | | | | |
| 4 | | 0 | | | 10.9 | | | | |
| 5 | | | | | 60.8 | | | | |
| 6 | | | | 32405SB218 | 190 | | | | |
| 7 | | 0 | | | 97.7 | | | | |
| 8 | | | | | 13.9 | | | | SANDY SILTY CLAY WITH SCATTERED GRAVEL: 7.5YR 4/4; damp; stiff; low plasticity; 65% fines; 32% fine sand; 3% gravel; weathered; sub-angular |
| 9 | | | | | | | | | |
| | | | | 32405SB219 | | | | | |
| 10 | | 0 | | | 89 | | | | |
| 11 | | | | | 195 | | | | |
| 12 | | | | | 168 | | | | Moderate caliche from 11 to 12 feet |
| 13 | | 0 | | | 92.6 | | | | SILTY CLAY TO FINE SANDY SILTY CLAY: 7.5YR 4/6; damp; very stiff; low plasticity |
| | | | | 32405SB220 | | | | | |
| 14 | | | | | 2.2 | | | | |
| 15 | | | | | 2.9 | | | | |
| 16 | | 0 | | | 3.9 | | | | |
| 17 | | | | | 3.1 | | | | |
| 18 | | | | | 2.5 | | | | |
| 19 | | 0 | | | 5.1 | | | | |
| 20 | | | | | 3.1 | | | | |
| 21 | | | | | 3 | | | | |
| 22 | | 0 | | | 5.4 | | | | |
| 23 | | | | | .8 | | | | Caliche increases to abundant in distinct thin veins |
| 24 | | | | | 1.3 | | | | CLAYEY SILT TO SILTY CLAY: 7.5YR 4/6; damp; medium stiff to stiff; low plasticity |
| 25 | | 0 | | | 2.6 | | | | FINE SANDY CLAY: 7.5YR 4/4; moist; soft to stiff; high plasticity; 60% fines; 40% fine sand |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | Total depth of boring = 28 feet |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB036

**Logged By:** VAL/MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 03/07/02
**Completed:** 03/07/02
**Boring Depth (feet bgs):** 14.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | ML/CL | SILTY CLAY: dark brown (7.5YR 3/1); damp; soft to medium stiff; moderate to high plasticity; 60% clay; 40% silt; some organic material present |
| 1 | | | | | | | | | |
| 2 | | | | 32405SB221 | 1.7 | | | | |
| 3 | | | | | 2.1 | | | | Some gravel present at 4 feet otherwise no change |
| 4 | | 0 | | | 3.8 / 1.9 | | | | |
| 5 | | | | | | | | | SILTY CLAY: 5Y 3/1; damp; soft to medium stiff; high plasticity; 60% clay; 40% silt |
| 6 | | | | 32405SB222 | 8.9 | | | | |
| 7 | | 0 | | | 6.7 | | | | |
| 8 | | | | | 1.5 | | | | SILTY CLAY: 7.5YR 4/6; damp; stiff; tight; moderate plasticity; 70% clay; 30% silt |
| 9 | | | | | 49.3 | | | | |
| 10 | | 0 | | 32405SB223 | 12.5 | | | | |
| 11 | | | | | 3.1 | | | | SILTY CLAY: 7.5YR 4/6; damp; very stiff; tight; 70% clay; 30% silt |
| 12 | | | | | 13.6 | | | | |
| 13 | | | | | | | | ML/SM<br>ML/CL | Silty sand increasing |
| 14 | | | | 32405SB224 | | | | | VERY FINE SANDY SILT: 7.5YR 4/6; damp; soft at 12 to 12.5 feet; non-plastic |
| 15 | | | | | | | | | VERY FINE SILTY CLAY: 7.5YR 4/4; damp to dry; stiff to firm; tight; hard; 60% clay; 35% silt; <5% very fine sand |
| 16 | | | | | | | | | Total depth of boring = 14 feet |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | | | | | |
| 25 | | | | | | | | | |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | | | | | | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB037

**Logged By:** VAL MACROS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 03/07/02
**Completed:** 03/07/02
**Boring Depth (feet bgs):** 28.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | | |
| 1 | | | | | | | | ML/CL | Backfill to 1 foot |
| 2 | | | | 32405SB225 | | | | | SILTY CLAY: 10YR 3/1, damp to moist, soft; moderate to highly plastic; 60% clay; 40% silt |
| 3 | | | | | 5.9 | | | | |
| 4 | | 0 | | | 56.1 | | | | |
| 5 | | | | | 21.8 | | | | SILTY CLAY: 10YR 3/2; slightly damp; medium stiff; firm; medium to high plasticity; 70% clay; 30% silt |
| 6 | | | | 32405SB226 | 103.6 | | | | |
| 7 | | | | | 31.6 | | | | |
| 8 | | 0 | | | | | | | SILTY CLAY: 7.5YR 4/6; slightly damp; stiff to very stiff; hard; tight; medium to high plasticity when wet; 60% clay; 40% silt |
| 9 | | | | | 2.9 | | | | |
| 10 | | | | 32405SB227 | 3.1 | | | | |
| 11 | | | | | 1.4 | | | | Same as above |
| 12 | | 0 | | | 3.9 | | | | |
| 13 | | | | | 1.7 | | | | |
| 14 | | | | 32405SB228 | 1.6 | | | | SILTY CLAY: 7.5YR 4/6; slightly damp to dry; stiff to very stiff; hard; tight; medium plasticity when hydrated; 65% clay; 35% silt |
| 15 | | | | | 2.1 | | | | |
| 16 | | 0 | | | 1.9 | | | | |
| 17 | | | | | 8.3 | | | | SILTY CLAY: 7.5YR 4/6; slightly damp to dry; very stiff; tight; hard; high strength; medium plasticity when hydrated; 68% clay; 32% silt |
| 18 | | | | | 3.9 | | | | |
| 19 | | | | | 1.6 | | | | |
| 20 | | 0 | | | 11.8 | | | | Same as above |
| 21 | | | | | 88.1 | | | | Caliche present between 21 and 22 feet |
| 22 | | | | | 101.3 | | | | |
| 23 | | | | | | | | CL/ML | SILTY CLAY: 7.5YR 4/6; slightly damp to dry; very stiff; tight; hard; high strength |
| 24 | | 0 | | | 77.7 | | | | SILTY CLAY: 7.5YR 4/6; dry; stiff; tight; hard; 76% clay; 24% silt; medium plasticity when rehydrated |
| 25 | | | | | | | | ML/CL | |
| 26 | | | | | | | | | |
| 27 | | | | | | | | | SILTY CLAY: 10YR 4/4; moisture content increases; soft; easily indented with finger; medium to high plasticity; 66% clay; 34% silt |
| 28 | | | | | | | | | Total depth of boring = 28 feet |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB038

**Logged By:** VAL MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 03/08/02
**Completed:** 03/08/02
**Boring Depth (feet bgs):** 28.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | | |
| 1 | | 0 | | | | | | SC | Asphalt debris and baserock |
| | | | | 32418SB231 | | | | | |
| 2 | | | | | | | | CL/DL | CLAYEY SAND and GRAVEL: 7.5YR 4/4; damp; loose; well graded |
| 3 | | | | | | | | | CLAYEY SILT to SILTY CLAY: 7.5YR 2.5/1; slightly moist; soft; high plasticity |
| 4 | | 0 | | | 9.2 | | | CL | |
| 5 | | | | | 9.8 | | | | CLAY to SILTY CLAY: 7.5YR 3/3; damp; medium stiff; high plasticity |
| 6 | | | | 32418SB232 | 11.7 | | | | |
| 7 | | 36 | | | | | | | |
| 8 | | | | | 6.8 | | | | SILTY CLAY: 7.5YR 4/6; damp; medium stiff to stiff; medium plasticity |
| 9 | | | | | 10 | | | | |
| | | | | 32418SB233 | | | | | |
| 10 | | 36 | | | 8.4 | | | | |
| 11 | | | | | 5.6 | | | ML/CL | |
| 12 | | | | | 14.6 | | | CL | VERY FINE SANDY CLAYEY SILT: 10YR 4/6; moist; soft to medium stiff; low to medium plasticity; 60% fines; 40% very fine sand |
| 13 | | 36 | | | 7.6 | | | | Becomes damp at 12 feet |
| | | | | 32418SB234 | | | | | |
| 14 | | | | | 8.8 | | | | CLAYEY: damp; medium plasticity; 75% fines; 25% fine sand |
| 15 | | | | | 6.1 | | | | |
| 16 | | 36 | | | 6.8 | | | | |
| 17 | | | | | 10.5 | | | SL/ML | |
| 18 | | | | | 6.4 | | | | FINE SANDY SILT TO CLAYEY SILT: 10YR 4/4-3/2; damp; stiff; low plasticity; 55% fines; 45% very fine sand |
| 19 | | 36 | | | | | | CL | |
| 20 | | | | | 10.6 | | | | SILTY CLAY: 10YR 5/6; damp; very stiff; low plasticity |
| 21 | | | | | 5.8 | | | | Minor caliche at 22 feet |
| 22 | | 36 | | | 8.7 | | | SM/ML | |
| 23 | | | | | 4.1 | | | | VERY FINE SANDY SILT TO SILTY FINE SAND: 10YR 5/6; damp; very stiff to hard; low to medium plasticity; 50% fines; 50% very fine sand; minor caliche throughout in distinct thin veins |
| 24 | | | | | | | | | |
| 25 | | 36 | | | 5.3 | | | | |
| 26 | | | | | 7.1 | | | | |
| 27 | | | | | 3.1 | | | | |
| 28 | | | | | 5.4 | | | | |
| 29 | | | | | | | | | Becomes less stiff at 27 feet |
| 30 | | | | | | | | | Total depth of boring = 28 feet |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: SB039

**Logged By:** VAL MARCOS
**Logging Consultant:**
**Drilling Company:** PRECISION

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** SWMU 5
**Ground Surface Elevation (feet MSL):**

**Drilling Method:** DIRECT PUSH
**Boring Started:** 03/08/02
**Completed:** 03/08/02
**Boring Depth (feet bgs):** 31.00
**Boring Diameter (inches):**

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNTS | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | 0 | | | | | | SC | SANDY GRAVEL: wet (surface runoff) |
| 1 | | 0 | | | | | | CL | GRAVELEY CLAY TO SANDY GRAVELLEY CLAY |
| 2 | | | | 32418SB235 | | | | | |
| 3 | | | | | 5.6 | | | | CLAYEY SILT: 5YR 5/8; damp; medium stiff to stiff; low plasticity |
| 4 | | 0 | | | 6.6 | | | CL | Scattered fine gravel at 4 feet; 2% angular |
| 5 | | | | | 4.4 | | | | SILTY CLAY: 5YR 4/6; damp to slightly moist; medium stiff to stiff; low plasticity |
| 6 | | | | 32418SB236 | 4.2 | | | | |
| 7 | | 0 | | | 5.1 | | | | Same as above |
| 8 | | | | | 3.5 | | | | |
| 9 | | | | | 4.7 | | | | Minor caliche from 10 to 13 feet |
| | | | | 32418SB237 | | | | | |
| | | 0 | | | 5.7 | | | CL | CLAY TO SILTY CLAY: 5YR 4/6; damp; stiff; high plasticity (when hydrated) |
| | | | | | 4.2 | | | | |
| | | | | | 4.3 | | | | |
| 13 | | 0 | | | 4.2 | | | | |
| 14 | | | | 32418SB238 | 1.8 | | | | |
| 15 | | | | | 3.4 | | | CL | Minor caliche at 15 feet |
| | | 36 | | | | | | | FINE SANDY CLAY TO SILTY SANDY CLAY: 5YR 5/6; damp to slightly moist; medium stiff to stiff; medium plasticity |
| | | | | | 3.3 | | | | |
| | | | | | 3.0 | | | | SILTY CLAY TO CLAYEY SILT: 7.5YR 5/6; damp; stiff to very stiff; high plasticity (when hydrated) |
| | | 36 | | | 5.4 | | | SC/CL | FINE SANDY CLAY TO CLAYEY FINE SAND: 7.5YR 5/6; damp to slightly moist; stiff to very stiff; low plasticity |
| | | | | | 2.4 | | | | |
| | | | | | 6.6 | | | SM | SILTY CLAYEY SAND TO SANDY SILT: 7.5YR 4/6; wet; medium dense; poorly graded; 60% fine sand; 40% fines |
| 22 | | 36 | | | 2.9 | | | | |
| 23 | | | | | | | | SM/CL | CLAYEY SILT TO SILTY FINE SAND: 7.5 YR 4/4; medium stiff to dense; poorly graded sands; clays of low plasticity; 45% fines; 44% fine sand |
| 24 | | | | | 2.1 | | | | |
| 25 | | 36 | | | 5.6 | | | | |
| 26 | | | | | 2.4 | | | SC | SANDY SILT TO SILTY FINE SAND: 7.5YR 5/6; wet (saturated); very fine; loose to medium dense; poorly graded |
| 27 | | | | | 2.7 | | | | |
| 28 | | 0 | | | 3.3 | | | CL | SILTY CLAY: 7.5YR 4/6; dry to slightly damp; hard; medium plasticity |
| 29 | | | | | | | | | |
| 30 | | | | | 3.7 | | | | |
| 31 | | | | | 4.4 | | | | Total depth of boring = 31 feet |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: MW-7

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** MW
**Surface Elevation (feet MSL):**
**Top of Casing Elevation (feet MSL):** 61.90

**Drilling Method:** 18" SPLIT SPOON
**Boring Started:** 01/28/99
**Completed:** 01/28/99
**Boring Depth (feet bgs):** 30.00
**Boring Diameter (inches):**
**Casing Diameter (inches):** 2.00

**Logged By:** JMS/KAG
**Logging Consultant:**
**Drilling Company:** GREGG DRILLING CO.

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface | Annual Seal |
| | | | | | | | | CL | Asphalt (4") | |
| 1 | | | | | | | | | Silty Clay (CL)<br>dark yellowish brown (10yr 4/4) dry, 25% silt, 75% clay, medium plasticity | |
| 2 | | | | | | | | | | |
| | | 0 | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| | | 0 | 35 | | | | | | | |
| 6 | | 24 | | | | | | SP | Sand (SP)<br>sand lense from 6.0'-6.5' brownish yellow (10yr 6/6) dry, very fine grained, 10% silt, 90% sand | |
| | | | | | | | | CL | | |
| 7 | | | | | | | | | Silty Clay (CL)<br>yellowish brown (10yr 5/8) dry, 40% silt, 60% clay, very hard, laminated, micaceous, quartz fragments up to 1 cm., caliche stringers | |
| 8 | | | | | | | | | | |
| | | 36 | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | | | | | | | | SC | | Bentonite Seal |

Tetra Tech EM Inc.

## *Log of Boring: MW-7*

***Project:*** REMEDIAL INVESTIGATION ***Project No:*** G0069.324.B.05.01
***Location:*** MW

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 60 | | | | | SC | Sandy Clay (SC)<br>yellowish brown (10yr 5/6) dry, 70% very fine sand, 30% clay, micaceous<br><br>-increase in moisture content at 11' becomes moist; quartz fragments 5% up to 1 cm., staining very dark grayish brown (10yr 3/2) to 15' | |
| 11 | | | | | | | | | | |
| 12 | | | | | | | | | | |
| | | 60 | | | | | | | | |
| 13 | | | | | | | | | | |
| 14 | | | | | | | | | | |
| 15 | | | | | | | | | | |
| 16 | | | | | | | | | | |
| 17 | | 0 | 60 | | | | | | -becomes highly laminated in small fractures, micaceous | |
| | | 60 | | | | | | | | |
| 18 | | | | | | | | CL | Silty Clay (CL)<br>yellowish brown (10yr 5/6) slightly moist, very hard; medium plasticity<br><br>-caliche for 8" | |
| 19 | | | | | | | | | | Casing |
| 20 | | | | | | | | | | |

Tetra Tech EM Inc.

**Log of Boring: MW-7**

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW

***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | clay becomes medium stiff | |
| 21 | | | | | | | | | | |
| 22 | | | | | | | | | | |
| | | 60 | | | | | | | | |
| 23 | | | | | | | | | | |
| 24 | | | | | | | | | | Sand |
| 25 | | | | | | | | | | |
| 26 | | | | | | ▽ | | | Sandy Clay (CL)<br>yellowish brown (10yr 4/6) 80% clay, 20% coarse grained sand, very soft, sand 2 mm., wet at 26' | |
| 27 | | | | | | | | MH | Clay (MH)<br>yellowish brown (10yr 4/6) 5% silt, 95% clay, very moist, high plasticity, medium stiff<br><br>-clay becomes hard | |
| | | 60 | | | | | | | | |
| 28 | | | | | | | | | | |
| 29 | | | | | | | | | | |
| 30 | | | | | | | | | | |

Tetra Tech EM

# Log of Boring: MW-8

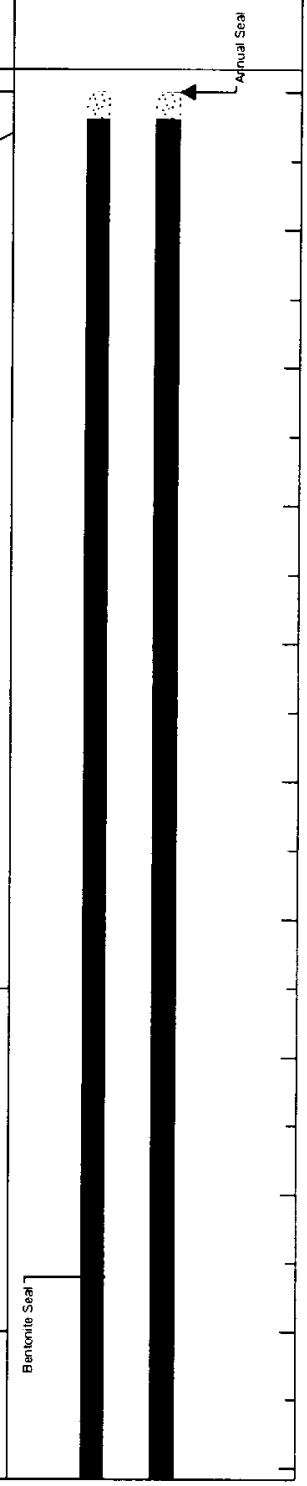
**Logged By:** JMS/KAG
**Logging Consultant:**
**Drilling Company:** GREGG DRILLING CO.

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** MW
**Surface Elevation (feet MSL):**
**Top of Casing Elevation (feet MSL):** 60.70

**Drilling Method:** 18" SPLIT SPOON
**Boring Started:** 01/27/99
**Completed:** 01/27/99
**Boring Depth (feet bgs):** 45.00
**Boring Diameter (inches):**
**Casing Diameter (inches):** 2.00

| DEPTH (FEET) | DRIVE INTERVAL / RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Ground Surface |
| 0 | | | | | | | CL | Asphalt (4") |
| 1 | | | | | | | | Clay (CL)<br>black (2.5/y); slightly moist, 10% silt, 90% clay, plastic, stiff, micaceous<br><br>color change at 1.5' dark brown (7.5yr 3/2) iron staining present, rootlets |
| 2 | | | | | | | | |
| 3 | 78 | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | ML | Clayey Silt (ML)<br>yellowish brown (10yr 5/6) dry, slightly plastic, moderate cementation, micaceous |
| 8 | 36 | | | | | | | |
| 9 | | | | | | | CL | Clay (CL)<br>yellowish brown (10yr 5/6) slightly moist, plastic, firm, 10% silt, 90%clay, micaceous, mottled with very dark grayish brown (10yr 3/2) |
| 10 | 0 | 52 | | | | | | |

COMPLETION DETAILS



Tetra Tech EM Inc.

**Log of Boring: MW-8**

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW

***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL / RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 36 | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | 36 | | | | | | | | |
| | 0 | 52 | | | | | | | |
| 15 | | | | | | | SM | Silty Sand (SM)<br>dark yellowish brown (10y 4/4); slightly moist, very dense, 70% very fine sand, 30% silt, micaceous, iron staining present | |
| 16 | | | | | | | | | |
| 17 | 36 | | | | | | | | Casing |
| 18 | | | | | | | SC | Clayey Sand (SC)<br>dark yellowish brown (10yr 4/4), slightly moist, 70% very fine grained sand, 30% clay, low plasticity, mottled with gray sand (2.5y 5/1), micaceous | |
| 19 | | | | | | | | | |
| | 30 | | | | | | ML | | |
| 20 | | | | | | | | | |

Tetra Tech EM Inc.

## Log of Boring: MW-8

**Project:** REMEDIAL INVESTIGATION
**Location:** MW
**Project No:** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 50 | | | | | | Silty Clay (ML)<br>brownish yellow (10yr 6/6), slightly moist, dense, slightly plastic, micaceous, stringers of gray clay (2.5y 5/1) | |
| 21 | | | | | | | | | | |
| 22 | | | | | | | | | -of blue material present at 22' soil becomes highly laminated | |
| 23 | | 42 | | | | | | | -soil becomes compressed through 22' to 25' due to sand lithology change at 25' | |
| 24 | | | | | | | | SW | Sand (SW)<br>yellowish brown (10yr 5/6) wet, fine grained sand, micaceous | |
| 25 | | | | | | | | | | Sand |
| 26 | | 42 | | | | | | | | |
| 27 | | | | | | | | | | |
| 28 | | | | | | | | | | |
| 29 | | 24 | | | | | | | | |
| 30 | | | | | | | | | | |

Tetra Tech EM Inc.

## Log of Boring: MW-8

**Project:** REMEDIAL INVESTIGATION
**Location:** MW
**Project No:** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 31 | | | | | | | | | | |
| 32 | | 60 | | | | | | SC | Sandy Clay (SC)<br>light olive brown (2.5y 5/4) wet, 40% fine grained sand, 60% clay, plastic, medium dense | |
| 33 | | | | | | | | | | |
| 34 | | | | | | | | SM | Sand (SM)<br>light olive brown (2.5y 5/4) wet, 90% fine grained sand, 10% silt, non-plastic, dense | Silt Trap |
| 35 | | | | | | | | | | |
| 36 | | | | | | | | | | |
| 37 | | 60 | | | | | | | | |
| 38 | | | | | | | | GP | Sandy Gravel (GP)<br>yellowish brown (10yr 4/6) wet, loose, 40% gravel up to 1", 60% coarse grained to fine sand, 10% quartz, iron staining present | |
| 39 | | | | | | | | | | Backfill |
| 40 | | | | | | | | CL | | |

Tetra Tech EM Inc.

## Log of Boring: MW-8

**Project:** REMEDIAL INVESTIGATION
**Location:** MW
**Project No:** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 41 | | | | | | | | CL | Silty Clay (CL)<br>yellowish brown (10yr 5/4) very moist, 10% very fine sand, 40% silt, 50% clay, very hard, stringers of caliche | |
| 42 | | 60 | | | | | | | | |
| 43 | | | | | | | | SM | Silty Sand (SM)<br>yellowish brown (10y 5/4) wet, 70% fine grained sand, 30% silt, loose | |
| 44 | | | | | | | | CL | Sandy Clay (CL)<br>yellowish brown (10y 5/4) wet, 20% fine grained sand, 10% silt, 70% clay, hard, dense | |
| 45 | | | | | | | | | Total depth of boring = 45 feet | |
| 46 | | | | | | | | | | |
| 47 | | | | | | | | | | |
| 48 | | | | | | | | | | |
| 49 | | | | | | | | | | |
| 50 | | | | | | | | | | |

**Tetra Tech EM**

# Log of Boring: MW-9

***Logged By:*** JMS/KAG
***Logging Consultant:***
***Drilling Company:*** GREGG DRILLING CO.

***Project:*** REMEDIAL INVESTIGATION
***Project No:*** G0069.324.B.05.01
***Location:*** MW
***Surface Elevation (feet MSL):***
***Top of Casing Elevation (feet MSL):*** 57.20

***Drilling Method:*** 18" SPLIT SPOON
***Boring Started:*** 02/01/99
***Completed:*** 02/01/99
***Boring Depth (feet bgs):*** 30.00
***Boring Diameter (inches):***
***Casing Diameter (inches):*** 2.00

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface | Annual Seal |
| | | | | | | | | CH | Asphalt (4") | |
| 1 | | | | | | | | | Silty Clay (CH)<br>brown (10yr 5/3), slightly moist, 30% silt, 10% very fine sand, 60% clay, high plasticity, pieces of asphalt and gravel up to 1", soft | |
| 2 | | 0 | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | color change dark gray (5yr 4/1) micaceous, gravel fragments up to .5", becomes stiff | |
| 6 | | 30 | | | | | | | | Bentonite Seal |
| 7 | | | | | | | | | color change at 8', very dark grayish brown (10yr 3/2), iron staining | |
| 8 | | 12 | | | | | | SC | Sandy Clay (SC)<br>dark yellowish brown (10yr 4/4) moist, medium plasticity, 30% very fine sand, 70% clay, iron staining, micaceous | |
| 9 | | 12 | | | | | | | -stringers of caliche at 9.5' | |
| 10 | | | | | | | | | -gravel fragments up to .5", 10% quartz | |

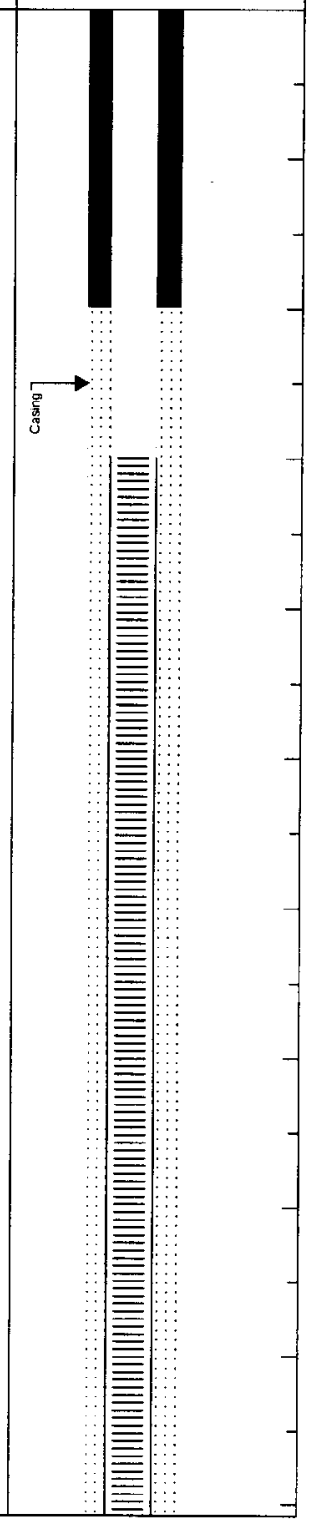
Tetra Tech EM Inc.

**Log of Boring: MW-9**

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW

***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 24 | | | | | | | | |
| 11 | | | | | | | | | | |
| 12 | | 12 | | | | | | | | |
| 13 | | 12 | | | | | | | | |
| 14 | | 18 | | | | | | | | |
| 15 | | | | | | | | | -very soft at 15.5', moisture content increases to very moist | |
| | | 18 | | | | | | | -hard at 16', caliche stringer from 16.0'-16.5' | |
| 16 | | | | | | | | | -very fine sand lens from 17.2'-17.4' | |
| 17 | | 18 | | | | | | | | |
| 18 | | | | | | | | | | |
| | | 18 | | | | | | | | |
| 19 | | | | | | | | | | |
| 20 | | | | | | | | | | |



**Tetra Tech EM**

# Log of Boring: MW-10

***Project:*** REMEDIAL INVESTIGATION
***Project No:*** G0069.324.B.05.01
***Location:*** MW
***Surface Elevation (feet MSL):***
***Top of Casing Elevation (feet MSL):*** 58.20

***Drilling Method:*** 18" SPLIT SPOON
***Boring Started:*** 02/01/99
***Completed:*** 02/01/99
***Boring Depth (feet bgs):*** 30.00
***Boring Diameter (inches):***
***Casing Diameter (inches):*** 2.00

***Logged By:*** JMS/KAG
***Logging Consultant:***
***Drilling Company:*** GREGG DRILLING CO.

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface | Annual Seal |
| | | | | | | | | ML | Asphalt (4") | |
| 1 | | | | | | | | | Silty Clay (ML)<br>black (7.5yr 2.5/1); 20% silt, 80% clay, slightly moist, firm | |
| 2 | | 0 | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | Silty Clay (ML)<br>very dark gray (7.5yr 3/1); 20% silt, 80% clay, slightly moist, firm | |
| 6 | | 18 | | | | | | | color change at 10" brown (10yr 4/3) | |
| 7 | | | | | | | | | | Bentonite Seal |
| 8 | | 24 | | | | | | | | |
| 9 | | | | | | | | SC | | |
| 10 | | 18 | | | | | | CL | Sandy Clay (SC)<br>dark yellowish brown (10yr 4/4) slightly moist, 30% very fine sand, 70% clay, stringers of caliche | |

Tetra Tech EM Inc.

## *Log of Boring: MW-10*

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW
***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL / RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CL | Silty Clay (CL)<br>yellowish brown (10yr 5/6) slightly moist, 30% silt, 70% clay, hard, gravel 3/4 inch, quartz 10%<br><br>gets soft at 13.5' | Casing |
| 11 | 24 | | | | | | | | |
| 12 | | | | | | | | | |
| | 18 | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| | 18 | | | | | | | | |
| 15 | | | | | | | SC | Sandy Clay (SC)<br>yellowish brown (10yr 5/6) slightly moist, 15% silt, 30% fine sand, 55% clay, soft, dense | |
| 16 | 24 | | | | | | | sand becomes loose | |
| | | | | | | | | becomes wet at 24.5'<br>becomes laminated, micaceous | |
| 17 | | | | | | | | | |
| | 18 | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| | 18 | | | | | | | | |
| 20 | | | | | | | | | |

Tetra Tech EM Inc.

## Log of Boring: MW-10

**Project:** REMEDIAL INVESTIGATION
**Location:** MW
**Project No:** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL / RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 21 | 18 | | | | | | | | |
| 22 | 18 | | | | | | | | Sand |
| 23 | | | | | | | | | |
| 24 | 24 | | | | WL | | | | |
| 25 | | | | | | | | | |
| 26 | 18 | | | | | | ML | Silty Clay (ML)<br>olive brown (2.5y 4/4); 30% silt, 10% fine sand, 60% clay, wet | |
| 27 | 18 | | | | | | | sand lense to .5" loose<br>clay content increases, becomes very soft | |
| 28 | | | | | | | | | |
| 29 | 24 | | | | | | | | |
| 30 | | | | | | | | | |

Tetra Tech EM

# Log of Boring: MW-11

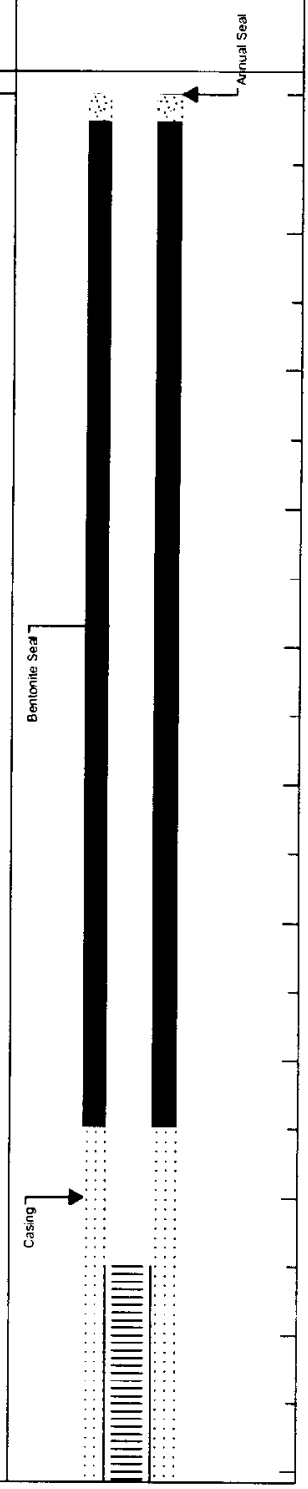
**Logged By:** JMS/KAG
**Logging Consultant:**
**Drilling Company:** GREGG DRILLING CO.

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** MW
**Surface Elevation (feet MSL):**
**Top of Casing Elevation (feet MSL):** 49.40

**Drilling Method:** 18" SPLIT SPOON
**Boring Started:** 02/02/99
**Completed:** 02/02/99
**Boring Depth (feet bgs):** 18.50
**Boring Diameter (inches):**
**Casing Diameter (inches):** 2.00

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface |
| 0 | | | | | | | | CL | Silty Clay (CL)<br>yellowish brown (10yr 5/4); 30% silt, 70% clay, slightly moist, medium plasticity, lenses of black clay (7.5yr 2.5/1) |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| | | 0 | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | Silty Clay (CL)<br>yellowish brown (10YR 5/4) 30% silt, 70% clay, slightly moist, low plasticity, caliche stringers, micaceous, FeO3 staining, firm<br><br>dark staining to 8.5' |
| 6 | | 24 | | | | | | | |
| 7 | | | | | | | | | |
| | | 18 | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | 18 | | | | | | | |
| 10 | | | | | | | | MH | |

COMPLETION DETAILS



**Tetra Tech EM Inc.**

## *Log of Boring: MW-11*

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW
***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL / RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 24 | | | | | | MH | Sandy Clay (MH)<br>yellowish brown (10yr 5/4) 10% silt, 20% very fine sand, 50% clay, high plasticity, soft , rootlets<br><br>becomes hard at 11'8"<br><br>wet at 12' | Sand |
| 12 | | | | | WL | | | | |
| 13 | 18 | | | | | | | | |
| 14 | 18 | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | 24 | | | | | | | | |
| 17 | 12 | | | | | | | | |
| 18 | | | | | | | | Total depth of boring = 18.5 feet | Backfill<br>Silt Trap |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

**Tetra Tech EM**

# Log of Boring: MW-12

***Project:*** REMEDIAL INVESTIGATION
***Project No:*** G0069.324.B.05.01
***Location:*** MW
***Surface Elevation (feet MSL):***
***Top of Casing Elevation (feet MSL):*** 60.90

***Drilling Method:*** 18" SPLIT SPOON
***Boring Started:*** 02/03/99
***Completed:*** 02/03/99
***Boring Depth (feet bgs):*** 34.00
***Boring Diameter (inches):***
***Casing Diameter (inches):***

***Logged By:*** JENNIFER SANDERS
***Logging Consultant:***
***Drilling Company:*** GREGG DRILLING CO.

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Ground Surface | Annual Seal |
| 0 | | | | | | | | CL | Asphalt | |
| | | | | | | | | | Clay (CL)<br>dark gray (2.5y 4/1) slightly moist, 20% silt, 80% clay, high plasticity, stiff, minor gravels up to 1" | |
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| | | 60 | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | color change at 5' dark grayish brown (2.5y 4/2) minor gravel up to 4mm | |
| 6 | | 24 | | | | | | | | |
| 7 | | | | | | | | | Silty Clay (CL)<br>dark yellowish brown (10YR 4/4) dry; 30% silt, 70% clay, hard, micaceous, laminated<br>mottled with light olive brown (2.5y 5/3) to 10' | |
| | | 18 | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| | | 18 | | | | | | | | |
| 10 | | | | | | | | | | |

Tetra Tech EM Inc.

**Log of Boring: MW-12**

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW

***Project No:*** G0069.324.B.05.01

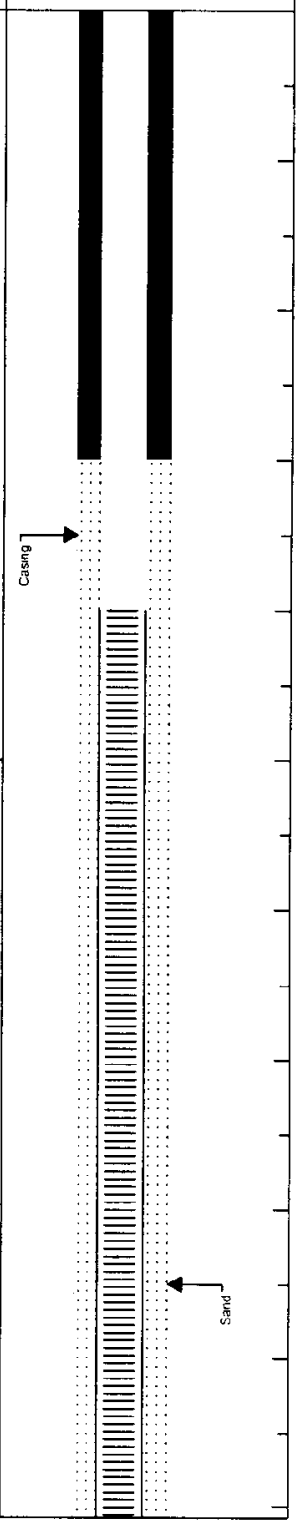
| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | | 24 | | | | | | | | |
| 12 | | | | | | | | | | Bentonite Seal |
| 13 | | 18 | | | | | | | | |
| 14 | | 18 | | | | | | | | |
| 15 | | | | | | | | | | |
| 16 | | 24 | | | | | | | | |
| 17 | | | | | | | | SC | Sandy Clay (SC)<br>yellowish brown (10yr 5/6) dry, 10% silt, 20% fine sand, 70% clay, hard, micaceous, becomes soft at 18.5' | |
| 18 | | 18 | | | | | | | | |
| 19 | | 18 | | | | | | | | |
| 20 | | | | | | | | | | |

Tetra Tech EM Inc.

## Log of Boring: MW-12

**Project:** REMEDIAL INVESTIGATION
**Location:** MW
**Project No:** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 6 | | | | | | | | |
| 21 | | 12 | | | | | | | | |
| | | 6 | | | | | | | | |
| 22 | | | | | | | | | | |
| | | 18 | | | | | | | | |
| 23 | | | | | | | | | | |
| 24 | | 18 | | | | | | | | |
| 25 | | | | | | | | | Silty Clay (CL)<br>light olive brown (2.5y 5/4) wet, soft, medium plasticity, 30% silt, 70% clay, minor gravel up to 5mm<br><br>-caliche 27'-28' | |
| | | | | | | | | CL | | |
| 26 | | 24 | | | | | | | | |
| 27 | | | | | | | | | | |
| | | 18 | | | | | | | | |
| 28 | | | | | | | | | | |
| 29 | | 18 | | | | | | | | |
| 30 | | | | | | | | | | |



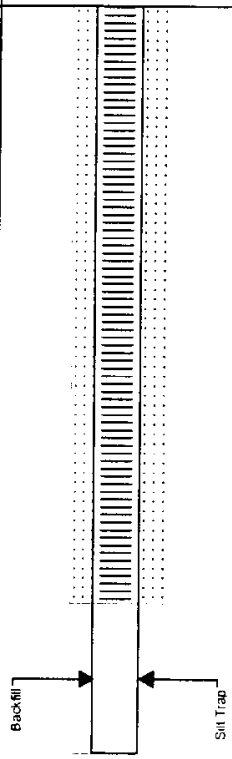
Tetra Tech EM Inc.

## *Log of Boring: MW-12*

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW

***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 31 | | 18 | | | | | | | | |
| 32 | | 0 | | | | | | | becomes dry at 32'<br>caliche | |
| 33 | | | | | | | | | | |
| 34 | | | | | | | | | -staining present<br>-becomes moist at 22' color change brown (10yr 4/3)<br>-color change at 22.5' brownish yellow (10yr 6/6), dry<br>Total depth of boring = 34 feet | |
| 35 | | | | | | | | | | |
| 36 | | | | | | | | | | |
| 37 | | | | | | | | | | |
| 38 | | | | | | | | | | |
| 39 | | | | | | | | | | |
| 40 | | | | | | | | | | |



**Tetra Tech EM**

# Log of Boring: MW-13

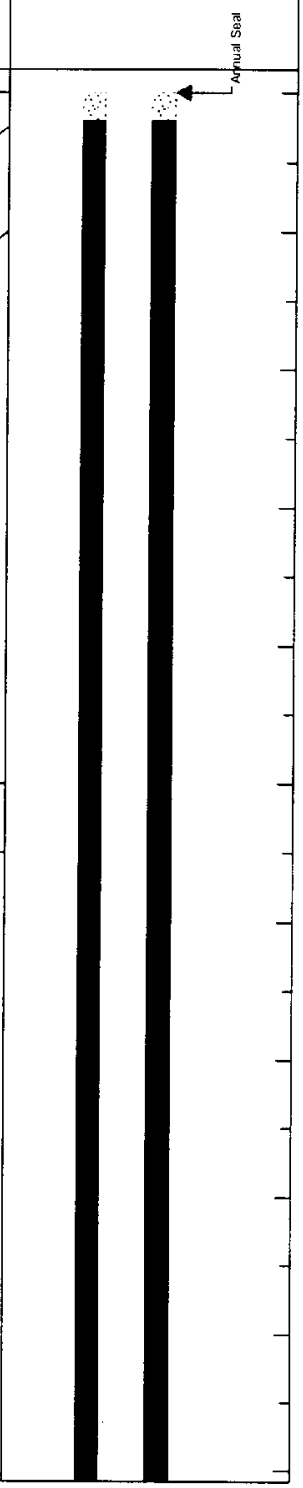
***Project:*** REMEDIAL INVESTIGATION
***Project No:*** G0069.324.B.05.01
***Location:*** MW
***Surface Elevation (feet MSL):***
***Top of Casing Elevation (feet MSL):*** 64.30

***Drilling Method:*** 18" SPLIT SPOON
***Boring Started:*** 01/26/99
***Completed:*** 01/26/99
***Boring Depth (feet bgs):*** 31.00
***Boring Diameter (inches):***
***Casing Diameter (inches):*** 2.00

***Logged By:*** J. SANDERS/J. BURKE
***Logging Consultant:***
***Drilling Company:*** GREGG DRILLING CO.

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | Ground Surface |
| | | | | | | | | SW | Asphalt |
| | | | | | | | | | Sand (SW)<br>yellowish brown (10yr 5/4) moist, poorly sorted, subrounded, fine to medium sand |
| 1 | | | | | | | | CL | Clayey Silt with Sand (CL)<br>yellowish brown (10YR 5/4) moist; medium plasticity, medium stiffness, approximately 5% coarse sand to trace gravel, calcite mineralization |
| 2 | | | | | | | | | |
| | | 58 | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | No Recovery |
| | | | | | | | | CL | Clayey Silt with Sand (CL)<br>yellowish brown (10YR 5/4) moist; medium plasticity, medium stiff, approximately 5% coarse sand to trace gravel, calcite mineralization |
| | | 12 | 19 | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| | | 18 | 20 | | | | | | |
| 8 | | | | | | | | | |
| | | 18 | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

COMPLETION DETAILS



Tetra Tech EM Inc.

**Log of Boring: MW-13**

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW

***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL / RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| | 18 | 40 | | | | | | -Sand content increase to approximately 10%<br>-about 6" of saturated zone | Bentonite Seal |
| 11 | | | | | | | | | |
| | 18 | 40 | | | | | ML | Sandy Silt (ML)<br>yellowish brown (10YR 5/6); moist, low plasticity, medium stiffness, appproximately 30% fine to medium subrounded sand, trace gravel (decomposed sandstone/siltstone)<br>Sand and gravel content vary with depth | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| | 18 | | | | | | | Gravelly Silt (ML)<br>yellowish brown (10YR 5/6); moist, low to medium plasticity, stiff, 10-30% subangular gravel (decomposed sand and siltstone) trace coarse sand | |
| 14 | | | | | | | | | |
| | 18 | | | | | | | | |
| 15 | | | | | | | | | |
| | 0 | 40 | | | | | | | |
| 16 | | | | | | | | | |
| | 18 | | | | | | | | |
| 17 | | | | | | | | | |
| | 18 | | | | | | | | |
| 18 | 0 | 50 | | | | | | | |
| | | | | | | | | No Recovery | |
| | | | | | | | SP | Sand (SP)<br>brown (10yr 5/3) moist, subrounded, fine sand, dense, mottled with occasional organic matter | |
| 19 | 0<br>12 | 80 | | | | | | | |
| 20 | | | | | | | | | Casing |

Tetra Tech EM Inc.

**Log of Boring: MW-13**

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW

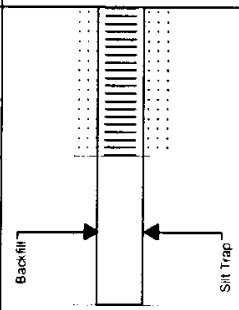
***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL / RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ML | Silt with Sand (ML)<br>yellowish brown (10yr 5/4) moist, low plasticity, very stiff, approximately 5-10% fine sand, occasional well rounded gravel | Casing |
| 21 | 18 | | | | | | | | |
| 22 | 0<br>18 | 60 | | | | | | | |
| 23 | | | | | | | | | |
| 24 | 18 | 70 | | | | | | | |
| 25 | 18<br>0 | 70 | | | | | | Sand Silt (ML)<br>yellowish brown (10yr 5/4) moist, low plasticity, very stiff, approximately 30% well rounded fine sand | Sand |
| 26 | | | | | | | | | |
| 27 | 18<br>0 | 80 | | | | | | | |
| 28 | 18 | | | | | | | | |
| | | | | | | | SM | Silt Sand (SM)<br>brown (10yr 5/3) wet, subrounded fine sand, approximately 30% silt, mottled with very dark gray (10yr 3/1) | |
| 29 | | | | | | | ML | | |
| 30 | 18 | | | | | | | | |

Tetra Tech EM Inc.

## Log of Boring: MW-13

**Project:** REMEDIAL INVESTIGATION
**Location:** MW
**Project No:** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Sandy Silt (ML)<br>yellowish brown (10YR 5/4); moist, low plasticity, very stiff, approximately 10% fine sand, occasional gravel, CaCO3 mineralization |  |
| 31 | | | | | | | | | Total depth of boring = 31 feet | |
| 32 | | | | | | | | | | |
| 33 | | | | | | | | | | |
| 34 | | | | | | | | | | |
| 35 | | | | | | | | | | |
| 36 | | | | | | | | | | |
| 37 | | | | | | | | | | |
| 38 | | | | | | | | | | |
| 39 | | | | | | | | | | |
| 40 | | | | | | | | | | |

Tetra Tech EM

# Log of Boring: MW-14

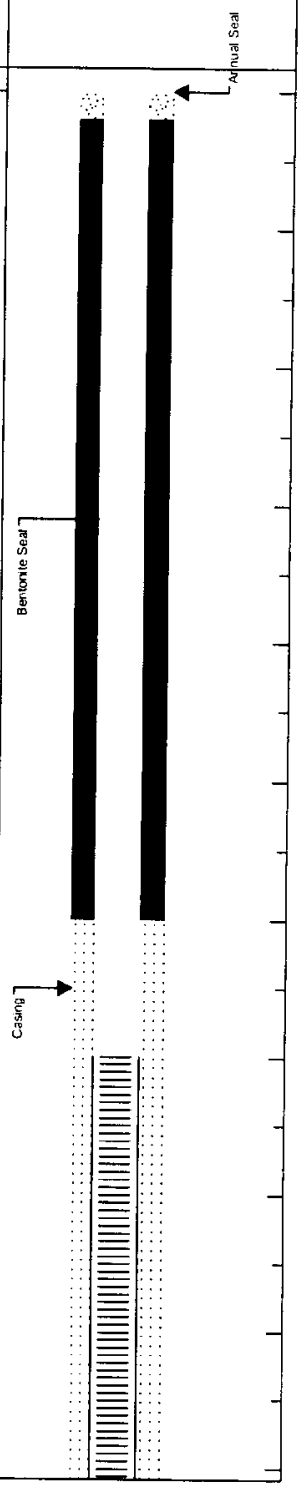
**Logged By:** KAG
**Logging Consultant:**
**Drilling Company:** GREGG DRILLING CO.

**Project:** REMEDIAL INVESTIGATION
**Project No:** G0069.324.B.05.01
**Location:** MW
**Surface Elevation (feet MSL):**
**Top of Casing Elevation (feet MSL):** 43.20

**Drilling Method:** 18" SPLIT SPOON
**Boring Started:** 02/02/99
**Completed:** 02/02/99
**Boring Depth (feet bgs):** 20.00
**Boring Diameter (inches):**
**Casing Diameter (inches):** 2.00

| DEPTH (FEET) | DRIVE INTERVAL / RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | Ground Surface |
| | | | | | | | CL | Silty Clay (CL)<br>Hand augered to 5' |
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| | 60 | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | Silty Clay (CL)<br>very dark gray (10yr 3/1) slightly moist, very stiff, low plasticity |
| 6 | 24 | | | | | | | |
| 7 | | | | | | | ML | Clayey Sandy Silt (ML)<br>dark yellowish brown (10yr 4/4) mottled with gray (10yr 5/1) moist, dense, slightly plastic, sand, fine<br><br>grades into |
| | 18 | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | SC | |
| | 18 | | | | | | | |
| 10 | | | | | | | | |

COMPLETION DETAILS



Tetra Tech EM Inc.

## *Log of Boring: MW-14*

***Project:*** REMEDIAL INVESTIGATION
***Location:*** MW
***Project No:*** G0069.324.B.05.01

| DEPTH (FEET) | DRIVE INTERVAL | RECOVERY (IN) | BLOW COUNT | SAMPLE ID | OVM (PPM) | WATER LEVEL | GRAPHIC LOG | USCS SOIL TYPE | DESCRIPTION | COMPLETION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | | 24 | | | | | | | Clayey Silt Sand (SC)<br>reddish brown (5yr 4/3) very moist to wet, dense, fine to medium grained, slightly plastic<br><br>increase in clay content | |
| 12 | | | | | | | | | | |
| 13 | | 18 | | | | | | | | Sand |
| 14 | | 12 | | | | | | | | |
| 15 | | | | | | | | | | |
| 16 | | 12 | | | | | | | | |
| 17 | | | | | | | | GW | Sandy Gravel (GW)<br>yellowish brown (10yr 4/4) wet, medium dense | |
| 18 | | 18 | | | | | | | | |
| 19 | | 18 | | | | | | CL | Silty Clay (CL)<br>dark yellowish brown (10yr 4/4) mottled with gray (10yr 5/1) moist, very stiff, medium plasticity | |
| 20 | | | | | | | | | | |

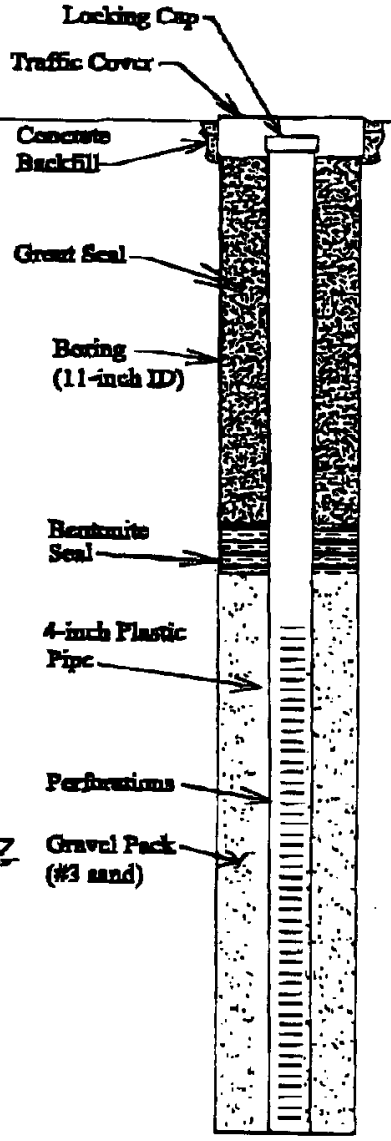
CONCORD NAVEL WEAPONS STATION

LOG OF BORING MW1A-17

Equipment: Hollow Stem Auger

Elevation: _____ Drill Date: 8/31/99

| Ring Sampler Blows/6-inches | Depth (ft.) | Drive/Sample | Graphic Log | |
|---|---|---|---|---|
| | 0 | | | Asphalt |
| | | | | Brown silty sand, probably sub-base (SW) |
| | | | | Black, carbonaceous silty clay (CH) |
| 8, 12, 20 | 5 | | | Transition, 6-ft to 7-ft (more oxidized) |
| 14, 22, 30 | 10 | | | Brown Silty Clay (CH) |
| | | | | Sample 990831-49 |
| 15, 30, 45 | 15 | | | Transition in drive tubes |
| | | | | Green Silty Clay, slight fuel odor (CL) |
| | | | | Gradational change at 18-ft, more sand |
| 15, 20, 28 | 20 | | | Green Sandy, Silty Clay, slight fuel odor (SC) |
| | | | | Transition, about 22-ft, the assumed water table |
| 15, 15, 30 | 25 | | | Mottled white and Green zones, Sandy Clay no fuel odor, (CL) |
| 12, 30, 34 | 30 | | | Sandy, Silty Clay, permeable first water at about 28-ft. depth (raised to about 22-ft) (SC) |
| | | | | Sample 990831-50 |
| | | | | Total Depth, 30.17-ft |
| | 35 | | | |
| | 40 | | | |




Construction Sketch
(Completed 9-1-99)

Prepared For the Tyree Organization

Page 1 of 1 For This Boring Log

CONCORD NAVEL WEAPONS STATION
Concord, California

Log of the Monitoring Well With A Construction Sketch

Figure: 8

Job Number: _____

Approved by: _____ Date: _____

# APPENDIX C
# WATER QUALITY DATA SHEETS

LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 3/1/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB002

Samplers Name(s) DCM/SPP Sample No. 324026W170 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 3 VOA |
| | |

Lab Name APC

Delivery By ☒ Courier FEDEX ☐ Hand ___

Well No. SB002 Depth to Water 6.33

Well Diameter: 1" Well Depth 19.00

☐ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | Bottom | 6.33 | | | | | | | D.O. (mg/L) |
| 1245 | | | 2 L ± | 17.97 | 7.64 | -65.2 | 0.994 | 1406.1 | 14.84 |
| 1255 | | | | | | | | | |
| | | | | | | | | | |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/22/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB003

Samplers Name(s) DCM/SPP Sample No. 32402 GW/053 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 3- VOA'S |
| | |

Lab Name ___

Delivery By ☐ Courier ___ ☐ Hand ___

Well No. SB003 Depth to Water 17.90

Well Diameter: 1" Well Depth 22.00

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/L | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 738 | Bottom | 17.90 | 1 L | 18.13 | 7.15 | 164.5 | 1.084 | 285.4 | 8.71 | |
| 745 | | | | | | | | | | SAMPLE |
| | | | | | | | | | | |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 3/1 /02 Page 1 of 1

Project Name Naval Weapons Station - Concord Sampling Location SB04

Samplers Name(s) DCM/SPP Sample No. 324 02 GW 161 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. _____ DUP ☑

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| VOCs | 6 VOAs |
| | |

Lab Name APL

Delivery By ☑ Courier FEDEX ☐ Hand _____

Well No. SB04 Depth to Water 10.15

Well Diameter: 1" Well Depth 31'

☑ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height _____

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume _____

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O. (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 7:45 | 30' | 10.14 | 2 L | 17.81 | 7.62 | -431.2 | 0.926 | 1405.4 | 13.04 |
| 815 | | | | | | | | | SAMPLE - DUP |
| | | | | | | | | | |
| | | | | | | | | | |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 3/6/02 Page 1 of 1

Project Name Naval Weapons Station - Concord Sampling Location MW-178-5

Samplers Name(s) DCM/SPP Sample No. 324 01 GW FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. DUP ☐

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other

Purge Water Storage Container Type Storage Location

Date Purged Water Disposed Where Disposed

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 3 VOA |
| | |

Lab Name APC

Delivery By ☒ Courier FED EX ☐ Hand

Well No. 178-5 Depth to Water 12.32

Well Diameter: 2" Well Depth 31.2

☐ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height

☒ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

80% DTW

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/l | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 13:00 | | 12.35 | 250 ml/m | 19.77 | 7.63 | 158.7 | 0.502 | 10.9 | 9.67 | |
| 13:03 | | | " | 20.04 | 7.46 | 153.8 | 0.495 | 10.8 | 5.23 | |
| 13:06 | | | " | 20.24 | 7.39 | 148.2 | 0.499 | 9.8 | 4.61 | |
| 13:09 | | | " | 20.26 | 7.39 | 146.9 | 0.511 | 10.1 | 4.18 | |
| 13:12 | | | " | 20.28 | 7.38 | 145.7 | 0.519 | 10.4 | 4.11 | |
| | | | | | | | | | | |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/20/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location GB005 DOM 7-3-02

Samplers Name(s) DCM/SPP Sample No. 32402GW011 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| EPA 8260 | 3 - VOA's |
| | |

Lab Name APL LABS

Delivery By ☒ Courier FEDEX ☐ Hand ___

Well No. GB005 Depth to Water 10.76

Well Diameter: 1" Well Depth 25.00

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 0800 | Bottom | 13.62 | 1L | 17.65 | 6.51 | 162.4 | .530 | 417.2 | DO = 78.1% |
| 0810 | | | | | | | | | SAMPLE |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 3/ /02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB007

Samplers Name(s) DCM/SPP Sample No. 32402Gw171 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 826C B | 3 VOA |
| | |

Lab Name APC

Delivery By ☒ Courier ___ ☐ Hand ___

Well No. SB007 Depth to Water 2.21

Well Diameter: 1" Well Depth 28.00

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height 25.79

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume 1.28g

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks (D.O. Mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 1305 | Bottom | 2.21 | 2L | 18.75 | 7.17 | -228.5 | 0.956 | 1378.6 | 22.16 |
| 1315 | | 7.78 | | 18.43 | 7.21 | -235.1 | 0.951 | 560.7 | SAMPLE |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/26/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB009 pm 4.3.02

Samplers Name(s) DCM/SPP Sample No. 32405GW103 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. 4962 DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260B, TPHg | 6 VOA |
| TPHd | 1 Liter |

Lab Name APL

Delivery By ☒ Courier FEDEX ☐ Hand ___

Well No. SB009 Depth to Water 15.21

Well Diameter: 1" Well Depth ___

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks DO mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 755 | Bottom | 15.21 | 1L | 16.89 | 7.31 | -222.6 | 1.206 | 221.7 | 7.21 |
| 805 | | | | | | | | | Sample |
| | | | | | | | | | |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/27/02 Page 1 of __

Project Name Naval Weapons Station - Concord Sampling Location SB010

Samplers Name(s) DCM/SPP Sample No. 32405 GW 124 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ____ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ____

Purge Water Storage Container Type ____ Storage Location ____

Date Purged Water Disposed ____ Where Disposed ____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 3 VOA |
| | |

Lab Name APC

Delivery By ☒ Courier FedEx ☐ Hand ____

Well No. SB010 Depth to Water 10.96

Well Diameter: 1" Well Depth 31.0

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ____

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ____

80% DTW ____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks DO mg/L |
|---|---|---|---|---|---|---|---|---|---|
| 08:15 | Bottom | 10.96 | 1L | 18.65 | 7.79 | -73.8 | 0.486 | 99.7 | ~~[illegible]~~ 8.11 |
| 817 | | | 2L | 19.50 | 7.76 | -189.3 | 0.476 | 46.2 | 6.87 |
| 820 | | | | | | | | | SAMPLE |
| | | | | | | | | | |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/ /02 Page 1 of 1

Project Name Naval Weapons Station - Concord Sampling Location SB011

Samplers Name(s) DCM/SPP Sample No. 32402GW0027 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. _____ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260B | 3 VOA's |
| | |

Lab Name _____

Delivery By ☐ Courier _____ ☐ Hand _____

Well No. SB011 Depth to Water 8.92

Well Diameter: 1" Well Depth 16.00

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height _____

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume _____

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 16:19 | | 8.92 | | 17.43 | 7.17 | -166.5 | 0.697 | 1405.1 | DO% 37.8 3.30 |
| 16:20 | | | | | | | | | SAMPLE |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020

Date 2/21/02

Page 1 of

Project Name Naval Weapons Station - Concord

Sampling Location SB011

Samplers Name(s) DCM/SPP

Sample No. 32405GW030

FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke

Dated Jan. 23, 2001

C.O.C. No.

DUP ☒

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other

Purge Water Storage Container Type

Storage Location

Date Purged Water Disposed

Where Disposed

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 6 VOA's |

Lab Name APL

Delivery By ☒ Courier ☐ Hand

Well No. SB011

Depth to Water 11.71'

Well Diameter: 1"

Well Depth 16.0'

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet)

Water Column Height

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet)

Well Volume

80% DTW

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks DO mg/L |
|---|---|---|---|---|---|---|---|---|---|
| 0800 | Bottom | 11.71 | 1L | 17.8 | 6.90 | 17.2 | 0.577 | 1405.1 | 4.15 |
| 0810 | | | | | | | | | SAMPLE |
| 0815 | | | | | | | | | DUPLICATE |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/27/02 Page ___ of ___

Project Name N. 'al Weapons Station - Conc :d Sampling Location SB012

Samplers Name(s) DCM/SPP Sample No. 32405 Gw 123 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other MATRIX SPIKE

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260B, TPHg | 12 VOA |
| TPHd | 2 Liters |

Lab Name APC

Delivery By ☒ Courier FEDEX ☐ Hand ___

Well No. SB012 Depth to Water 13.21

Well Diameter: 1" Well Depth 31.0

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 730 | BOTTOM | 13.21 | 2 GAL | 18.15 | 7.48 | -147.5 | 0.675 | 593.2 | 4.29 |
| 745 | | | | | | | | | STOPPED |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/26/02 Page 1 of 1

Project Name Naval Weapons Station - Concord Sampling Location SB013 DCM 7.3.02

Samplers Name(s) DCM/SPP Sample No. _____ FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. _____ DUP ☐

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 40 mL HCl |
| TPHg & TPHg | 40 mL HCL & 1L |

Lab Name APL

Delivery By ☐ Courier _____ ☐ Hand _____

Well No. SB 013 Depth to Water 13.49

Well Diameter: 1 Well Depth 31'

☐ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height _____

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume _____

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks DO mg/L |
|---|---|---|---|---|---|---|---|---|---|
| 16:30 | Bottom | 13.49 | 1L | 19.71 | 7.40 | -99.1 | 0.797 | 489 | |
| | | | | | | | | | Sample 16:30 |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/26/02 Page 1 of ___

Project Name Naval Weapons Station - Concord Sampling Location SB014

Samplers Name(s) DCM/SPP Sample No. 32405 GW080 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. 4977 DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 3 VOAs |
| TPHg TPHd | 3 VOA's + 1 Liter |

Lab Name APL

Delivery By ☒ Courier Fed Ex ☐ Hand ___

Well No. ___ Depth to Water 12.51

Well Diameter: 1" Well Depth 31.0

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O. (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 740 | Bottom | 12.51 | ≈1 L | 17.61 | 7.48 | -67.0 | 1.156 | 21.8 | 5.10 |
| 750 | | | | | | | | | Sample |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/26/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB015 DCM 7-3-02

Samplers Name(s) DCM/SPP Sample No. 324056W120 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| | |
| | |

Lab Name ___

Delivery By ☐ Courier ___ ☐ Hand ___

Well No. SB015 Depth to Water 14.19

Well Diameter: 1" Well Depth 31.00

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/l Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 1550 | Bottom | 14.19 | 1L | 19.53 | 7.53 | -289.6 | 1.251 | 528.5 | 6.80 |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/26/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB016 DCM 7.3.02

Samplers Name(s) DCM/SPP Sample No. 32405 GW102 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. 4942 DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B, TPHg | 6 VOA |
| TPHd | 1 liter |

Lab Name APL

Delivery By ☒ Courier FEDEX ☐ Hand ___

Well No. SB016 Depth to Water 12.41

Well Diameter: 1" Well Depth 31.00

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/l | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 730 | Bottom | 12.41 | 1 liter | 17.45 | 7.34 | -353 | 0.805 | 197.3 | 4.88 | |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/25/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB018

Samplers Name(s) DCM/SPP Sample No. 32405GW099 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B, TPHg | 6 VOA |
| TPHd | 1 Liter Amber |

Lab Name ___

Delivery By ☐ Courier ___ ☐ Hand ___

Well No. SB018 Depth to Water 14.17

Well Diameter: 1" Well Depth ___

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 1600 | Bottom | 14.17 | 1 L | 20.15 | 7.43 | -158.9 | 1.791 | 72.1 | 4.58 |
| 1610 | | | | | | | | | SAMPLE |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/25/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB019 Dm 7.3.02

Samplers Name(s) DCM/SPP Sample No. 32405 GW098 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. 4976 DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B, TPHg | 6 VOA |
| TPHd | 1 Liter Amber |

Lab Name APC

Delivery By ☒ Courier Fed Ex ☐ Hand ___

Well No. SB019 Depth to Water 14.25

Well Diameter: 1" Well Depth 31'

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/L | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 14:20 | | | | 21.51 | 7.29 | -108.7 | 2.614 | 1422.6 | 4.50 | |
| | | | | | | | | | | Sample at 14:25 |
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# WATER-QUALITY SAMPLING LOG

LFR LEVINE FRICKE

Project No. 05506-00-020 Date 2/22/02 Page 1 of _

Project Name Naval Weapons Station - Concord Sampling Location SB020 DLM 7.3.02

Samplers Name(s) DCM/SPP Sample No. 32405GW1070 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. 5486 DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 3 VOA's |
| | |

Lab Name APC

Delivery By ☒ Courier FEDEX ☐ Hand _____

Well No. SB020 Depth to Water 12.16

Well Diameter: 1" Well Depth 31'

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height _____

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume _____

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O. mg/L |
|---|---|---|---|---|---|---|---|---|---|
| 1405 | Bottom | 12.16 | ≈1 L | 21.20 | 7.38 | -361.2 | 0.506 | 1420.1 | 3.36 |
| 1415 | | | | 20.89 | 7.47 | -372.3 | 0.491 | 1419.1 | SAMPLE |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/28/02 Page 1 of ___

Project Name Naval Weapons Station - Concord Sampling Location SB021 DM 7.3.02

Samplers Name(s) DCM/SPP Sample No. 32d05 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☑ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| VOC TPHg TPHd | 3 VOAs 1L |
| | |

Lab Name APL

Delivery By ☐ Courier ___ ☐ Hand ___

Well No. SB 021 Depth to Water 12.88

Well Diameter: 1" Well Depth ___

☑ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/l Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 6:50 | Bottom | 12.88 | 1L | 21.03 | 7.56 | -331.1 | 1.871 | 160.7 | 16.26 |
| | | | | | | | | | |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/22/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB022 DCM 7.3.02

Samplers Name(s) DCM/SPP Sample No. 82405GW054 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 3 - VOA's |
| | |

Lab Name ___

Delivery By ☐ Courier ___ ☐ Hand ___

Well No. SB022 Depth to Water 15.57

Well Diameter: 1" Well Depth 31.00

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/l | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 8:00 | | 15.57 | | 17.66 | 7.48 | -340.2 | 0.422 | 1404.3 | 3.95 | |
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LFR LEVINE·FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/22/02 Page 1 of 1

Project Name Naval Weapons Station - Concord Sampling Location SB022 DUP 7.3.02

Samplers Name(s) DCM/SPP Sample No. 32405GW071/72 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. _____ DUP ☒

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | 6 - VOA's |
| | |

Lab Name APL

Delivery By ☒ Courier FEDEX ☐ Hand _____

Well No. SB022 Depth to Water 15.54

Well Diameter: 1" Well Depth 31'

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height _____

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume _____

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O. (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 1445 | Bottom | 15.54 | ≈1 L | 21.20 | 7.73 | -411.3 | 0.846 | 1423.2 | 2.58 |
| 1455 | | | | | | | | | SAMPLE |
| 1500 | | | | | | | | | DUPLICATE |
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LFR LEVINE/FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/22/02 Page 1 of

Project Name Naval Weapons Station - Concord Sampling Location SB024 DCM 7.3.02

Samplers Name(s) DCM/SPP Sample No. 32405GW073 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. DUP ☐

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other

Purge Water Storage Container Type Storage Location

Date Purged Water Disposed Where Disposed

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B, TPHg | 6 VOA's |
| TPHd | 1 Liter Amber |

Lab Name APC

Delivery By ☒ Courier FEDEX ☐ Hand

Well No. SB024 Depth to Water 12.34

Well Diameter: 1" Well Depth 31.0'

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume

80% DTW

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O. (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 1558 | BOTTOM | 12.34 | ≈1 L | 20.7 | 7.56 | -144.6 | 0.982 | 1316.3 | 3.72 |
| 1600 | | | | | | | | | SAMPLE |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/27/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB025

Samplers Name(s) DCM/SPP Sample No. 32405 GW 143 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B, TPHg | 6 VOA |
| TPHd | 1 Liter |

Lab Name APC

Delivery By ☒ Courier FedEx ☐ Hand ___

Well No. SB025 Depth to Water 13.84

Well Diameter: 1" Well Depth 25'

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/L | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 87.27 | Bottom | 13.84 | 1L | 15.9 | 7.17 | -176.4 | 1.225 | 1396 | 4.3 | |
| | | | | | | | | | | Sample |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/ /02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB026

Samplers Name(s) DCM/SPP Sample No. 32405 GW 144 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260B TPH | 6 VOA |
| TPH8 | 1 Liter |

Lab Name APC

Delivery By ☒ Courier FedEx ☐ Hand ___

Well No. SB026 Depth to Water 14.74

Well Diameter: 1" Well Depth ___

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/l | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 7:35 | Bottom | 14.74 | 1L | 17.99 | 7.32 | -232 | 0.954 | 131.6 | 6.84 | |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/28/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB027

Samplers Name(s) DCM/SPP Sample No. 324056W145 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260B TPHg | 6 VOA's |
| TPHd | 1 Liter |

Lab Name APC

Delivery By ☒ Courier Fedex ☐ Hand ___

Well No. SB027 Depth to Water 16.24

Well Diameter: 1" Well Depth 31.0

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 750 | Bottom | 16.24 | 1L | 19.29 | 7.67 | -282.1 | 1.054 | 69.6 | 7.48 |
| 800 | | | | | | | | | SAMPLE |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/28/02 Page 1 of 1

Project Name Naval Weapons Station - Concord Sampling Location SB 028

Samplers Name(s) DCM/SPP Sample No. 324 18 GW 158 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. _____ DUP ☐

Purge Method: ☑ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| | 6 VOAs |
| | 1 Liter Amber |

Lab Name ADL

Delivery By ☐ Courier _____ ☐ Hand _____

Well No. SB 028 Depth to Water 16.62

Well Diameter: _____ Well Depth 31'

☑ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height 14

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume .72 g

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 2:55 | 31 | 16.62 | 1L | 21.82 | 7.57 | -147.8 | 1.333 | 48.0 | 17.76 |
| 300 | | | | | | | | | SAMPLE |
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LFR LEVINE-FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/28/02 Page 1 of 1

Project Name Na Weapons Station - Concor Sampling Location SB 029

Samplers Name(s) DCM/SPP Sample No. 324 18 GW 154 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. _____ DUP ☐

Purge Method: ☑ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| | 6 VOAs |
| | 1 L Amber |

Lab Name ADL

Delivery By ☐ Courier _____ ☐ Hand _____

Well No. SB 029 Depth to Water 17.25

Well Diameter: _____ Well Depth 31

☑ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height _____

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume _____

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 320 | 31' | 17.25 | 1.5L | 21.97 | 7.62 | -134.7 | 1.294 | 661.2 | 12.08 |
| 325 | | | | | | | | | Sample |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 3/8/02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB033 - STEP OUT

Samplers Name(s) DCM/SPP Sample No. 32405GW230 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B, TPHg | 6 VOA |
| TPHd | 1 Liter |

Lab Name APC

Delivery By ☒ Courier Fed Ex ☐ Hand ___

Well No. SB033 Depth to Water 2.12'

Well Diameter: 1" Well Depth 31'

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/L Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 7:50 | 27' | 2.12 | 4L | 15.75 | 8.05 | -501.7 | 0.441 | 449 | 1.51 |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 3/8 /02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location SB039 - STEP-OUT

Samplers Name(s) DCM/SPP Sample No. 32418GW239 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260B, TPHg | 6 VOA's |
| TPHd | 1 LITER |

Lab Name APC

Delivery By ☒ Courier FED EX ☐ Hand ___

Well No. SB039 Depth to Water 15.65

Well Diameter: 1" Well Depth 31.00

☒ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Remarks D.O (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| 12:00 | 30'± | 15.65 | 1 L | 18.42 | 7.44 | -399.5 | 0.757 | 1408.2 | 3.76 |
| 12:03 | | | 2 L | 19.13 | 7.34 | -473.8 | 0.769 | 1410.8 | 2.12 |
| 12:10 | | | | | | | | | SAMPLE |
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LFR LEVINE•FRICKE

# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/ /02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location GOLF COURSE

Samplers Name(s) DCM/SPP Sample No. 324GW201 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260 B | |
| | |

Lab Name ___

Delivery By ☐ Courier ___ ☐ Hand ___

Well No. GOLF COURSE Depth to Water 6.92

Well Diameter: 12" Well Depth 200'

☐ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☐ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/L | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 1030 | 20' | 6.92 | | 17.4 | 7.32 | 79.5 | 1.011 | 36.4 | 16.74 | |
| ~~10:36~~ 10:38 | | " | | 16.91 | 7.25 | 72.5 | 1.006 | 34.2 | 13.12 | |
| 10:38 | | " | | 16.87 | 7.19 | 70.5 | 1.004 | 34.4 | 12.55 | |
| 10:40 | | " | | 16.87 | 7.18 | 68.4 | 1.004 | 34.5 | 12.59 | |
| 10:42 | | " | | 16.87 | 7.17 | 68.3 | 1.003 | 36.1 | 12.61 | |
| | | | | | | | | | | |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 3/6/02 Page 1 of 1

Project Name Naval Weapons Station - Concord Sampling Location MW-3

Samplers Name(s) DCM/SPP Sample No. 3240 GW203 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. _____ DUP ☐

Purge Method: ☒ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| 8260B | 3 VOA |
| | |

Lab Name APC

Delivery By ☒ Courier FED EX ☐ Hand _____

Well No. MW-3 Depth to Water 6.80

Well Diameter: 2" Well Depth 21.00

☐ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height _____

☒ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume _____

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/l | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 11:55 | | 6.80 | 250mL/min | 16.19 | 7.36 | 151.2 | 1.021 | 65.6 | 6.81 | |
| 11:58 | | | " | 16.07 | 7.25 | 146.3 | 1.081 | 76.5 | 6.75 | |
| 12:00 | | | " | 16.08 | 7.23 | 145.8 | 1.081 | 49.5 | 7.15 | |
| 12:03 | | | " | 16.08 | 7.19 | 145.8 | 1.081 | 50.1 | 7.13 | |
| 12:06 | | | " | 16.09 | 7.17 | 146.0 | 1.081 | 50.4 | 7.15 | Sample |
| | | | | | | | | | | |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 3/6/02 Page 1 of 1

Project Name Naval Weapons Station - Concord Sampling Location MW-06

Samplers Name(s) DCM/SPP Sample No. 3250 GW 205 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. _____ DUP ☐

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| APC | |
| 8260B | |

Lab Name _____

Delivery By ☑ Courier _____ ☐ Hand _____

Well No. MW-06 Depth to Water 8.68

Well Diameter: 4" Well Depth 30.1

☐ 1" (0.05 gal/feet) ☒ 4" (0.65 gal/feet) Water Column Height _____

☑ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume _____

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/L | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 13:48 | | 8.68 | 250mL/min | 18.54 | 7.55 | 147.8 | 0.971 | 17.5 | 7.44 | |
| 13:51 | | | " | 18.11 | 7.19 | 150.7 | 0.990 | 18.7 | 6.65 | |
| 13:54 | | | " | 18.53 | 7.08 | 148.7 | 1.010 | 22.1 | 3.24 | |
| 13:57 | | | | 18.57 | 7.05 | 148.1 | 1.013 | 14.2 | 3.07 | |
| 14:00 | | | | 18.58 | 7.04 | 147.8 | 1.013 | 15.8 | 2.97 | Sample |
| | | | | | | | | | | |
| | | | | | | | | | | |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 2/ /02 Page ___ of ___

Project Name Naval Weapons Station - Concord Sampling Location MW-11 DCM 7.3.02

Samplers Name(s) DCM/SPP Sample No. ___ FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. ___ DUP ☐

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other ___

Purge Water Storage Container Type ___ Storage Location ___

Date Purged Water Disposed ___ Where Disposed ___

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| APC | 3 VOAS |
| EPA 8260B | |

Lab Name ___

Delivery By ☑ Courier ___ ☐ Hand ___

Well No. MW-11 Depth to Water 5.85 *

Well Diameter: 2" Well Depth 17.25

☐ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height ___

☑ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume ___

* BASED ON ELEVATION AT GROUND SURFACE TOP OF CASING IS 38.5 INCHES HIGHER DUE TO "STOVEPIPE". THEREFORE DEPTH TO WATER FROM TOP OF CASING IS 9.14 FEET BELOW ~~[illegible]~~ TOP OF CASING DCM 7/3/02

80% DTW ___

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | DO mg/l | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 12:20 | | 5.85 | 250 ml/min | 17.09 | 7.28 | 152.8 | 0.997 | 119.8 | 9.25 | |
| 12:23 | | | " | 17.04 | 7.21 | 150.5 | 0.976 | 106.5 | 7.33 | |
| 12:26 | | | " | 17.20 | 7.16 | 144.1 | 0.977 | 92.6 | 6.45 | |
| 12:29 | | | " | 17.20 | 7.16 | 142.9 | 0.977 | 79.9 | 5.65 | |
| 12:31 | | | " | 17.19 | 7.16 | 142.7 | 0.975 | 79.4 | 5.25 | Sample |
| | | | | | | | | | | |
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# WATER-QUALITY SAMPLING LOG

Project No. 05506-00-020 Date 3/06/02 Page 1 of 1

Project Name Naval Weapons Station - Concord Sampling Location MW-12

Samplers Name(s) DCM/SPP Sample No. 32418 GW205 FB ☐

Sampling Plan By Tetra Tech EM Inc., LFR Levine Fricke Dated Jan. 23, 2001 C.O.C. No. _____ DUP ☐

Purge Method: ☐ Peristaltic Pump ☐ Disposable Bailer ☐ Hand Bail ☐ Submersible Pump ☐ Teflon Bailer ☐ Other _____

Purge Water Storage Container Type _____ Storage Location _____

Date Purged Water Disposed _____ Where Disposed _____

| Analyses Requested | No. and Type of Bottles Used |
|---|---|
| ~~APC~~ | 3 VOAs |
| GPA 8260 | |

Lab Name APC

Delivery By ☑ Courier _____ ☐ Hand _____

Well No. MW-12 Depth to Water 13.61

Well Diameter: 2" Well Depth 34.0

☐ 1" (0.05 gal/feet) ☐ 4" (0.65 gal/feet) Water Column Height _____

☑ 2" (0.16 gal/feet) ☐ 6" (1.47 gal/feet) Well Volume _____

80% DTW _____

| Time | Inlet Depth | Depth to Water | Volume Purged (mL) | Temperature (C°) | pH (SU) | ORP (mV) | Cond (µmhos) | Turb (NTU) | Do mg/L | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 14:25 | 34 | 13.61 | 250mL/m | 19.16 | 7.51 | 153.5 | 1.017 | 22.2 | 10.11 | |
| 14:28 | | " | " | 20.21 | 7.41 | 154.7 | 1.051 | 71.1 | 9.19 | |
| 14:32 | | | | 20.79 | 7.37 | 153.8 | 1.056 | 101.1 | 8.89 | |
| 14:36 | | | | 20.81 | 7.38 | 151.9 | 1.057 | 80.5 | 8.58 | |
| 14:38 | | | | 20.75 | 7.37 | 149.9 | 1.058 | 90.7 | 7.79 | |
| 14:41 | | | | 20.73 | 7.36 | 149.7 | 1.061 | 89.8 | 7.71 | Sample |
| | | | | | | | | | | |
| | | | | | | | | | | |
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# WELL GAUGING DATA

Project # C7-0305-MN1 Date 3/5/02 Client Levine - Fricke Reach

Site Concord Naval Weapons Station

| Well ID | Well Size (in.) | Sheen / Odor | Depth to Immiscible Liquid (ft.) | Thickness of Immiscible Liquid (ft.) | Volume of Immiscibles Removed (ml) | Depth to water (ft.) | Depth to well bottom (ft.) | Survey Point: TOB or TOC | |
|---|---|---|---|---|---|---|---|---|---|
| MW-2 | 2 | | | | | 8.35 | 26.30 | | |
| MW-7 | 2 | | | | | 16.68 | 29.58 | | |
| MW-8 | 2 | | | | | 15.23 | 32.65 | | |
| MW-9 | 2 | | | | | 13.61 | 27.70 | | |
| MW-10 | 2 | | | | | 15.57 | 29.53 | | |
| MW-13 | 2 | | | | | 0.0 | 30.45 | | |
| MW-14 | 2 | | | | | 6.36 | 19.99 | | |
| MW-1A17 | 4 | | | | | 16.63 | 28.11 | | |
| SB030 | 1 | | | | | 21.72 | 58.00 | | |
| SB031 | 1 | | | | | 14.88 | 38.00 | | |
| SB032 | 1 | | | | | 14.28 | 38.00 | | |
| | | | | | | | | | |
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# LOW FLOW WELL MONITORING DATA SHEET

| | |
|---|---|
| Project #: 020305- MW1 | Client: Levine - Fricke Recon |
| Sampler: Mike N | Start Date: 3/5/02 |
| Well I.D.: 324026W193 / MW-2 | Well Diameter: (2) 3 4 6 8 ____ |
| Total Well Depth: 26.30 | Depth to Water Pre: 8.35 Post: |
| Depth to Free Product: | Thickness of Free Product (feet): |
| Referenced to: (PVC) Grade | Flow Cell Type: YSI 556 |

Purge Method: 2" Grundfos Pump ✓Peristaltic Pump Bladder Pump

Sampling Method: Dedicated Tubing ✓New Tubing Other ____

Flow Rate: 100 ml/min Pump Depth: ____

| Time | Temp (C°) | pH | Cond. | Turbidity | D.O. | ORP | Water Removed | Observations |
|---|---|---|---|---|---|---|---|---|
| 1359 | 17.7 | 6.9 | 822 | 11 | 8.7 | 166.4 | 0 | Clear |
| 1402 | 17.6 | 6.9 | 821 | 5 | 8.5 | 158.1 | 300 ml | " |
| 1405 | 17.6 | 6.9 | 818 | 5 | 8.1 | 145.1 | 600 ml | " |
| 1408 | 17.7 | 6.9 | 818 | 6 | 8.1 | 134.8 | 900 ml | " |
| 1411 | 17.8 | 6.9 | 817 | 5 | 8.0 | 124.3 | 1200 ml | " |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | Ferrous Iron | = Ø |
| | | | | | | | $H_2S$ = | Ø |
| | | | | | | | | |

| | |
|---|---|
| Did well dewater? Yes (No) | Amount actually evacuated: 1200 ml |
| Sampling Time: 1400 | Sampling Date: 3/5/02 |
| Sample I.D.: 324026W193/ MW-2 | Laboratory: APC |
| Analyzed for: TPH-G BTEX MTBE TPH-D | Other: |
| Equipment Blank I.D.: @ Time | Duplicate I.D.: |

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# LOW FLOW WELL MONITORING DATA SHEET

| | |
|---|---|
| Project #: 020305-MN1 | Client: Levine-Fricke Recon |
| Sampler: Mike N | Start Date: 3/5/02 |
| Well I.D.: 32405GW191/MW-07 | Well Diameter: (2) 3 4 6 8 |
| Total Well Depth: 29.58 | Depth to Water Pre: 16.68 Post: |
| Depth to Free Product: | Thickness of Free Product (feet): |
| Referenced to: PVC Grade | Flow Cell Type: YSI 556 |

Purge Method: 2" Grundfos Pump ✓Peristaltic Pump Bladder Pump
Sampling Method: Dedicated Tubing ✓New Tubing Other_____

Flow Rate: 100ml/min Pump Depth:_____

| Time | Temp (C°) | pH | Cond. | Turbidity | D.O. | ORP | Water Removed | Observations |
|---|---|---|---|---|---|---|---|---|
| 1207 | 18.8 | 7.5 | 941 | 16 | 8.7 | 68.1 | 0 | Clear |
| 1210 | 18.8 | 7.4 | 934 | 7 | 7.9 | 63.6 | 300ml | " |
| 1213 | 18.8 | 7.4 | 933 | 7 | 7.8 | 65.6 | 600ml | " |
| 1216 | 18.9 | 7.4 | 932 | 5 | 7.8 | 56.6 | 900ml | " |
| 1219 | 18.9 | 7.4 | 933 | 5 | 7.7 | 49.7 | 1200ml | " |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | Ferrous Iron = | 0 |
| | | | | | | | $H_2S$ = | 0 |
| | | | | | | | | |

| | |
|---|---|
| Did well dewater? Yes (No) | Amount actually evacuated: 1200ml |
| Sampling Time: 1145 | Sampling Date: 3/5/02 |
| Sample I.D.: 32405GW191/MW-07 | Laboratory: APC |
| Analyzed for: TPH-G BTEX MTBE TPH-D | Other: |
| Equipment Blank I.D.: @ Time | Duplicate I.D.: |

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# LOW FLOW WELL MONITORING DATA SHEET

| | |
|---|---|
| Project #: 020305-MM1 | Client: Levine - Fricke Retum |
| Sampler: Mike N | Start Date: 3/5/02 |
| Well I.D.: 32405GW192 / MW-08 | Well Diameter: (2) 3 4 6 8 ____ |
| Total Well Depth: 32.65 | Depth to Water Pre: 15.23 Post: |
| Depth to Free Product: | Thickness of Free Product (feet): |
| Referenced to: (PVC) Grade | Flow Cell Type: YSI |

Purge Method: 2" Grundfos Pump ✓Peristaltic Pump Bladder Pump

Sampling Method: Dedicated Tubing ✓New Tubing Other_____

Flow Rate: 100ml/min Pump Depth:_____

| Time | Temp (C°) | pH | Cond. | Turbidity | D.O. | ORP | Water Removed | Observations |
|---|---|---|---|---|---|---|---|---|
| 1255 | 19.6 | 7.2 | 961 | 94 | 7.1 | 130.0 | 0 | light brown cloudy |
| 1258 | 19.5 | 7.1 | 962 | 71 | 5.7 | 117.6 | 300 ml | " |
| 1301 | 19.4 | 7.1 | 960 | 48 | 5.4 | 112.0 | 600 ml | " |
| 1304 | 19.5 | 7.1 | 961 | 37 | 5.3 | 108.7 | 900 ml | less cloudy |
| 1307 | 19.5 | 7.1 | 960 | 34 | 5.1 | 104.8 | 1200 ml | " |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | Ferrous Iron = | Ø |
| | | | | | | | $H_2S$ = | Ø |
| | | | | | | | | |

| | |
|---|---|
| Did well dewater? Yes (No) | Amount actually evacuated: 1200 ml |
| Sampling Time: 1245 | Sampling Date: 3/5/02 |
| Sample I.D.: 32405GW192 / MW-08 | Laboratory: APC |
| Analyzed for: TPH-G BTEX MTBE TPH-D | Other: |
| Equipment Blank I.D.: @ Time | Duplicate I.D.: |

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# LOW FLOW WELL MONITORING DATA SHEET

| | |
|---|---|
| Project #: 020305-MN1 | Client: Levine - Fricke Recon |
| Sampler: Mike N | Start Date: 3/5/02 |
| Well I.D.: 324056W197/MW-9 | Well Diameter: (2) 3 4 6 8 ___ |
| Total Well Depth: 27.70 | Depth to Water Pre: 13.61 Post: |
| Depth to Free Product: | Thickness of Free Product (feet): |
| Referenced to: (PVC) Grade | Flow Cell Type: YSI 556 |

Purge Method: 2" Grundfos Pump ✓Peristaltic Pump Bladder Pump

Sampling Method: Dedicated Tubing ✓New Tubing Other ___

Flow Rate: 100 ml/min Pump Depth: ___

| Time | Temp (C°) | pH | Cond. | Turbidity | D.O. | ORP | Water Removed | Observations |
|---|---|---|---|---|---|---|---|---|
| 420 | 19.7 | 6.8 | 992 | 54 | 6.8 | 133.4 | 0 | SLIGHTLY cloudy |
| 423 | 19.2 | 6.8 | 991 | 57 | 6.2 | 124.8 | 300 ml | " |
| 427 | 19.3 | 6.8 | 989 | 43 | 5.6 | 118.6 | 600 ml | " |
| 430 | 19.4 | 6.8 | 988 | 37 | 5.4 | 114.1 | 900 ml | - |
| ~~433~~ | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | Ferrous Iron = | Ø |
| | | | | | | | $H_2S$ = | Ø |
| | | | | | | | | |

| | |
|---|---|
| Did well dewater? Yes (No) | Amount actually evacuated: 900 ml |
| Sampling Time: ~~324056W197/MW-9~~ 1620 | Sampling Date: 3/5/02 |
| Sample I.D.: 324056W197/MW-9 | Laboratory: APC |
| Analyzed for: TPH-G BTEX MTBE TPH-D | Other: |
| Equipment Blank I.D.: @ Time | Duplicate I.D.: |

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# LOW FLOW WELL MONITORING DATA SHEET

| | |
|---|---|
| Project #: 020305-MN1 | Client: Levine - Fricke Recon |
| Sampler: Mike N | Start Date: 3/5/02 |
| Well I.D.: 32405GW196 - MW-10 | Well Diameter: (2) 3 4 6 8 ____ |
| Total Well Depth: 29.53 | Depth to Water Pre: 15.57 Post: |
| Depth to Free Product: | Thickness of Free Product (feet): |
| Referenced to: (PVC) Grade | Flow Cell Type: YSI 556 |

Purge Method: 2" Grundfos Pump ✓Peristaltic Pump Bladder Pump

Sampling Method: Dedicated Tubing ✓New Tubing Other ____

Flow Rate: 100 ml/min Pump Depth: ____

| Time | Temp (C⁰) | pH | Cond. | Turbidity | D.O. | ORP | Water Removed | Observations |
|---|---|---|---|---|---|---|---|---|
| 1548 | 19.2 | 7.0 | 994 | 61 | 2.9 | 97.7 | 0 | Slightly cloudy |
| 1551 | 19.3 | 7.0 | 988 | 31 | 1.4 | 90.1 | 300ml | " |
| 1554 | 19.2 | 7.0 | 985 | 15 | 1.1 | 83.4 | 600ml | Less cloudy |
| 1557 | 19.3 | 7.0 | 978 | 9 | 1.0 | 78.8 | 900ml | " |
| 1600 | 19.3 | 7.0 | 976 | 7 | 1.0 | 77.7 | 1200ml | " |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | Ferrous Iron | = Ø |
| | | | | | | | $H_2S$ = | Ø |
| | | | | | | | | |

Did well dewater? Yes (No) Amount actually evacuated: 1200 ml

Sampling Time: 1545 Sampling Date: 3/5/02

Sample I.D.: 32405GW196 - MW-10 Laboratory: APC

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

Equipment Blank I.D.: @ Time Duplicate I.D.:

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# WATER-LEVEL MEASUREMENTS LOG

Project No. 001-05504-00- Date Feb, 11, 02 Page 1 of 1

Project Name Naval Weapons Station Concord Day: ☐ Sun ☑ Mon ☐ Tues ☐ Weds ☐ Thurs ☐ Fri ☐ Sat

Field Personnel TCM / SAM

General Observations

| WELL NO. | WELL ELEVATION | DEPTH TO WATER 1 | DEPTH TO WATER 2 | ~~WATER ELEVATION~~ TOTAL DEPTH | WELL SECURE? Y | WELL SECURE? N | REMARKS (UNITS = FEET) |
|---|---|---|---|---|---|---|---|
| MW-2 | | 8.3 | | 26.3 | | | |
| MW-7 | | 16.6 | | 29.6 | | | |
| MW-8 | | 15.2 | | 31.3 | | | |
| MW-9 | | 13.6 | | 27.6 | | | |
| MW-10 | | 15.4 | | 29.5 | | | |
| MW-11 | | 8.85 | | 18.2 | | | 38.5" 'Stovepipe' - TOC. |
| MW-12 | | 14.8 | | 33.4 | | | |
| MW-13 | | Surface | | 30.5 | | | Artesian well |
| MW7A-17 | | 16.6 | | 28.2 | | | |

Measurements Transcribed from Field Log Book

# APPENDIX D
# AQUIFER SLUG TESTING PROCEDURES AND RESULTS

**TABLE D-1**

**AQUIFER SLUG TEST RESULTS**
**SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 REMEDIAL INVESTIGATION**
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

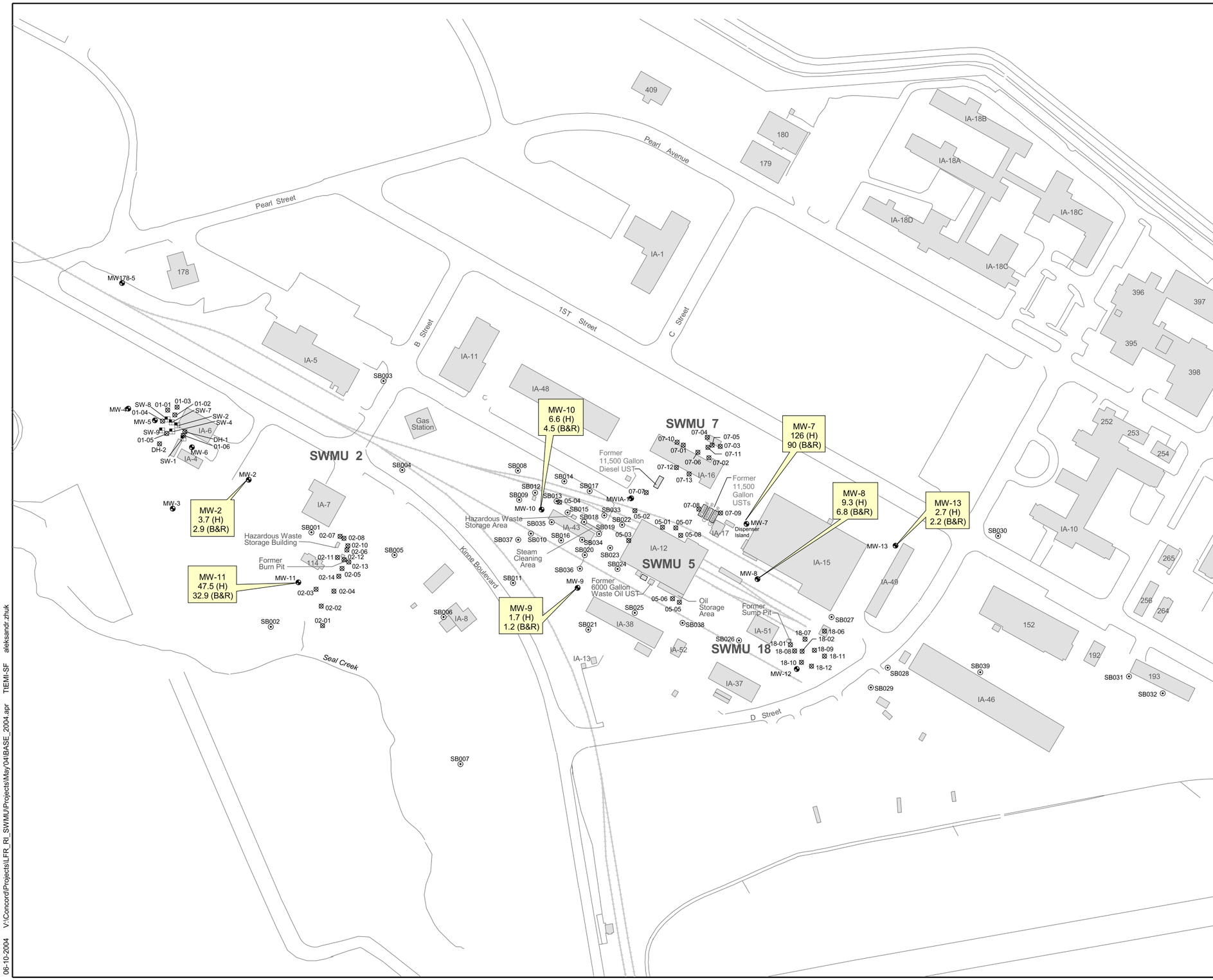
| | Monitor Well Parameters | | | | | Hydrogeology | | Test Parameters | | | | | | | | Results | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Well Name** | **Well Diameter (inches)** | **TOC Elevation (feet msl)** | **Top of Filter Pack (feet bgs)** | **Top of Screen (feet bgs)** | **Bottom of Screen (feet bgs)** | **Lithology of Saturated Portion of Screen Interval (USCS)** | **Expected Range of Hydraulic Conductivity (feet/day)** | **Static Water Level (feet toc)** | **Height of Water Column (feet)** | **Volume of Water Column[a] (gallons)** | **Total Displacement (feet)** | **Total Volume of Displacement (gallons)** | **Percent of Water Column Displacement (%)** | **Volume of Water Removed (gallons)** | **Recovery Time (minutes)** | **Hvorslev Hydraulic Conductivity (feet/day)** | **Bouwer & Rice Hydraulic Conductivity (feet/day)** |
| MW-2 | 2 | NA | NA | NA | 26.3[b] | NA | NA | 9.42 | 17.0 | 24.9 | 8.91 | 1.5 | 6.0 | 1.00 | 2.8 | 3.7 | 2.9 |
| MW-7 | 2 | 61.9 | 19 | 20 | 30 | CL/MH | 0.0001 to 1[c]<br>0.001 to 1[d] | 17.69 | 13.4 | 19.7 | 4.38 | 0.71 | 3.6 | 0.38 | 0.45 | 126 | 90 |
| MW-8 | 2 | 60.7 | 17 | 18 | 33 | SW | 0.1 to 50[c]<br>0.001 to 1[d] | 16.21 | 16.8 | 24.7 | 5.35 | 0.87 | 3.5 | 0.63 | 1.8 | 9.3 | 6.8 |
| MW-9 | 2 | 57.2 | 12 | 13 | 28 | SC | 0.001 to 1[c]<br>0.001 to 0.1[d] | 14.64 | 13.4 | 19.6 | 4.89 | 0.80 | 4.1 | 0.35 | 10 | 1.7 | 1.2 |
| MW-10 | 2 | 58.2 | 14 | 15 | 30 | SC | 0.001 to 1[c]<br>0.001 to 0.1[d] | 16.60 | 13.4 | 19.7 | 4.64 | 0.76 | 3.9 | 0.38 | 3.8 | 6.6 | 4.5 |
| MW-11 | 2 | 49.4 | 7.5 | 8.5 | 18.5 | CL/MH | 0.001 to 0.1[c]<br>0.001 to 1[d] | 9.86 | 11.7 | 17.2 | 3.57 | 0.58 | 3.4 | 0.44 | 0.75 | 47.5 | 32.9 |
| MW-13[e] | 2 | 64.3 | 20 | 20 | 31 | SP/SM/ML | 0.1 to 50[c]<br>0.001 to 10[d] | 2.08[f] | 28.9 | 42.5 | 8.03 | 1.31 | 3.1 | 0.88 | >12 | 2.7 | 2.2 |
| | | | | | | | | | | | | | | | **GEOMETRIC MEAN[g]:** | **4.0** | **3.0** |

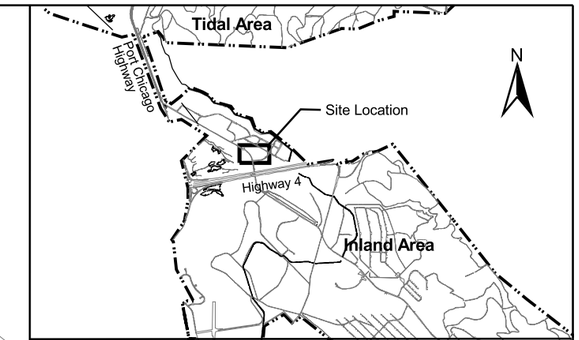
Notes:

a Includes the volume of water in the well filter pack.
b Bottom of screen assumed to equal the total depth of the well as measured during the test. The screen length was assumed to equal 15 feet based on other well screen lengths.
c U.S. Department of the Interior. 1989. Basic Ground-Water Hydrology. U.S. Geological Survey Water-Supply Paper 2220.
d Fetter, C.W. 1988. Applied Hydrogeology, Macmilllian Publishing Company, 2nd Ed.
e Monitor well MW-13 is a flowing artesian well.
f Static water level measured from the top of a 38-inch PVC riser pipe attached to the top of casing.
g Because the slug test results for monitoring wells MW-7 and MW-11 are not representative of native material, they are excluded from the calculation of the geometric mean.

bgs Below ground surface
msl Mean sea level
NA Not available
toc Top of casing
USCS Unified Soil Classification System

Lithology Descriptions:
CL Inorganic clays of low to medium plasticity (gravelly, sandy, silty, lean clays)
MH Inorganic silts, micaceous or diatomaceous fine sand or silty soils
ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayer silts with slight plasticity
SC Clayey sands, sand/clay mixtures
SM Silty sands, sand/silt mixtures
SP Poorly graded sands, gravelly sands (little or no fines)
SW Well-graded sands, gravelly sands (little or no fines)




**LEGEND**

- Groundwater monitoring well
- Soil boring (installed by LFR, 2002)
- Soil boring (installed by PRC Environmental, 1995)
- Surface soil sample
- Railroad
- IA-15 — Building
- MW-13 2.7 (H) 2.2 (B&R) — Hydraulic conductivity estimated results Hvorslev (H) and Bouwer & Rice (B&R) in feet per day

**ABBREVIATIONS**

| | |
|---|---|
| UST | Underground Storage Tank |
| SWMU | Solid Waste Management Unit |

N

200 0 200 Feet

Base map source: Tetra Tech EM Inc.

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND

ENGINEERING FIELD ACTIVITY WEST

DALY CITY, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT CONCORD

FIGURE D-1
SITE PLAN SHOWING MONITORING WELL SLUG TEST RESULTS

SWMUs 2, 5, 7, AND 18 REMEDIAL INVESTIGATION

06-10-2004 V:\Concord\Projects\LFR_RI_SWMU\Projects\May04\BASE_2004.apr TIEMI-SF aleksandr.zhuk

LFR LEVINE•FRICKE

# AQUIFER SLUG TEST STANDARD OPERATING PROCEDURE

Prepared for: Naval Weapons Station, Seal Beach Detachment (NWSSBD), Concord, California

Prepared by: Tracy Roth, LFR Levine-Fricke (LFR)

Date: July 10, 2002

Purpose: Guidelines and Procedures for Conducting Aquifer Slug Testing, Remedial Investigation for Groundwater, Task 1.4.5

## INTRODUCTION

This Standard Operating Procedure (SOP) is applicable to all LFR employees and its contractors and subcontractors, for performing aquifer slug tests at the NWSSBD, Concord, California (the Site) for the Remedial Investigation (RI) for Groundwater. These procedures have been developed in accordance with American Society for Testing and Materials (ASTM) Standard Test Methods D 4043-91 (ASTM 1991) and D 4044-96 (ASTM 1996), which are included in Attachment 1.

An aquifer slug test is a rapid and inexpensive method for estimating the hydraulic conductivity (K) or transmissivity (T) of an aquifer. Essentially, the test method involves causing an instantaneous change in head in a monitoring well and measuring the water level response within the well. For this investigation, the test will involve an instantaneous withdrawal of a mechanical slug and monitoring the water level changes in that well with a pressure transducer/data logger configuration. In addition, water levels will be measured manually to provide a quality control check on the automated measurement system.

The RI for Groundwater includes aquifer slug testing at monitoring wells MW-2, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-13. The following sections provide details regarding preparation for the tests, pre-field activities including equipment calibration and preparation, methods for conducting the tests and operating the equipment, data analysis techniques, and reporting.

## BACKGROUND

An evaluation of site hydrogeologic data is pertinent to the planning of any aquifer test. Two main factors contribute to the applicability of aquifer slug tests:

- aquifer material type – if formation K is too high, water levels may return to static level before sufficient measurements can be made, and if formation K is too low, the test will be conducted mainly on the well filter pack

- monitoring well construction details - borehole diameter, length of well screen interval, and sand filter thickness.

Generally, soils in the Inland Area at the Site have been characterized as alluvium consisting of interbedded sands, silts, and clays. Silty soils appear to dominate (TtEMI and LFR 2001). Boring logs for the monitor wells that will be tested indicate the wells are screened in materials that include clays and silts with varying degrees of sand, and a few sand layers of variable sorting. Published estimated values for hydraulic conductivity of these materials range from approximately $10^{-5}$ feet per day (ft/d) for clays to $10^{-3}$ ft/d for silty sands or poorly sorted sands (US Department of Interior 1991). Materials with hydraulic conductivity values in this range are generally acceptable for conducting aquifer slug tests.

Groundwater beneath SWMUs 1, 2, 5, 7, and 18 generally flows to west-northwest under a hydraulic gradient of approximately 0.004 to 0.005 foot per foot. Monitor well MW-13 is artesian and the hydraulic gradient in this area is much steeper at approximately 0.07 foot per foot (TtEMI and LFR 2001). On February 11, 2002, during the utility clearance activities, LFR personnel measured water levels in the wells that will be slug tested. Table 1 presents the known construction details of these wells, and Table 2 presents the results of recent water level measurements, which includes a calculation of the height of the water column in the well. These values will be utilized in the test design (see Section 3 below).

## 3.0 PRE-FIELD ACTIVITES

Prior to conducting the slug tests, several tasks must be conducted. Pre-field activities include obtaining equipment, calibrating the pressure transducers and manual water level meters, programming the desired measurement time intervals in the data logger program, calculating slug volumes and fabricating the mechanical slugs, and getting the test data sheets together. Other pre-field activities include obtaining background or static water level measurements from the test wells, and inserting the mechanical slugs into the wells and monitoring the water level return to static prior to instantaneous withdrawal of the slugs. These activities are discussed in more detail in the following sections.

### 3.1 Pre-field Activities

The following is a general checklist for the field activities:

- ❑ Mechanical Slugs, consisting of weighted, capped PVC pipe with rope or twine for lowering and removing the slug
- ❑ Calibrated pressure transducers and programmed data loggers
- ❑ Laptop computer to download and plot data in the field
- ❑ Manual water level meter
- ❑ Stopwatch, slug test data sheet, decon materials, other miscellaneous items

The equipment will be rented and tested in the LFR laboratory prior to conducting the slug tests. The slugs will be constructed out of capped PVC pipe weighted with sand. The

appropriate volume of the slugs will be calculated based on analysis of the height of the water column in the wells and will be constructed such that the resulting volumes are sufficient to displace enough water in the wells to conduct meaningful tests.

In-Situ Inc Model PXD-261 pressure transducers will be used for the slug tests. The pressure transducers will be calibrated by LFR prior to all field tests to ensure that the data obtained during the tests is defensible. LFR will maintain the calibration logs. The In-Situ Inc Hermit 1000C data logger will be used with the transducers and will be programmed and tested prior to field activities to ensure measurements are taken at the desired times. The instruction manual for the Hermit 1000C data logger is included as Attachment 2.

Slug test data sheets will be used to record general information pertinent to the test, including the static water level measurements and all manually recorded measurements. The slug test data sheet is included as Attachment 3.

## 4.0 TEST PROCEDURE

After the pre-field tasks are complete, static water levels in the wells will be measured. All slug testing will take place after groundwater sampling has been conducted. The static water levels in the monitoring wells will be compared to pre-groundwater sampling measurements, and the slug will be lowered into the well. Once water levels have stabilized again, the test will begin with the withdrawal of the slug. During the test, water level changes will be measured automatically by the pressure transducer/data logger program and periodically checked manually.

The following outlines the steps for conducting the slug tests:

1. Measure static water level with manual water level meter;

2. Lower the pressure transducer into the well, turn on the data logger and begin taking measurements until water levels have returned to within 95% of static water level;

3. Instantaneously remove the slug and place it on plastic for subsequent decontamination;

4. Begin manual water level measurements (see Table 3) and record them on the field sheet;

5. Continue as above at the designated time intervals until 95% recovery to static water level is reached;

6. Download test data from the data logger to the laptop computer and conduct an initial assessment of the test data;

7. Once it has been determined sufficient data has been collected, remove the transducer, decontaminate it, and move to the next well.

Table 3 outlines the frequency of water level measurements for data logger programming and for manually collected measurements.

## 5.0 DATA ANALYSIS

The slug test data for each monitoring well will be analyzed with AQTESOLV™ for Windows software utilizing the Bouwer-Rice solution (Bouwer and Rice 1976) and the Hvorslev solution (Hvorslev 1951) for unconfined aquifers. These solution methods assume the following for unconfined aquifers:

- Aquifer has infinite areal extent
- Aquifer is homogeneous and of uniform thickness
- Aquifer potentiometric surface is initially horizontal
- Test well is fully or partially penetrating
- The slug is withdrawn instantaneously
- Flow is steady

In addition, the software provides tool to correct for partially penetrating wells, filter pack porosity, and anisotropy in hydraulic conductivity.

## 6.0 REPORTING

The aquifer slug test field data, data analysis results, and a discussion of the results will be included in the appropriate section of the Remedial Investigation for Groundwater report.

## 7.0 REFERENCES

American Society for Testing and Materials (ASTM). 1991. Standard Guide for Selection of Aquifer-Test Method in Determining of Hydraulic Properties by Well Techniques. D 4043-91.

ASTM. 1996. Standard Test Method (Field Procedure) for Instantaneous Change in Head (Slug) Tests for Determining Hydraulic Properties of Aquifers. D 4044-96.

Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol. 12, no. 3, pp. 423 - 428.

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Designation: D 4044 – 96

AMERICAN SOCIETY FOR TESTING AND MATERIALS
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# Standard Test Method (Field Procedure) for Instantaneous Change in Head (Slug) Tests for Determining Hydraulic Properties of Aquifiers[1]

This standard is issued under the fixed designation D 4044; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method covers the field procedure for performing an in situ instantaneous change in head (slug) test.

1.2 This test method is used in conjunction with an analytical procedure such as Test Method D 4104 to determine aquifer properties.

1.3 The values stated in the SI units are to be regarded as standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

2.1 *ASTM Standards:*

D 653 Terminology Relating to Soil, Rock, and Contained Fluids[2]

D 4043 Guide for Selection of Aquifer-Test Method in Determination of Hydraulic Properties by Well Techniques[2]

D 4104 Test Method (Analytical Procedure) for Determining Transmissivity of Confined Nonleaky Aquifers by Overdamped Well Response to Instantaneous Change in Head (Slug Test)[2]

D 4750 Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well)[2]

D 5785 Test Method for (Analytical Procedure) for Determining Transmissivity of Confined Nonleaky Aquifers by Underdamped Well Response to Instantaneous Change In Head (Slug Test)[3]

D 5881 Test Method (Analytical Procedure) for Determining Transmissivity of Confined Nonleaky Aquifers by Critically Damped Well Response to Instantaneous Change In Head (Slug Test)[3]

D 5912 Test Method (Analytical Procedure) for Determining Hydraulic Conductivity of an Confined Aquifer by Overdamped Well Response to Instantaneous Change In Head (Slug Test)[3]

## 3. Terminology

3.1 *Definitions:* Definitions:

3.1.1 *control well*—well by which the aquifer is stressed, for example, by pumping, injection, or change of head.

3.1.2 *hydraulic conductivity—(field aquifer tests)*, the volume of water at the existing kinematic viscosity that will move in a unit time under a unit hydraulic gradient through a unit area measured at right angles to the direction of flow.

3.1.3 *observation well*—a well open to all or part of an aquifer.

3.1.4 *overdamped-well response*—characterized by the water level returning to the static level in an approximately exponential manner following a sudden change in water level. (See for comparison *underdamped well.*)

3.1.5 *slug*—a volume of water or solid object used to induce a sudden change of head in a well.

3.1.6 *storage coefficient*—the volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head. For a confined aquifer, it is equal to the product of specific storage and aquifer thickness. For an unconfined aquifer, the storage coefficient is approximately equal to the specific yield.

3.1.7 *transmissivity*—the volume of water at the existing kinematic viscosity that will move in a unit time under a unit hydraulic gradient through a unit width of the aquifer.

3.1.8 *underdamped-well response*—characterized by the water level oscillating about the static water level following a sudden change in water level. (See for comparison *overdamped well.*)

3.1.9 For definitions of other terms used in this test method, refer to Terminology D 653.

## 4. Summary of Test Method

4.1 This test method describes the field procedures involved in conducting an instantaneous head (slug) test. The slug test method involves causing a sudden change in head in a control well and measuring the water level response within that control well. Head change may be induced by suddenly injecting or removing a known quantity or "slug" of water into the well, rapid removal of a mechanical "slug" from below the water

[1] This test method is under the jurisdiction of ASTM Committee D-18 on Soil and Rock and is the direct responsibility of Subcommittee D18.21 on Ground Water and Vadose Zone Investigations.

Current edition approved Oct. 10, 1997. Published February 1997. Originally published as D 4044 – 91. Last previous edition D 4044 – 91.

[2] *Annual Book of ASTM Standards*, Vol 04.08.

[3] *Annual Book of ASTM Standards*, Vol 04.09

level, increasing or decreasing the air pressure in the well casing, or emplacement of a mechanical slug into the water column.

4.2 The water-level response in the well is a function of the mass of water in the well and the transmissivity and coefficient of storage of the aquifer. One method of analysis of the data from this field practice is described in Test Method D 4104.

## 5. Significance and Use

5.1 This slug test field procedure is used in conjunction with a slug test analytical procedure, such as Test Method D 4104 to provide quick and relatively inexpensive estimates of transmissivity.

5.2 The slug test provides an advantage over pumping tests in that it does not require the disposal of the large quantities of water that may be produced. This is of special importance when testing a potentially contaminated aquifer. However, slug tests reflect conditions near the well, therefore are influenced by near-well conditions, such as gravel pack, poor well development, and skin effects.

5.3 Slug tests may be made in aquifer materials of lower hydraulic conductivity than generally considered suitable for hydraulic testing with pumping tests.

5.4 The method of data analysis (analytical procedure) should be known prior to the field testing to ensure that all appropriate dimensions and measurements are properly recorded. Selection of the analytical procedure can be aided by using Guide D 4043, Test Method D 5785, Test Method D 5881, and Test Method D 5912.

## 6. Apparatus

6.1 *Slug-Inducing Equipment*—This test method describes the types of equipment that can be used. Because of the infinite variety of testing conditions and because similar results can be achieved with different apparatus, engineering specifications for apparatus are not appropriate. This test method specifies the results to be achieved by the equipment to satisfy the requirements of this practice.

6.2 *Water-Level Measurement Equipment*—The method of water level measurement may be dependent on the method selected for injection or withdrawal of water, and the nature of the response of the well. For an open-well test, that is, where access to the water level is open to the surface, measure water levels manually as described in Test Method D 4750, by an automatic recording device linked to a float, or with a pressure transducer linked to a data logger or display device. A pressure transducer linked to a data logger will be necessary for a test in a closed well in which water-level changes are induced by vacuum or pressure on the control well and where manual measurements do not provide measurements of adequate frequency (see 9.3).

## 7. Conditioning

7.1 *Pre-Test Procedure*:

7.1.1 *Measuring Pre-Test Water Levels*—Measure the water level in the control well before beginning the test for a period longer than the duration of the test to determine the pre-test water level fluctuations and to establish pre-pumping water-level trend and to determine a pre-pumping reference water level.

## 8. Procedure

8.1 Cause a change in water level, either a rise or decline, by one of the following methods:

8.1.1 *Water Slug*—Inject or withdraw water of a known quantity into or from the control well.

8.1.2 *Mechanical Slug*—Inject or withdraw a mechanical slug below or above the water level. The water within the control well will then rise or decline an amount equal to the volume of the mechanical slug.

8.1.3 *Release Vacuum or Pressure*—A method of simulating the injection or withdrawal of a slug of water is by the release of a vacuum or pressure on a tightly capped (shut-in) control well. Before the release, the vacuum or pressure is held constant.

NOTE 1—There is no fixed requirement for the magnitude of the change in water level. Similar results can be achieved with a wide range in induced head change. Some considerations include a magnitude of change that can be readily measured with the apparatus selected, for example the head change should be such that the method of measurement should be accurate to 1 % of the maximum head change. Generally, an induced head change of from one-third to one meter is adequate. Although the induced head change should be sufficient to allow the response curve to be defined, excessive head change should be avoided to reduce the possibility of introducing large frictional losses in well bore.

The mechanical model for the test assumes the head change is induced instantaneously. Practically, a finite time is required to effect a head change. Selection of time zero can be selected experimentally. Refer to the method of analysis (such as Test Method D 4104) to determine time zero and to evaluate the suitability of the change effected in the well.

8.2 Measure water-level response to the change in water level. The frequency of water-level measurement during the test is dependent upon the hydraulic conductivity of the material being tested. During the early portions of the test, measure water levels at closely-spaced intervals. Measurements of water level made manually with a tape should be made as frequently as possible until the water level has recovered about 60 to 80 %. Increase the length of time between measurements with increasing duration of the test. Since most methods of data analysis are curve-fitting techniques, it is essential that water levels are measured frequently enough to define the water-level response curve (see Guide D 4043, Test Methods D 4104 and D 5785).

8.2.1 In aquifer-well systems where water-level changes are rapid, it may be necessary to use a pressure transducer linked to an electronic data logger to measure and record the water levels frequently enough to adequately define the waterlevel response. The use of transducers and data loggers generally provides a greater than adequate frequency of measurements, ranging from several measurements per second in the early part of the test to a specified frequency in the later portions of a test. With such equipment, the test analysis may use a reduced data set of measurements to calculate the hydraulic properties (see D4043, Test Methods D 4104 and D 5785 for analysis of water level data).

8.3 *Post-Test Procedure*—Make preliminary analysis of data before leaving the field and evaluate the test regarding the criteria given in this test method and the method of analysis, such as Test Method D 4104 to determine if the test should be rerun.

## 9. Report

9.1 Include the information listed below in the report of the field procedure:

9.2 All test reports should include the following:

9.2.1 Date, time, and well identification,

9.2.2 Method of slug withdrawal or injection, as well as whether the test is a falling head (injection) or a rising head (withdrawal) test,

9.2.3 Inside diameter of well screen and well casing above screen,

9.2.4 Depth of well,

9.2.5 Length and depth setting of screen,

9.2.6 Volume of mechanical slug or pressure change imposed on water level, and

9.2.7 Pre-testing water-level trend.

9.3 Establish and record the measurement point from which all measurements of water level are made. Record date, time, and depth to water level below measurement point of all water levels.

9.4 Water levels measured during the test should be recorded with information on date, clock time, and time since test started. If the water levels are measured with a pressure transducer and recorded with an electronic data logger, record the name of the data file on the data logger.

## 10. Precision and Bias

10.1 It is not practical to specify the precision of this test method because the response of aquifer systems during aquifer tests is dependent upon ambient system stresses. No statement can be made about bias because no true reference values exist.

## 11. Keywords

11.1 aquifers; aquifer tests; ground water; hydraulic conductivity; hydraulic properties; instantaneous head test; slug tests; storage coefficient; transmissivity

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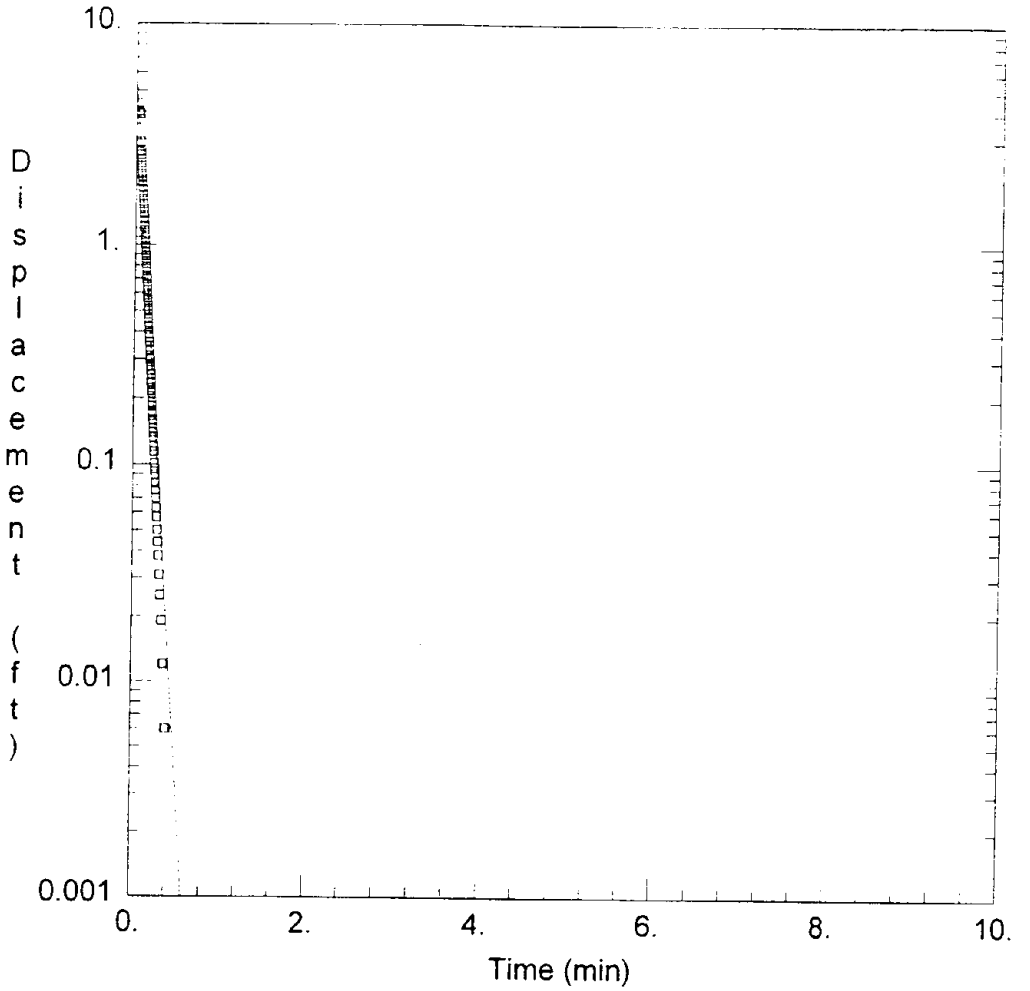



## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW07_H.AQT
Date: 05/21/02 Time: 12:20:18

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-07
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 32.31 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 4.38 ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 13.4 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.09033 ft/min

LFR Levine Fricke

# AQUIFER SLUG TEST DATA SHEET

| | |
|---|---|
| **Project Name:** NWSSB Concord | **Client:** FEMI |
| **Project Number:** | **Date:** 5/16/02 |
| **Well No.** MW-07 | **Test No.** 2 |
| **Performed By:** TLR/GN | **Test Type:** Slug Test - Mechanical Withdrawl 10' |
| **Measuring Equipment: Datalogger -** | **Measuring Equipment: Transducer -** |

| Time Data | | Water Level Data | | | Slug Data | |
|---|---|---|---|---|---|---|
| Time of Slug In: | | Static - Depth (ft) 17.69' TD = 29.64 | | | Volume Displaced 1.5 ~~gallons~~ qt. | $H_2O$ Col = 11.95' Trans. Head = 10.94' |
| | | Static - Elevation (ft msl) | | | $ft^3$ | |
| Time of Slug Out: | | Measuring Point Elevation (ft msl) | | | | |
| **Date** | **Clock Time (24 hour clock)** | **Elapsed Time Since Slug Out (minutes)** | **Manual Depth to Water (ft TOC)** | **Groundwater Elevation (ft msl)** | **$h/h_o$** | **Comments** |
| | | 0 | | | | Start Time |
| | | 12:26 | | | | Slug In |
| | | 12:27 | 17.7 | trans= | 10.99 | |
| | | 12:31 | 17.7 | " | " | |
| | | 12:33 | 17.~~74~~ | | | Slug out |
| | | | .73 | | | |
| | | | .71 | | | |
| | | 12:34 | .70 | | | |
| | | 12:45 | | | | Test Stop. |

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW08_B.AQT
Date: 05/30/02
Time: 09:37:33

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-08

## AQUIFER DATA

Saturated Thickness: 33.79 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-08

X Location: 0. ft
Y Location: 0. ft

No. of observations: 108

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.12 | 4.917 | 0.24 | 2.14 | 0.4666 | 1.229 |
| 0.1233 | 4.331 | 0.2433 | 2.096 | 0.4833 | 1.204 |
| 0.1266 | 4.439 | 0.2466 | 2.051 | 0.5 | 1.172 |
| 0.13 | 4.28 | 0.25 | 2.013 | 0.5166 | 1.14 |
| 0.1333 | 4.178 | 0.2533 | 1.968 | 0.5333 | 1.108 |
| 0.1366 | 4.089 | 0.2566 | 1.93 | 0.55 | 1.083 |
| 0.14 | 4. | 0.26 | 1.892 | 0.5666 | 1.051 |
| 0.1433 | 3.936 | 0.2633 | 1.86 | 0.5833 | 1.026 |
| 0.1466 | 3.854 | 0.2666 | 1.822 | 0.6 | 1. |
| 0.15 | 3.777 | 0.27 | 1.79 | 0.6166 | 0.975 |
| 0.1533 | 3.701 | 0.2733 | 1.765 | 0.6333 | 0.949 |
| 0.1566 | 3.624 | 0.2766 | 1.752 | 0.65 | 0.924 |
| 0.16 | 3.567 | 0.28 | 1.739 | 0.6666 | 0.905 |
| 0.1633 | 3.497 | 0.2833 | 1.72 | 0.6833 | 0.879 |
| 0.1666 | 3.427 | 0.2866 | 1.701 | 0.7 | 0.86 |
| 0.17 | 3.357 | 0.29 | 1.675 | 0.7166 | 0.834 |
| 0.1733 | 3.287 | 0.2933 | 1.656 | 0.7333 | 0.815 |
| 0.1766 | 3.198 | 0.2966 | 1.631 | 0.75 | 0.79 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.18 | 3.115 | 0.3 | 1.605 | 0.7666 | 0.771 |
| 0.1833 | 3.083 | 0.3033 | 1.593 | 0.7833 | 0.752 |
| 0.1866 | 3.013 | 0.3066 | 1.586 | 0.8 | 0.732 |
| 0.19 | 2.949 | 0.31 | 1.58 | 0.8166 | 0.713 |
| 0.1933 | 2.892 | 0.3133 | 1.574 | 0.8333 | 0.694 |
| 0.1966 | 2.854 | 0.3166 | 1.567 | 0.85 | 0.675 |
| 0.2 | 2.771 | 0.32 | 1.561 | 0.8666 | 0.656 |
| 0.2033 | 2.746 | 0.3233 | 1.554 | 0.8833 | 0.643 |
| 0.2066 | 2.688 | 0.3266 | 1.548 | 0.9 | 0.624 |
| 0.21 | 2.612 | 0.33 | 1.542 | 0.9166 | 0.611 |
| 0.2133 | 2.542 | 0.3333 | 1.535 | 0.9333 | 0.592 |
| 0.2166 | 2.478 | 0.35 | 1.51 | 0.95 | 0.573 |
| 0.22 | 2.427 | 0.3666 | 1.446 | 0.9666 | 0.56 |
| 0.2233 | 2.383 | 0.3833 | 1.414 | 0.9833 | 0.548 |
| 0.2266 | 2.332 | 0.4 | 1.37 | 1. | 0.529 |
| 0.23 | 2.281 | 0.4166 | 1.338 | 1.2 | 0.337 |
| 0.2333 | 2.236 | 0.4333 | 1.3 | 1.4 | 0.197 |
| 0.2366 | 2.185 | 0.45 | 1.261 | 1.6 | 0.082 |

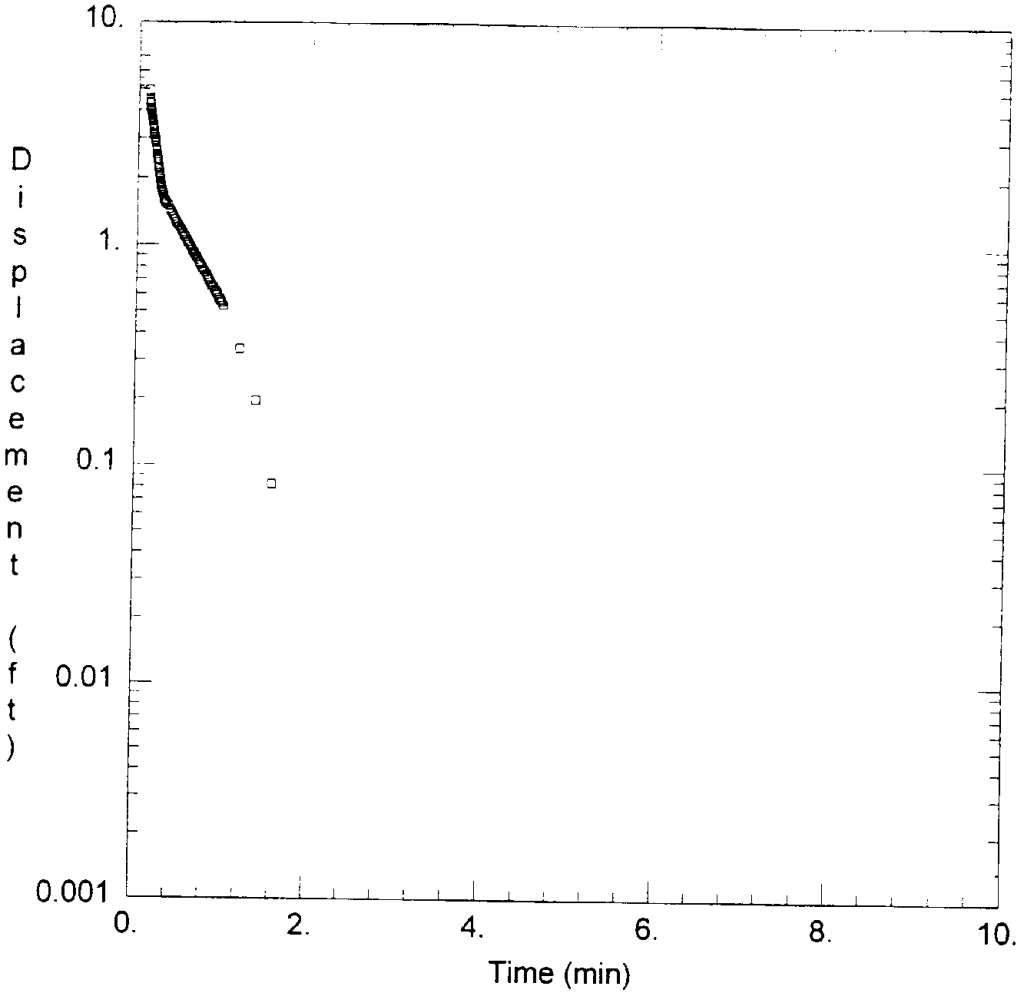
## SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

## VISUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | |
|---|---|---|
| K | 0.004861 | ft/min |
| y0 | 2.528 | ft |




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW08_B.AQT
Date: 05/21/02 Time: 12:20:24

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-08
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 33.79 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 5.35 ft
Casing Radius: 0.0833 ft
Screen Length: 15. ft
Water Column Height: 16.79 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.004861 ft/min

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW08_H.AQT
Date: 05/30/02
Time: 09:37:53

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-08

## AQUIFER DATA

Saturated Thickness: 33.79 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-08

X Location: 0. ft
Y Location: 0. ft

No. of observations: 108

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.12 | 4.917 | 0.24 | 2.14 | 0.4666 | 1.229 |
| 0.1233 | 4.331 | 0.2433 | 2.096 | 0.4833 | 1.204 |
| 0.1266 | 4.439 | 0.2466 | 2.051 | 0.5 | 1.172 |
| 0.13 | 4.28 | 0.25 | 2.013 | 0.5166 | 1.14 |
| 0.1333 | 4.178 | 0.2533 | 1.968 | 0.5333 | 1.108 |
| 0.1366 | 4.089 | 0.2566 | 1.93 | 0.55 | 1.083 |
| 0.14 | 4. | 0.26 | 1.892 | 0.5666 | 1.051 |
| 0.1433 | 3.936 | 0.2633 | 1.86 | 0.5833 | 1.026 |
| 0.1466 | 3.854 | 0.2666 | 1.822 | 0.6 | 1. |
| 0.15 | 3.777 | 0.27 | 1.79 | 0.6166 | 0.975 |
| 0.1533 | 3.701 | 0.2733 | 1.765 | 0.6333 | 0.949 |
| 0.1566 | 3.624 | 0.2766 | 1.752 | 0.65 | 0.924 |
| 0.16 | 3.567 | 0.28 | 1.739 | 0.6666 | 0.905 |
| 0.1633 | 3.497 | 0.2833 | 1.72 | 0.6833 | 0.879 |
| 0.1666 | 3.427 | 0.2866 | 1.701 | 0.7 | 0.86 |
| 0.17 | 3.357 | 0.29 | 1.675 | 0.7166 | 0.834 |
| 0.1733 | 3.287 | 0.2933 | 1.656 | 0.7333 | 0.815 |
| 0.1766 | 3.198 | 0.2966 | 1.631 | 0.75 | 0.79 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.18 | 3.115 | 0.3 | 1.605 | 0.7666 | 0.771 |
| 0.1833 | 3.083 | 0.3033 | 1.593 | 0.7833 | 0.752 |
| 0.1866 | 3.013 | 0.3066 | 1.586 | 0.8 | 0.732 |
| 0.19 | 2.949 | 0.31 | 1.58 | 0.8166 | 0.713 |
| 0.1933 | 2.892 | 0.3133 | 1.574 | 0.8333 | 0.694 |
| 0.1966 | 2.854 | 0.3166 | 1.567 | 0.85 | 0.675 |
| 0.2 | 2.771 | 0.32 | 1.561 | 0.8666 | 0.656 |
| 0.2033 | 2.746 | 0.3233 | 1.554 | 0.8833 | 0.643 |
| 0.2066 | 2.688 | 0.3266 | 1.548 | 0.9 | 0.624 |
| 0.21 | 2.612 | 0.33 | 1.542 | 0.9166 | 0.611 |
| 0.2133 | 2.542 | 0.3333 | 1.535 | 0.9333 | 0.592 |
| 0.2166 | 2.478 | 0.35 | 1.51 | 0.95 | 0.573 |
| 0.22 | 2.427 | 0.3666 | 1.446 | 0.9666 | 0.56 |
| 0.2233 | 2.383 | 0.3833 | 1.414 | 0.9833 | 0.548 |
| 0.2266 | 2.332 | 0.4 | 1.37 | 1. | 0.529 |
| 0.23 | 2.281 | 0.4166 | 1.338 | 1.2 | 0.337 |
| 0.2333 | 2.236 | 0.4333 | 1.3 | 1.4 | 0.197 |
| 0.2366 | 2.185 | 0.45 | 1.261 | 1.6 | 0.082 |

## SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev

## VISUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | |
|---|---|---|
| K | 0.006641 | ft/min |
| y0 | 2.38 | ft |

## AUTOMATIC ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | Std. Error | |
|---|---|---|---|
| K | 0.006641 | 0.005219 | ft/min |
| y0 | 2.38 | 0.3116 | ft |

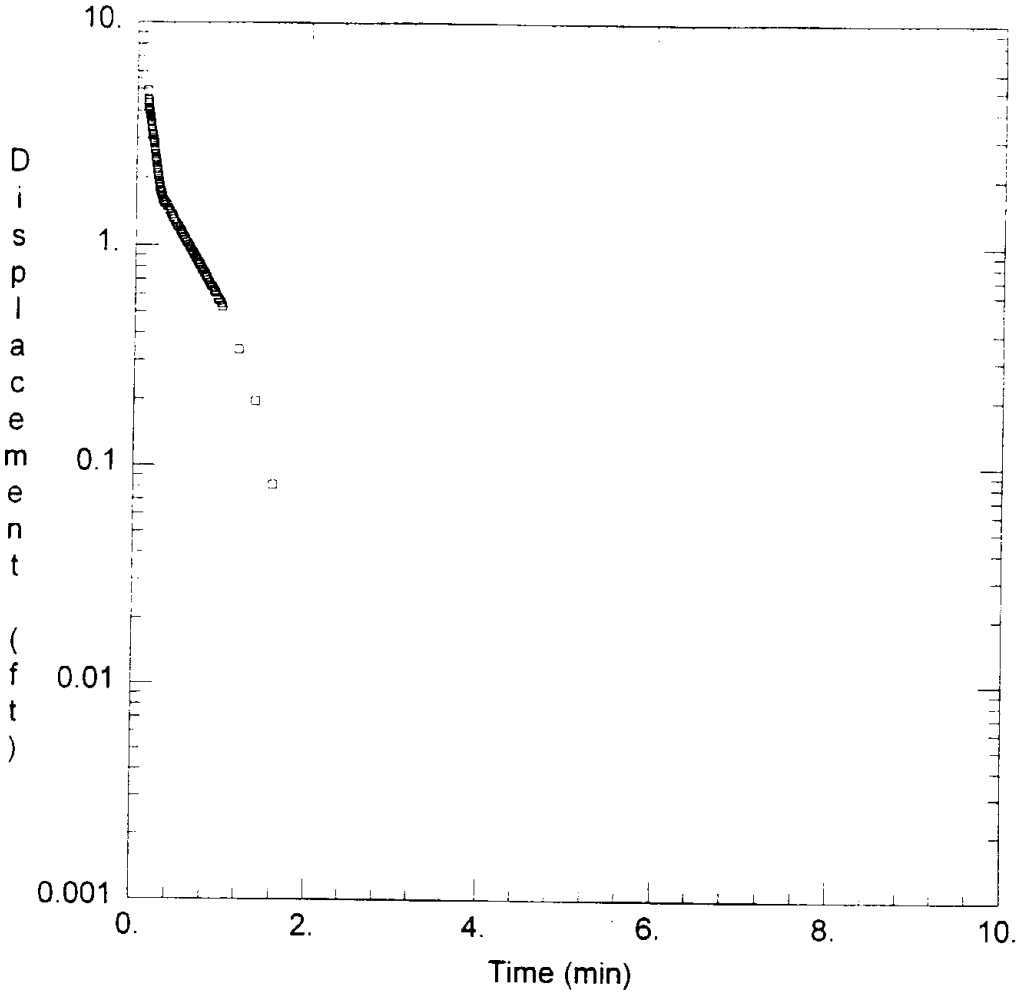
### Parameter Correlations

| | K | y0 |
|---|---|---|
| K | 1.00 | 0.87 |
| y0 | 0.87 | 1.00 |

### Residual Statistics

for weighted residuals

Sum of Squares ... 12.23 $ft^2$
Variance..... 0.1274 $ft^2$
Std. Deviation..... 0.3569 ft
Mean ..... -0.02455 ft
No. of Residuals ... 98.
No. of Estimates ... 2




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW08_H.AQT
Date: 05/21/02 Time: 12:20:30

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-08
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 33.79 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 5.35 ft
Casing Radius: 0.0833 ft
Screen Length: 15. ft
Water Column Height: 16.79 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.006641 ft/min

LFR Levine Fricke

# AQUIFER SLUG TEST DATA SHEET

| | |
|---|---|
| **Project Name:** NWSSB Concord | **Client:** TEFMI |
| **Project Number:** | **Date:** 5/16/02 |
| **Well No.** MW-08 | **Test No.** 3 |
| **Performed By:** TR/GN | **Test Type:** Slug Test - Mechanical Withdrawl ~~10'~~ 12' (R) |
| **Measuring Equipment: Datalogger -** | **Measuring Equipment: Transducer -** |

| Time Data | Water Level Data | Slug Data |
|---|---|---|
| Time of Slug In: | Static - Depth (ft) 16.21' TD = 32.68 | Volume Displaced 2.5 ~~gallons~~ qt. |
| | Static - Elevation (ft msl) | ft³ |
| Time of Slug Out: | Measuring Point Elevation (ft msl) | |

H2O col = 16.47
Trans. Head = 15.36

| Date | Clock Time (24 hour clock) | Elapsed Time Since Slug Out (minutes) | Manual Depth to Water (ft TOC) | Groundwater Elevation (ft msl) | $h/h_o$ | Comments |
|---|---|---|---|---|---|---|
| | | ~~0~~ | | | | ~~Start Time~~ |
| | | | Trans. head: | | | |
| | 13:08 | | | 16.13 | | Slug In |
| | 13:08:30 | | | 16.11 | | Transducer pushed |
| | 13:11 | | | 16.12 | | down to 16.12 |
| | | | | | | |
| | 13:11:30 | | | | | Slug Out |
| | 13:12:30 | | 16.68 | | | |
| | 13:13:00 | | 16.34 | | | |
| | 13:13:15 | | 16.28 | | | |
| | 13:13:30 | | 16.28 | | | |
| | 13:14 | | 16.28 | | | |
| | 13:15 | | 16.27 | | | |
| | 13:16 | | 16.26 | | | |
| | 13:18 | | 16.26 | | | |
| | 13:20 | | 16.25 | | | |
| | 13:23 | | 16.25 | | | |
| | 13:24 | | 16.23 | | | |
| | 13:27 | | 16.22 | | | |
| | 13:29 | | 16.22 | | | |
| | 13:31 | | 16.22 | | | Stop Test |

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW09_B.AQT
Date: 05/30/02
Time: 09:38:05

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-09

## AQUIFER DATA

Saturated Thickness: 35.36 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-09

Location: 0. ft
Y Location: 0. ft

No. of observations: 178

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.0266 | 4.894 | 0.2266 | 0.853 | 0.8 | 0.541 |
| 0.03 | 4.162 | 0.23 | 0.846 | 0.8166 | 0.534 |
| 0.0333 | 3.691 | 0.2333 | 0.834 | 0.8333 | 0.534 |
| 0.0366 | 3.965 | 0.2366 | 0.827 | 0.85 | 0.528 |
| 0.04 | 3.144 | 0.24 | 0.821 | 0.8666 | 0.528 |
| 0.0433 | 2.648 | 0.2433 | 0.815 | 0.8833 | 0.522 |
| 0.0466 | 4.512 | 0.2466 | 0.815 | 0.9 | 0.522 |
| 0.05 | 3.03 | 0.25 | 0.808 | 0.9166 | 0.515 |
| 0.0533 | 2.883 | 0.2533 | 0.802 | 0.9333 | 0.515 |
| 0.0566 | 3.647 | 0.2566 | 0.795 | 0.95 | 0.509 |
| 0.06 | 3.889 | 0.26 | 0.789 | 0.9666 | 0.509 |
| 0.0633 | 3.895 | 0.2633 | 0.789 | 0.9833 | 0.503 |
| 0.0666 | 3.119 | 0.2666 | 0.783 | 1. | 0.503 |
| 0.07 | 2.972 | 0.27 | 0.776 | 1.2 | 0.458 |
| 0.0733 | 2.909 | 0.2733 | 0.776 | 1.4 | 0.426 |
| 0.0766 | 2.813 | 0.2766 | 0.77 | 1.6 | 0.401 |
| 0.08 | 2.718 | 0.28 | 0.77 | 1.8 | 0.382 |
| 0.0833 | 2.603 | 0.2833 | 0.764 | 2. | 0.362 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.0866 | 2.533 | 0.2866 | 0.757 | 2.2 | 0.343 |
| 0.09 | 2.444 | 0.29 | 0.757 | 2.4 | 0.324 |
| 0.0933 | 2.38 | 0.2933 | 0.751 | 2.6 | 0.305 |
| 0.0966 | 2.272 | 0.29[illegible]6 | 0.745 | 2.8 | 0.286 |
| 0.1 | 2.19 | 0.3 | 0.745 | 3. | 0.273 |
| 0.1033 | 2.107 | 0.3033 | 0.738 | 3.2 | 0.261 |
| 0.1066 | 2.043 | 0.3066 | 0.738 | 3.4 | 0.241 |
| 0.11 | 1.973 | 0.31 | 0.738 | 3.6 | 0.235 |
| 0.1133 | 1.903 | 0.3133 | 0.732 | 3.8 | 0.222 |
| 0.1166 | 1.833 | 0.3166 | 0.732 | 4. | 0.21 |
| 0.12 | 1.75 | 0.32 | 0.725 | 4.2 | 0.197 |
| 0.1233 | 1.687 | 0.3233 | 0.725 | 4.4 | 0.191 |
| 0.1266 | 1.623 | 0.3266 | 0.719 | 4.6 | 0.178 |
| 0.13 | 1.566 | 0.33 | 0.719 | 4.8 | 0.171 |
| 0.1333 | 1.502 | 0.3333 | 0.713 | 5. | 0.159 |
| 0.1366 | 1.451 | 0.35 | 0.7 | 5.2 | 0.152 |
| 0.14 | 1.4 | 0.3666 | 0.694 | 5.4 | 0.14 |
| 0.1433 | 1.349 | 0.3833 | 0.681 | 5.6 | 0.133 |
| 0.1466 | 1.305 | 0.4 | 0.668 | 5.8 | 0.127 |
| 0.15 | 1.26 | 0.4166 | 0.662 | 6. | 0.114 |
| 0.1533 | 1.235 | 0.4333 | 0.655 | 6.2 | 0.108 |
| 0.1566 | 1.19 | 0.45 | 0.643 | 6.4 | 0.101 |
| 0.16 | 1.165 | 0.4666 | 0.636 | 6.6 | 0.101 |
| 0.1633 | 1.133 | 0.4833 | 0.63 | 6.8 | 0.089 |
| 0.1666 | 1.107 | 0.5 | 0.624 | 7. | 0.089 |
| 0.17 | 1.082 | 0.5166 | 0.617 | 7.2 | 0.082 |
| 0.1733 | 1.063 | 0.5333 | 0.611 | 7.4 | 0.076 |
| 0.1766 | 1.044 | 0.55 | 0.604 | 7.6 | 0.07 |
| 0.18 | 1.025 | 0.5666 | 0.598 | 7.8 | 0.063 |
| 0.1833 | 1.006 | 0.5833 | 0.598 | 8. | 0.057 |
| 0.1866 | 0.986 | 0.6 | 0.592 | 8.2 | 0.05 |
| 0.19 | 0.974 | 0.6166 | 0.585 | 8.4 | 0.05 |
| 0.1933 | 0.935 | 0.6333 | 0.585 | 8.6 | 0.044 |
| 0.1966 | 0.935 | 0.65 | 0.579 | 8.8 | 0.038 |
| 0.2 | 0.929 | 0.6666 | 0.573 | 9. | 0.031 |
| 0.2033 | 0.91 | 0.6833 | 0.566 | 9.2 | 0.031 |
| 0.2066 | 0.904 | 0.7 | 0.566 | 9.4 | 0.025 |
| 0.21 | 0.891 | 0.7166 | 0.56 | 9.6 | 0.019 |
| 0.2133 | 0.878 | 0.7333 | 0.554 | 9.8 | 0.019 |
| 0.2166 | 0.872 | 0.75 | 0.554 | 10. | 0.012 |
| 0.22 | 0.865 | 0.7666 | 0.547 | | |
| 0.2233 | 0.859 | 0.7833 | 0.547 | | |

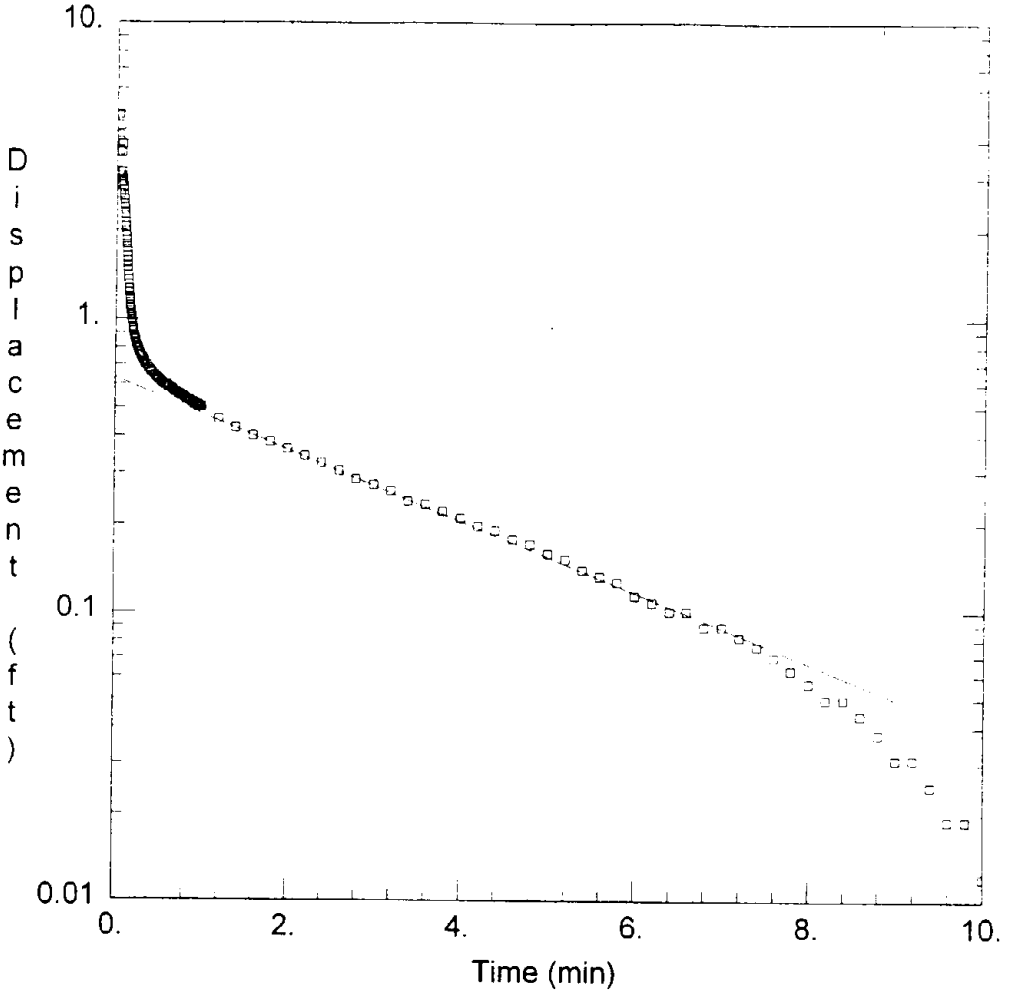
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

## VISUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | |
|---|---|---|
| K | 0.0008868 | ft/min |
| y0 | 0.6311 | ft |




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW09_B.AQT
Date: 05/21/02 Time: 12:20:38

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-09
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 35.36 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 4.894 ft
Casing Radius: 0.0833 ft
Screen Length: 15. ft
Water Column Height: 13.36 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.0008868 ft/min

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW09_H.AQT
Date: 05/30/02
Time: 09:38:15

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-09

## AQUIFER DATA

Saturated Thickness: 35.36 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-09

X Location: 0. ft
Y Location: 0. ft

No. of observations: 178

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.0266 | 4.894 | 0.2266 | 0.853 | 0.8 | 0.541 |
| 0.03 | 4.162 | 0.23 | 0.846 | 0.8166 | 0.534 |
| 0.0333 | 3.691 | 0.2333 | 0.834 | 0.8333 | 0.534 |
| 0.0366 | 3.965 | 0.2366 | 0.827 | 0.85 | 0.528 |
| 0.04 | 3.144 | 0.24 | 0.821 | 0.8666 | 0.528 |
| 0.0433 | 2.648 | 0.2433 | 0.815 | 0.8833 | 0.522 |
| 0.0466 | 4.512 | 0.2466 | 0.815 | 0.9 | 0.522 |
| 0.05 | 3.03 | 0.25 | 0.808 | 0.9166 | 0.515 |
| 0.0533 | 2.883 | 0.2533 | 0.802 | 0.9333 | 0.515 |
| 0.0566 | 3.647 | 0.2566 | 0.795 | 0.95 | 0.509 |
| 0.06 | 3.889 | 0.26 | 0.789 | 0.9666 | 0.509 |
| 0.0633 | 3.895 | 0.2633 | 0.789 | 0.9833 | 0.503 |
| 0.0666 | 3.119 | 0.2666 | 0.783 | 1. | 0.503 |
| 0.07 | 2.972 | 0.27 | 0.776 | 1.2 | 0.458 |
| 0.0733 | 2.909 | 0.2733 | 0.776 | 1.4 | 0.426 |
| 0.0766 | 2.813 | 0.2766 | 0.77 | 1.6 | 0.401 |
| 0.08 | 2.718 | 0.28 | 0.77 | 1.8 | 0.382 |
| 0.0833 | 2.603 | 0.2833 | 0.764 | 2. | 0.362 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.0866 | 2.533 | 0.2866 | 0.757 | 2.2 | 0.343 |
| 0.09 | 2.444 | 0.29 | 0.757 | 2.4 | 0.324 |
| 0.0933 | 2.38 | 0.2933 | 0.751 | 2.6 | 0.305 |
| 0.0966 | 2.272 | 0.2966 | 0.745 | 2.8 | 0.286 |
| 0.1 | 2.19 | 0.3 | 0.745 | 3. | 0.273 |
| 0.1033 | 2.107 | 0.3033 | 0.738 | 3.2 | 0.261 |
| 0.1066 | 2.043 | 0.3066 | 0.738 | 3.4 | 0.241 |
| 0.11 | 1.973 | 0.31 | 0.738 | 3.6 | 0.235 |
| 0.1133 | 1.903 | 0.3133 | 0.732 | 3.8 | 0.222 |
| 0.1166 | 1.833 | 0.3166 | 0.732 | 4. | 0.21 |
| 0.12 | 1.75 | 0.32 | 0.725 | 4.2 | 0.197 |
| 0.1233 | 1.687 | 0.3233 | 0.725 | 4.4 | 0.191 |
| 0.1266 | 1.623 | 0.3266 | 0.719 | 4.6 | 0.178 |
| 0.13 | 1.566 | 0.33 | 0.719 | 4.8 | 0.171 |
| 0.1333 | 1.502 | 0.3333 | 0.713 | 5. | 0.159 |
| 0.1366 | 1.451 | 0.35 | 0.7 | 5.2 | 0.152 |
| 0.14 | 1.4 | 0.3666 | 0.694 | 5.4 | 0.14 |
| 0.1433 | 1.349 | 0.3833 | 0.681 | 5.6 | 0.133 |
| 0.1466 | 1.305 | 0.4 | 0.668 | 5.8 | 0.127 |
| 0.15 | 1.26 | 0.4166 | 0.662 | 6. | 0.114 |
| 0.1533 | 1.235 | 0.4333 | 0.655 | 6.2 | 0.108 |
| 0.1566 | 1.19 | 0.45 | 0.643 | 6.4 | 0.101 |
| 0.16 | 1.165 | 0.4666 | 0.636 | 6.6 | 0.101 |
| 0.1633 | 1.133 | 0.4833 | 0.63 | 6.8 | 0.089 |
| 0.1666 | 1.107 | 0.5 | 0.624 | 7. | 0.089 |
| 0.17 | 1.082 | 0.5166 | 0.617 | 7.2 | 0.082 |
| 0.1733 | 1.063 | 0.5333 | 0.611 | 7.4 | 0.076 |
| 0.1766 | 1.044 | 0.55 | 0.604 | 7.6 | 0.07 |
| 0.18 | 1.025 | 0.5666 | 0.598 | 7.8 | 0.063 |
| 0.1833 | 1.006 | 0.5833 | 0.598 | 8. | 0.057 |
| 0.1866 | 0.986 | 0.6 | 0.592 | 8.2 | 0.05 |
| 0.19 | 0.974 | 0.6166 | 0.585 | 8.4 | 0.05 |
| 0.1933 | 0.935 | 0.6333 | 0.585 | 8.6 | 0.044 |
| 0.1966 | 0.935 | 0.65 | 0.579 | 8.8 | 0.038 |
| 0.2 | 0.929 | 0.6666 | 0.573 | 9. | 0.031 |
| 0.2033 | 0.91 | 0.6833 | 0.566 | 9.2 | 0.031 |
| 0.2066 | 0.904 | 0.7 | 0.566 | 9.4 | 0.025 |
| 0.21 | 0.891 | 0.7166 | 0.56 | 9.6 | 0.019 |
| 0.2133 | 0.878 | 0.7333 | 0.554 | 9.8 | 0.019 |
| 0.2166 | 0.872 | 0.75 | 0.554 | 10. | 0.012 |
| 0.22 | 0.865 | 0.7666 | 0.547 | | |
| 0.2233 | 0.859 | 0.7833 | 0.547 | | |

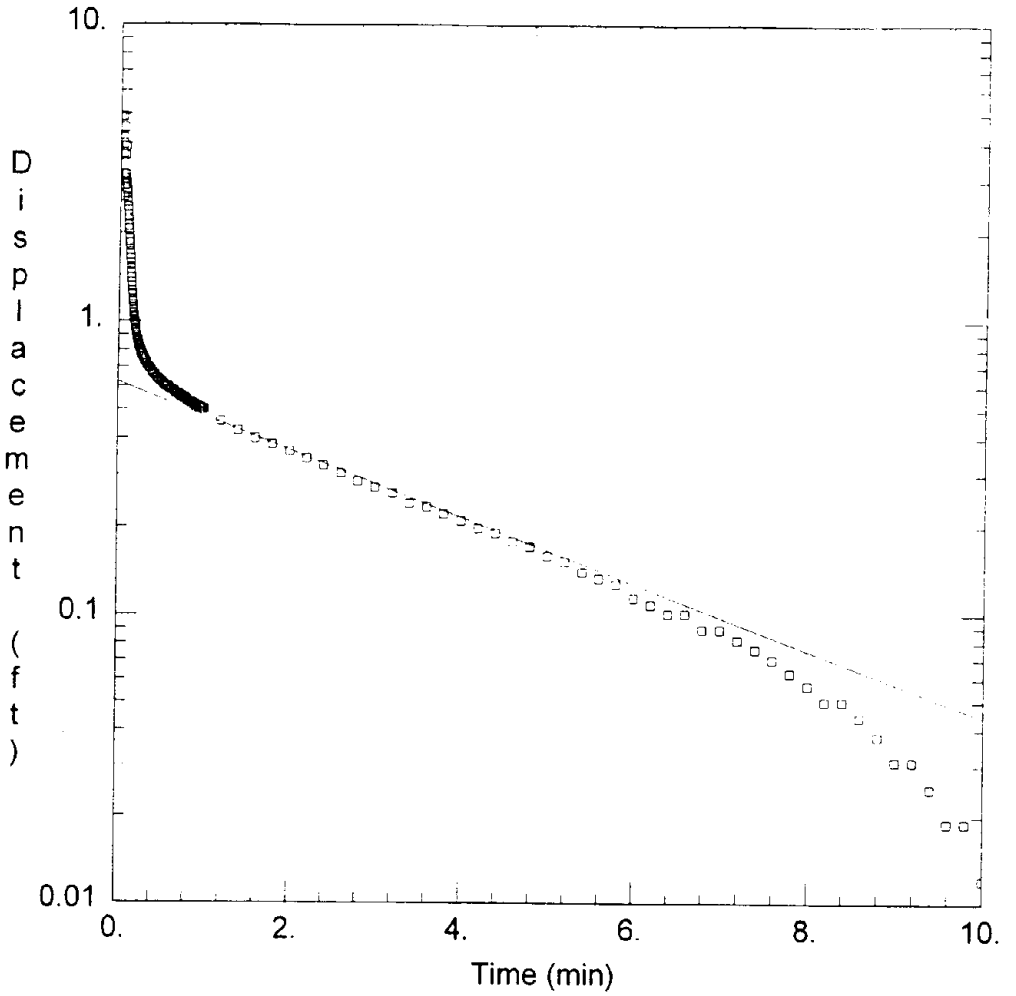
SOLUTION

^quifer Model: Unconfined
ɔolution Method: Hvorslev

## VISUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | |
|---|---|---|
| K | 0.001219 | ft/min |
| y0 | 0.6219 | ft |




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW09_H.AQT
Date: 05/21/02 Time: 12:20:46

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-09
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 35.36 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 4.894 ft
Casing Radius: 0.0833 ft
Screen Length: 15. ft
Water Column Height: 13.36 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.001219 ft/min

LFR Levine Fricke

# AQUIFER SLUG TEST DATA SHEET

| | |
|---|---|
| Project Name: NWSSB Concord | Client: TEEMI |
| Project Number: 001-05506-00/021 | Date: 05/16/02 |
| Well No. MW-09 | Test No. Ø |
| Performed By: TLP/GN | Test Type: Slug Test - Mechanical Withdrawl ~~sand water~~ ⇒ 10' long |
| Measuring Equipment: Datalogger - 1000 C | Measuring Equipment: Transducer - |

| Time Data | | Water Level Data | | | Slug Data | |
|---|---|---|---|---|---|---|
| Time of Slug In: | | Static - Depth (ft) 14.64 ; TD = 27.68 | | | Volume Displaced 1.492 gallons | $H_2O$ col. = 13.04' @ 10:40 ⇒ 12.00 Trans. reading |
| Time of Slug Out: | | Static - Elevation (ft msl) | | | $ft^3$ | |
| | | Measuring Point Elevation (ft msl) TOC | | | | |
| Date | Clock Time (24 hour clock) | Elapsed Time Since Slug Out (minutes) | Manual Depth to Water (ft TOC) | Groundwater Elevation (ft msl) | $h/h_o$ | Comments |
| 5/16/02 | | 0 | ~~13.04~~ TD | | | ~~Start Time~~ |
| | 09:45 | | 14.64 dtw | | | Slug In |
| | | | 12.38 transducer head | | | 10' bailer w/weights. |
| | 10:15 | | 12.10 transducer head | | | |
| | 10:29 | | 12.09 " | " | | |
| | | | | | | |
| | 10:32 | | dtw: | | | Slug Out |
| | 10:32 | | 15.22 | | | |
| | 10:32:30 | | 15.16 | | | |
| | 10:33 | | 15.13 | | | |
| | 10:33:30 | | 15.11 | | | |
| | 10:34 | | 15.04 | | | |
| | 10:34:30 | | 15.01 | | | |
| | ~~10:35~~ | | | | | |
| | 10:35:~~30~~ TK | | 14.95 | | | |
| | 10:35:30 | | 14.92 | | | |
| | 10:36 | | 14.89 | | | |
| | 10:36:30 | | 14.87 | | | |
| | 10:37 | | 14.85 | | | |
| | 10:37:30 | | 14.82 | | | |
| | 10:38 | | 14.79 | | | |
| | 10:38:30 | | 14.77 | | | |
| | 10:41 | | 14.75 | | | |
| | 10:42 | | 14.72 | | | |
| | 10:43 | | 14.70 | | | |
| | 10:44 | | 14.70 | | | |
| | 10:45 | | 14.69 | | | |
| | 10:46 | | 14.68 | | | |
| | 10:47 | | 14.67 | | | |
| | 10:48 | | 14.67 | | | |
| | 10:49 | | 14.66 | | | |
| | 10:50 | | 14.66 | | | |
| | 10:55 | | 14.64 | | | |

10:58 Test Done.

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW10_B.AQT
Date: 05/30/02
Time: 09:38:31

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-10

## AQUIFER DATA

Saturated Thickness: 33.4 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-10

Location: 0. ft
Y Location: 0. ft

No. of observations: 148

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.02 | 0.006 | 0.1866 | 1.528 | 0.4333 | 0.859 |
| 0.0233 | 4.639 | 0.19 | 1.496 | 0.45 | 0.84 |
| 0.0266 | 4.429 | 0.1933 | 1.47 | 0.4666 | 0.821 |
| 0.03 | 3.806 | 0.1966 | 1.445 | 0.4833 | 0.802 |
| 0.0333 | 2.832 | 0.2 | 1.426 | 0.5 | 0.789 |
| 0.0366 | 2.419 | 0.2033 | 1.394 | 0.5166 | 0.77 |
| 0.04 | 1.776 | 0.2066 | 1.375 | 0.5333 | 0.751 |
| 0.0433 | 3.73 | 0.21 | 1.349 | 0.55 | 0.738 |
| 0.0466 | 3.291 | 0.2133 | 1.337 | 0.5666 | 0.725 |
| 0.05 | 2.921 | 0.2166 | 1.318 | 0.5833 | 0.706 |
| 0.0533 | 3.641 | 0.22 | 1.298 | 0.6 | 0.694 |
| 0.0566 | 3.933 | 0.2233 | 1.286 | 0.6166 | 0.681 |
| 0.06 | 3.539 | 0.2266 | 1.273 | 0.6333 | 0.668 |
| 0.0633 | 3.348 | 0.23 | 1.26 | 0.65 | 0.655 |
| 0.0666 | 3.291 | 0.2333 | 1.248 | 0.6666 | 0.643 |
| 0.07 | 3.246 | 0.2366 | 1.235 | 0.6833 | 0.63 |
| 0.0733 | 3.189 | 0.24 | 1.222 | 0.7 | 0.617 |
| 0.0766 | 3.119 | 0.2433 | 1.209 | 0.7166 | 0.579 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.08 | 3.042 | 0.2466 | 1.197 | 0.7333 | 0.604 |
| 0.0833 | 2.979 | 0.25 | 1.184 | 0.75 | 0.579 |
| 0.0866 | 2.928 | 0.2533 | 1.177 | 0.7666 | 0.573 |
| 0.09 | 2.858 | 0.2566 | 1.165 | 0.7833 | 0.56 |
| 0.0933 | 2.801 | 0.26 | 1.158 | 0.8 | 0.554 |
| 0.0966 | 2.743 | 0.2633 | 1.146 | 0.8166 | 0.541 |
| 0.1 | 2.686 | 0.2666 | 1.139 | 0.8333 | 0.534 |
| 0.1033 | 2.629 | 0.27 | 1.133 | 0.85 | 0.522 |
| 0.1066 | 2.565 | 0.2733 | 1.12 | 0.8666 | 0.522 |
| 0.11 | 2.527 | 0.2766 | 1.114 | 0.8833 | 0.509 |
| 0.1133 | 2.457 | 0.28 | 1.107 | 0.9 | 0 496 |
| 0.1166 | 2.419 | 0.2833 | 1.101 | 0.9166 | 0.49 |
| 0.12 | 2.368 | 0.2866 | 1.095 | 0.9333 | 0.49 |
| 0.1233 | 2.311 | 0.29 | 1.088 | 0.95 | 0.477 |
| 0.1266 | 2.26 | 0.2933 | 1.076 | 0.9666 | 0.471 |
| 0.13 | 2.209 | 0.2966 | 1.069 | 0.9833 | 0.464 |
| 0.1333 | 2.158 | 0.3 | 1.063 | 1. | 0.458 |
| 0.1366 | 2.107 | 0.3033 | 1.063 | 1.2 | 0.356 |
| 0.14 | 2.062 | 0.3066 | 1.05 | 1.4 | 0.292 |
| 0.1433 | 2.018 | 0.31 | 1.05 | 1.6 | 0.241 |
| 0.1466 | 1.973 | 0.3133 | 1.037 | 1.8 | 0.203 |
| 0.15 | 1.935 | 0.3166 | 1.031 | 2. | 0.165 |
| 0.1533 | 1.884 | 0.32 | 1.025 | 2.2 | 0.133 |
| 0.1566 | 1.84 | 0.3233 | 1.018 | 2.4 | 0.108 |
| 0.16 | 1.801 | 0.3266 | 1.012 | 2.6 | 0.082 |
| 0.1633 | 1.763 | 0.33 | 1.012 | 2.8 | 0.07 |
| 0.1666 | 1.725 | 0.3333 | 1.006 | 3. | 0.044 |
| 0.17 | 1.687 | 0.35 | 0.98 | 3.2 | 0.031 |
| 0.1733 | 1.649 | 0.3666 | 0.948 | 3.4 | 0.019 |
| 0.1766 | 1.617 | 0.3833 | 0.923 | 3.6 | 0.006 |
| 0.18 | 1.585 | 0.4 | 0.904 | | |
| 0.1833 | 1.553 | 0.4166 | 0.878 | | |

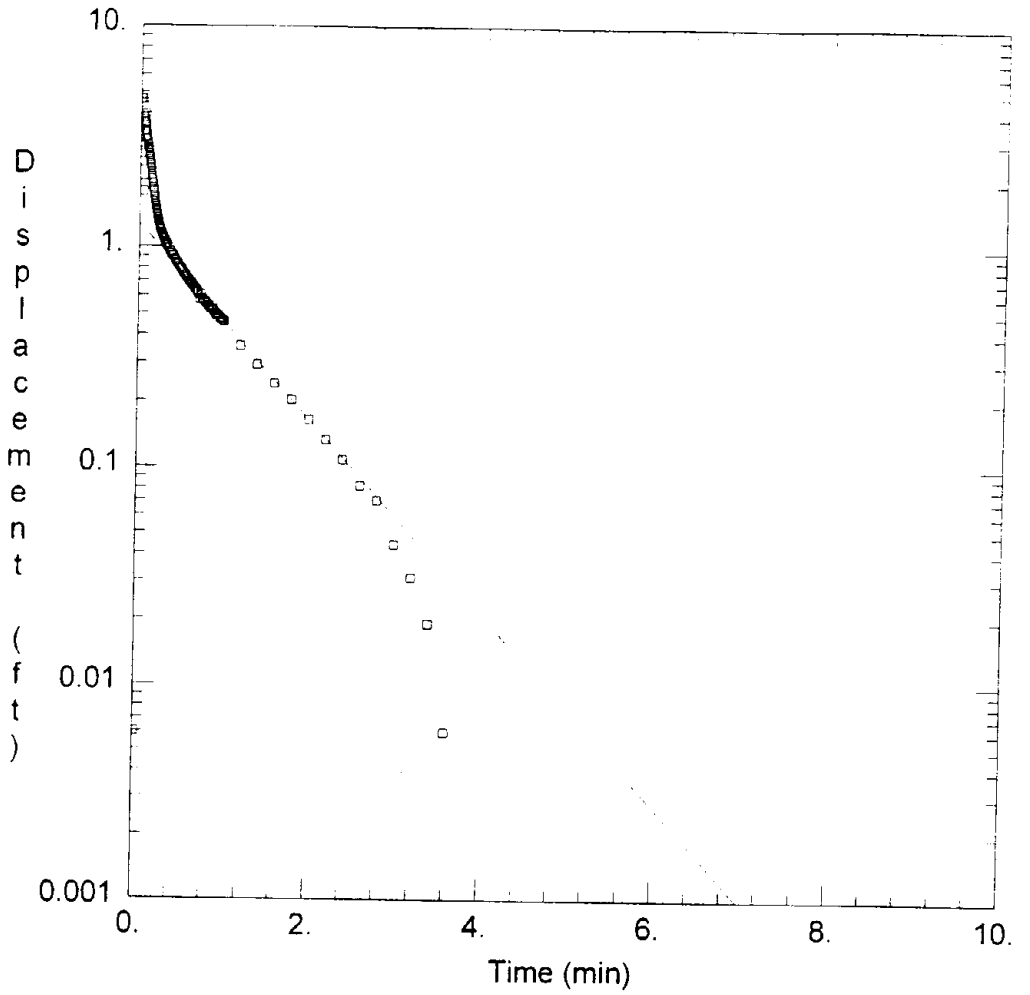
## SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

## VISUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | |
|---|---|---|
| K | 0.003228 | ft/min |
| y0 | 1.274 | ft |




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW10_B.AQT
Date: 05/21/02 Time: 12:21:06

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-10
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 33.4 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 4.639 ft
Casing Radius: 0.0833 ft
Screen Length: 15. ft
Water Column Height: 13.4 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.003228 ft/min

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW10_H.AQT
Date: 05/30/02
Time: 09:38:43

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-10

## AQUIFER DATA

Saturated Thickness: 33.4 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-10

X Location: 0. ft
Y Location: 0. ft

No. of observations: 148

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.02 | 0.006 | 0.1866 | 1.528 | 0.4333 | 0.859 |
| 0.0233 | 4.639 | 0.19 | 1.496 | 0.45 | 0.84 |
| 0.0266 | 4.429 | 0.1933 | 1.47 | 0.4666 | 0.821 |
| 0.03 | 3.806 | 0.1966 | 1.445 | 0.4833 | 0.802 |
| 0.0333 | 2.832 | 0.2 | 1.426 | 0.5 | 0.789 |
| 0.0366 | 2.419 | 0.2033 | 1.394 | 0.5166 | 0.77 |
| 0.04 | 1.776 | 0.2066 | 1.375 | 0.5333 | 0.751 |
| 0.0433 | 3.73 | 0.21 | 1.349 | 0.55 | 0.738 |
| 0.0466 | 3.291 | 0.2133 | 1.337 | 0.5666 | 0.725 |
| 0.05 | 2.921 | 0.2166 | 1.318 | 0.5833 | 0.706 |
| 0.0533 | 3.641 | 0.22 | 1.298 | 0.6 | 0.694 |
| 0.0566 | 3.933 | 0.2233 | 1.286 | 0.6166 | 0.681 |
| 0.06 | 3.539 | 0.2266 | 1.273 | 0.6333 | 0.668 |
| 0.0633 | 3.348 | 0.23 | 1.26 | 0.65 | 0.655 |
| 0.0666 | 3.291 | 0.2333 | 1.248 | 0.6666 | 0.643 |
| 0.07 | 3.246 | 0.2366 | 1.235 | 0.6833 | 0.63 |
| 0.0733 | 3.189 | 0.24 | 1.222 | 0.7 | 0.617 |
| 0.0766 | 3.119 | 0.2433 | 1.209 | 0.7166 | 0.579 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.08 | 3.042 | 0.2466 | 1.197 | 0.7333 | 0.604 |
| 0.0833 | 2.979 | 0.25 | 1.184 | 0.75 | 0.579 |
| 0.0866 | 2.928 | 0.2533 | 1.177 | 0.7666 | 0.573 |
| 0.09 | 2.858 | 0.2566 | 1.165 | 0.7833 | 0.56 |
| 0.0933 | 2.801 | 0.26 | 1.158 | 0.8 | 0.554 |
| 0.0966 | 2.743 | 0.2633 | 1.146 | 0.8166 | 0.541 |
| 0.1 | 2.686 | 0.2666 | 1.139 | 0.8333 | 0.534 |
| 0.1033 | 2.629 | 0.27 | 1.133 | 0.85 | 0.522 |
| 0.1066 | 2.565 | 0.2733 | 1.12 | 0.8666 | 0.522 |
| 0.11 | 2.527 | 0.2766 | 1.114 | 0.8833 | 0.509 |
| 0.1133 | 2.457 | 0.28 | 1.107 | 0.9 | 0.496 |
| 0.1166 | 2.419 | 0.2833 | 1.101 | 0.9166 | 0.49 |
| 0.12 | 2.368 | 0.2866 | 1.095 | 0.9333 | 0.49 |
| 0.1233 | 2.311 | 0.29 | 1.088 | 0.95 | 0.477 |
| 0.1266 | 2.26 | 0.2933 | 1.076 | 0.9666 | 0.471 |
| 0.13 | 2.209 | 0.2966 | 1.069 | 0.9833 | 0.464 |
| 0.1333 | 2.158 | 0.3 | 1.063 | 1. | 0.458 |
| 0.1366 | 2.107 | 0.3033 | 1.063 | 1.2 | 0.356 |
| 0.14 | 2.062 | 0.3066 | 1.05 | 1.4 | 0.292 |
| 0.1433 | 2.018 | 0.31 | 1.05 | 1.6 | 0.241 |
| 0.1466 | 1.973 | 0.3133 | 1.037 | 1.8 | 0.203 |
| 0.15 | 1.935 | 0.3166 | 1.031 | 2. | 0.165 |
| 0.1533 | 1.884 | 0.32 | 1.025 | 2.2 | 0.133 |
| 0.1566 | 1.84 | 0.3233 | 1.018 | 2.4 | 0.108 |
| 0.16 | 1.801 | 0.3266 | 1.012 | 2.6 | 0.082 |
| 0.1633 | 1.763 | 0.33 | 1.012 | 2.8 | 0.07 |
| 0.1666 | 1.725 | 0.3333 | 1.006 | 3. | 0.044 |
| 0.17 | 1.687 | 0.35 | 0.98 | 3.2 | 0.031 |
| 0.1733 | 1.649 | 0.3666 | 0.948 | 3.4 | 0.019 |
| 0.1766 | 1.617 | 0.3833 | 0.923 | 3.6 | 0.006 |
| 0.18 | 1.585 | 0.4 | 0.904 | | |
| 0.1833 | 1.553 | 0.4166 | 0.878 | | |

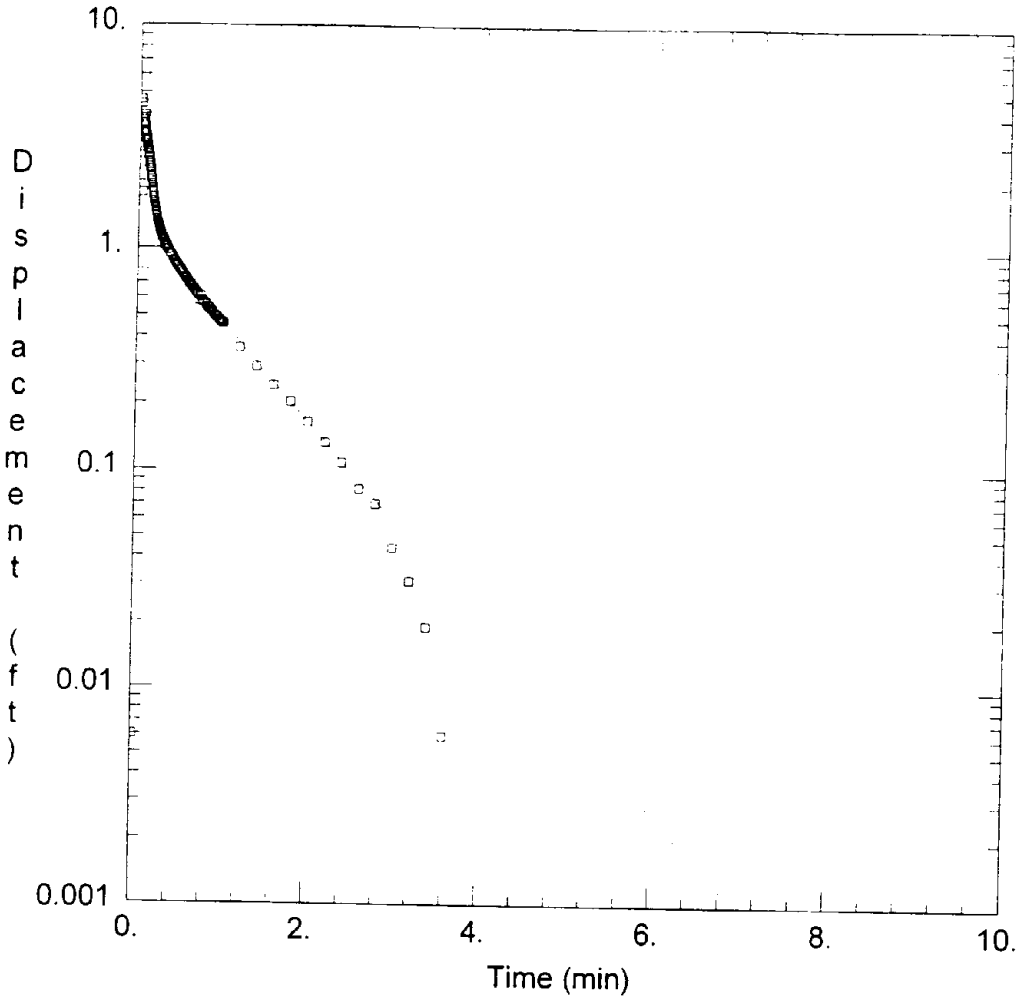
## SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev

## VISUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | |
|---|---|---|
| K | 0.004727 | ft/min |
| y0 | 1.275 | ft |




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW10_H.AQT
Date: 05/21/02 Time: 12:21:13

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-10
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 33.4 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 4.639 ft
Casing Radius: 0.0833 ft
Screen Length: 15. ft
Water Column Height: 13.4 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.004727 ft/min

LFR Levine Fricke

# AQUIFER SLUG TEST DATA SHEET

| | |
|---|---|
| **Project Name:** NWSSB Concord | **Client:** TTEMI |
| **Project Number:** | **Date:** 5/16/02 |
| **Well No.** MW-10 | **Test No.** 1 |
| **Performed By:** TRI GN | **Test Type:** Slug Test - Mechanical Withdrawl 10' |
| **Measuring Equipment: Datalogger -** 1000 C | **Measuring Equipment: Transducer -** In Situ 261-20-400.03 |

| Time Data | Water Level Data | Slug Data |
|---|---|---|
| Time of Slug In: | Static - Depth (ft) 16.6' TD = 29.55 | Volume Displaced 1.59 ~~gallons~~ ft³ |
| Time of Slug Out: | Static - Elevation (ft msl) | |
| | Measuring Point Elevation (ft msl) | |

12.95' head
Transducer is 1' off bottom.
Trans head = 12'

| Date | Clock Time (24 hour clock) | Elapsed Time Since Slug Out (minutes) | Manual Depth to Water (ft TOC) | Groundwater Elevation (ft msl) | $h/h_o$ | Comments |
|---|---|---|---|---|---|---|
| | | 0 | | | | ~~Start Time~~ |
| | 11:35 | | 16.6' | | | Slug In. |
| | 11:37 | | 16.44 | | | |
| | 11:40 | | 16.58 | | | |
| | 11:44 | | 16.6 | | | |
| | | | | | | |
| | 11:45 | | | | | Slug out. |
| | :45:30 | | 17.21 | | | |
| | :46 | | 17.08 | | | |
| | 46.15 ~~:46:30~~ | | 17.03 | | | |
| | 46:30 ~~47~~ | TR | 16.99 | | | |
| | 46:45 ~~47:30~~ | | 16.91 | | | |
| | 47 ~~:48~~ | | 16.83 | | | |
| | 47:15 ~~:48:30~~ | | 16.80 | | | |
| | 47:30 ~~:49~~ | | 16.76 | | | |
| | 47:45 ~~49:30~~ | | 16.72 | | | |
| | ~~:50~~ 48 | | 16.69 | | | |
| | ~~:50:30~~ 49 | | 16.66 | | | |
| | :49:30 | | 16.65 | | | |
| | :50 | | 16.64 | | | |
| | :50:30 | | 16.63 | | | |
| | :51 | | 16.62 | | | |
| | :51:30 | | 16.62 | | | |
| | :52 | | 16.61 | | | |
| | :52:30 | | 16.61 | | | |
| | :53 | | 16.61 | | | |
| | :53:30 | | 16.61 | | | |
| | :54 | | 16.60 | | | |
| | ~~:55~~ | TR | | | | |
| | ~~:56~~ | | | | | |
| | | | | | | |
| | 12:03 | | | | | Stop Test. |

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW11B.AQT
Date: 05/30/02
Time: 09:38:56

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-11

## AQUIFER DATA

Saturated Thickness: 40.14 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-11

X Location: 0. ft
Y Location: 0. ft

No. of observations: 104

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.07 | 3.398 | 0.1866 | 1.864 | 0.3033 | 0.961 |
| 0.0733 | 2.081 | 0.19 | 1.833 | 0.3066 | 0.942 |
| 0.0766 | 2.202 | 0.1933 | 1.794 | 0.31 | 0.923 |
| 0.08 | 1.451 | 0.1966 | 1.763 | 0.3133 | 0.903 |
| 0.0833 | 3.678 | 0.2 | 1.731 | 0.3166 | 0.891 |
| 0.0866 | 3.302 | 0.2033 | 1.699 | 0.32 | 0.872 |
| 0.09 | 3.22 | 0.2066 | 1.661 | 0.3233 | 0.853 |
| 0.0933 | 3.245 | 0.21 | 1.635 | 0.3266 | 0.84 |
| 0.0966 | 4.199 | 0.2133 | 1.604 | 0.33 | 0.821 |
| 0.1 | 3.391 | 0.2166 | 1.572 | 0.3333 | 0.802 |
| 0.1033 | 3.226 | 0.22 | 1.546 | 0.35 | 0.719 |
| 0.1066 | 3.124 | 0.2233 | 1.514 | 0.3666 | 0.643 |
| 0.11 | 3.061 | 0.2266 | 1.489 | 0.3833 | 0.579 |
| 0.1133 | 2.959 | 0.23 | 1.457 | 0.4 | 0.515 |
| 0.1166 | 2.857 | 0.2333 | 1.432 | 0.4166 | 0.452 |
| 0.12 | 2.762 | 0.2366 | 1.4 | 0.4333 | 0.401 |
| 0.1233 | 2.685 | 0.24 | 1.374 | 0.45 | 0.356 |
| 0.1266 | 2.609 | 0.2433 | 1.349 | 0.4666 | 0.312 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.13 | 2.507 | 0.2466 | 1.323 | 0.4833 | 0.273 |
| 0.1333 | 2.494 | 0.25 | 1.298 | 0.5 | 0.241 |
| 0.1366 | 2.431 | 0.2533 | 1.273 | 0.5166 | 0.21 |
| 0.14 | 2.38 | 0.2566 | 1.253 | 0.5333 | 0.184 |
| 0.1433 | 2.329 | 0.26 | 1.228 | 0.55 | 0.159 |
| 0.1466 | 2.297 | 0.2633 | 1.203 | 0.5666 | 0.133 |
| 0.15 | 2.253 | 0.2666 | 1.177 | 0.5833 | 0.114 |
| 0.1533 | 2.195 | 0.27 | 1.158 | 0.6 | 0.095 |
| 0.1566 | 2.176 | 0.2733 | 1.139 | 0.6166 | 0.076 |
| 0.16 | 2.144 | 0.2766 | 1.12 | 0.6333 | 0.063 |
| 0.1633 | 2.125 | 0.28 | 1.094 | 0.65 | 0.051 |
| 0.1666 | 2.074 | 0.2833 | 1.075 | 0.6666 | 0.038 |
| 0.17 | 2.036 | 0.2866 | 1.056 | 0.6833 | 0.031 |
| 0.1733 | 2.004 | 0.29 | 1.037 | 0.7 | 0.019 |
| 0.1766 | 1.966 | 0.2933 | 1.018 | 0.7166 | 0.012 |
| 0.18 | 1.928 | 0.2966 | 0.993 | 0.7333 | 0.006 |
| 0.1833 | 1.896 | 0.3 | 0.98 | | |

## SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

## SUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | |
|---|---|---|
| K | 0.02346 | ft/min |
| y0 | 4.935 | ft |

## AUTOMATIC ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | Std. Error | |
|---|---|---|---|
| K | 0.02346 | 0.001037 | ft/min |
| y0 | 4.935 | 0.1901 | ft |

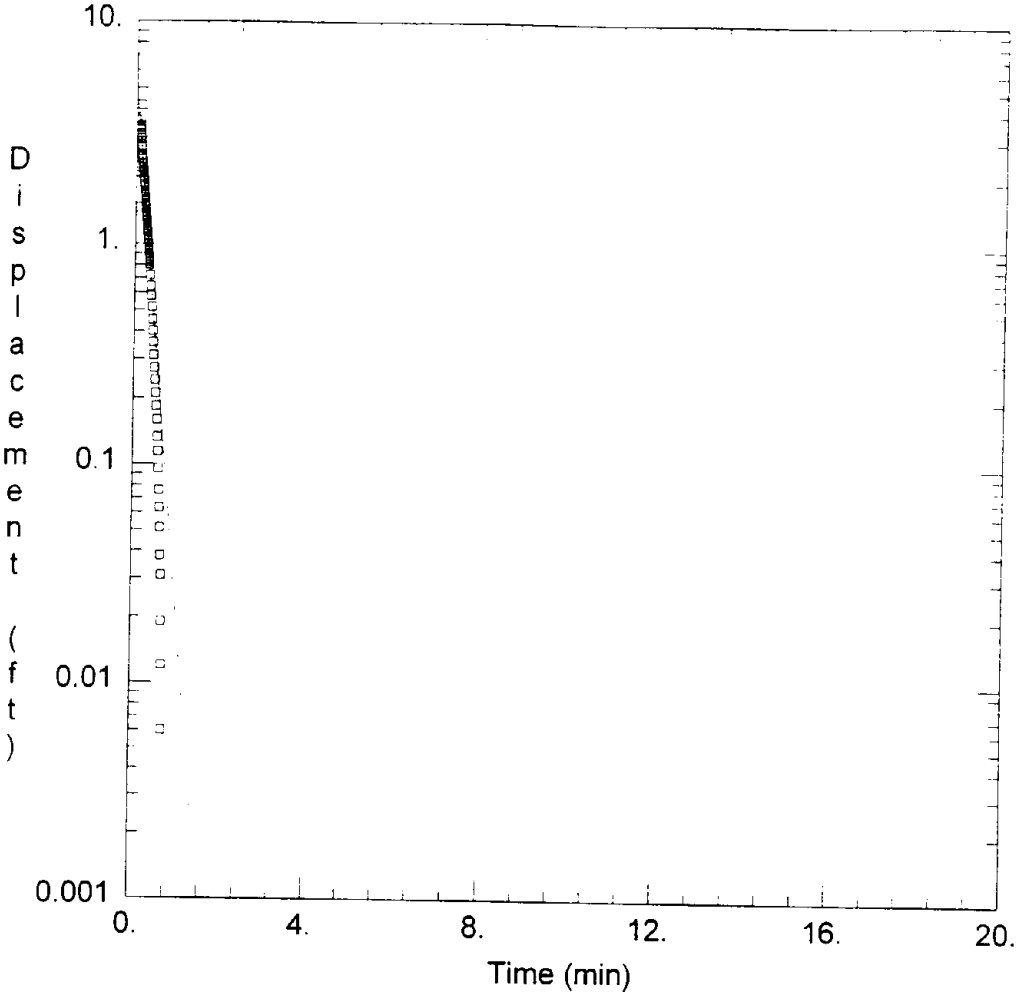
### Parameter Correlations

| | K | y0 |
|---|---|---|
| K | 1.00 | 0.90 |
| y0 | 0.90 | 1.00 |

### Residual Statistics

for weighted residuals

Sum of Squares ... 8.849 $ft^2$
Variance ..... 0.08675 $ft^2$
Std. Deviation..... 0.2945 ft
Mean ..... -0.01683 ft
No. of Residuals ... 104.
No. of Estimates ... 2




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW11B.AQT
Date: 05/21/02 Time: 12:21:21

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-11
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 40.14 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 3.57 ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 11.74 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.02346 ft/min

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW11H.AQT
Date: 05/30/02
Time: 09:39:10

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-11

## AQUIFER DATA

Saturated Thickness: 40.14 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-11

X Location: 0. ft
Y Location: 0. ft

No. of observations: 104

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.07 | 3.398 | 0.1866 | 1.864 | 0.3033 | 0.961 |
| 0.0733 | 2.081 | 0.19 | 1.833 | 0.3066 | 0.942 |
| 0.0766 | 2.202 | 0.1933 | 1.794 | 0.31 | 0.923 |
| 0.08 | 1.451 | 0.1966 | 1.763 | 0.3133 | 0.903 |
| 0.0833 | 3.678 | 0.2 | 1.731 | 0.3166 | 0.891 |
| 0.0866 | 3.302 | 0.2033 | 1.699 | 0.32 | 0.872 |
| 0.09 | 3.22 | 0.2066 | 1.661 | 0.3233 | 0.853 |
| 0.0933 | 3.245 | 0.21 | 1.635 | 0.3266 | 0.84 |
| 0.0966 | 4.199 | 0.2133 | 1.604 | 0.33 | 0.821 |
| 0.1 | 3.391 | 0.2166 | 1.572 | 0.3333 | 0.802 |
| 0.1033 | 3.226 | 0.22 | 1.546 | 0.35 | 0.719 |
| 0.1066 | 3.124 | 0.2233 | 1.514 | 0.3666 | 0.643 |
| 0.11 | 3.061 | 0.2266 | 1.489 | 0.3833 | 0.579 |
| 0.1133 | 2.959 | 0.23 | 1.457 | 0.4 | 0.515 |
| 0.1166 | 2.857 | 0.2333 | 1.432 | 0.4166 | 0.452 |
| 0.12 | 2.762 | 0.2366 | 1.4 | 0.4333 | 0.401 |
| 0.1233 | 2.685 | 0.24 | 1.374 | 0.45 | 0.356 |
| 0.1266 | 2.609 | 0.2433 | 1.349 | 0.4666 | 0.312 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.13 | 2.507 | 0.2466 | 1.323 | 0.4833 | 0.273 |
| 0.1333 | 2.494 | 0.25 | 1.298 | 0.5 | 0.241 |
| 0.1366 | 2.431 | 0.2533 | 1.273 | 0.5166 | 0.21 |
| 0.14 | 2.38 | 0.2566 | 1.253 | 0.5333 | 0.184 |
| 0.1433 | 2.329 | 0.26 | 1.228 | 0.55 | 0.159 |
| 0.1466 | 2.297 | 0.2633 | 1.203 | 0.5666 | 0.133 |
| 0.15 | 2.253 | 0.2666 | 1.177 | 0.5833 | 0.114 |
| 0.1533 | 2.195 | 0.27 | 1.158 | 0.6 | 0.095 |
| 0.1566 | 2.176 | 0.2733 | 1.139 | 0.6166 | 0.076 |
| 0.16 | 2.144 | 0.2766 | 1.12 | 0.6333 | 0.063 |
| 0.1633 | 2.125 | 0.28 | 1.094 | 0.65 | 0.051 |
| 0.1666 | 2.074 | 0.2833 | 1.075 | 0.6666 | 0.038 |
| 0.17 | 2.036 | 0.2866 | 1.056 | 0.6833 | 0.031 |
| 0.1733 | 2.004 | 0.29 | 1.037 | 0.7 | 0.019 |
| 0.1766 | 1.966 | 0.2933 | 1.018 | 0.7166 | 0.012 |
| 0.18 | 1.928 | 0.2966 | 0.993 | 0.7333 | 0.006 |
| 0.1833 | 1.896 | 0.3 | 0.98 | | |

## SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev

## .SUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | |
|---|---|---|
| K | 0.03388 | ft/min |
| y0 | 4.935 | ft |

## AUTOMATIC ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate | Std. Error | |
|---|---|---|---|
| K | 0.03388 | 0.001497 | ft/min |
| y0 | 4.935 | 0.1901 | ft |

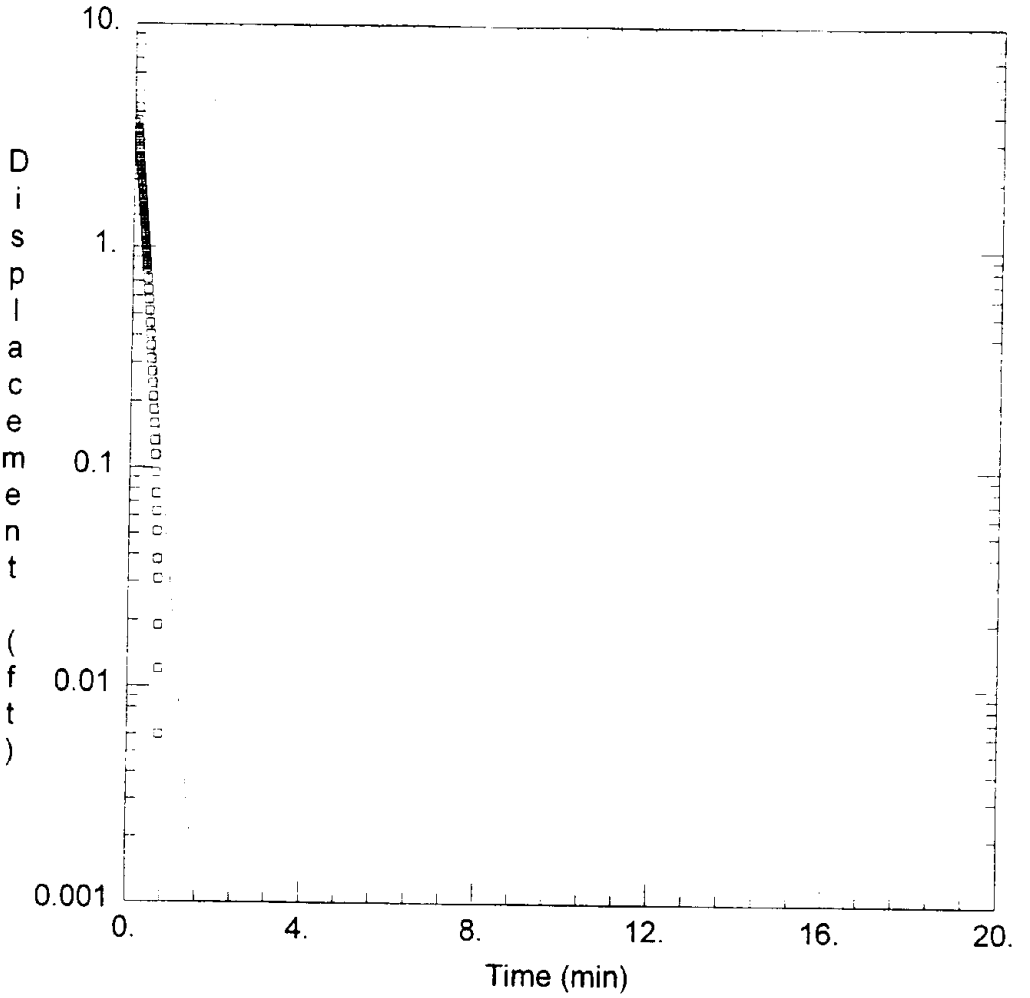
### Parameter Correlations

| | K | y0 |
|---|---|---|
| K | 1.00 | 0.90 |
| y0 | 0.90 | 1.00 |

### ⁻esidual Statistics

for weighted residuals

Sum of Squares . . . 8.849 $ft^2$
Variance . . . . . 0.08675 $ft^2$
Std. Deviation. . . . . 0.2945 ft
Mean . . . . . -0.01683 ft
No. of Residuals . . . 104.
No. of Estimates . . . 2




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW11H.AQT
Date: 05/21/02 Time: 12:21:28

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-11
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 40.14 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 3.57 ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 11.74 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.03388 ft/min

LFR Levine Fricke

# AQUIFER SLUG TEST DATA SHEET

| | |
|---|---|
| **Project Name:** NWSSB Concord | **Client:** TEMI |
| **Project Number:** | **Date:** 5/16/02 |
| **Well No.** MW-11 | **Test No.** 7 |
| **Performed By:** TLR/GN | **Test Type:** Slug Test - Mechanical Withdrawl 10'-no weights. |
| **Measuring Equipment:** Datalogger - | **Measuring Equipment:** Transducer - |

| Time Data | Water Level Data | Slug Data |
|---|---|---|
| Time of Slug In: | Static - Depth (ft) 9.86' TD=21.6 | Volume Displaced 1.75 ~~gallons~~ qt. |
| | Static - Elevation (ft msl) | |
| Time of Slug Out: | Measuring Point Elevation (ft msl) | $ft^3$ |

$H_2O$ col = 11.74'
Transducer = 10.78'

| Date | Clock Time (24 hour clock) | Elapsed Time Since Slug Out (minutes) | Manual Depth to Water (ft TOC) | Groundwater Elevation (ft msl) | $h/h_o$ | Comments |
|---|---|---|---|---|---|---|
| | | 0 | | | | Start Time |
| | | | | | | |
| | | | | Transducer | | |
| | 16:10 | | | 11.55 | | Slug In. |
| | | | | 11.17 | | |
| | | | | 11.02 | | |
| | | | | 11.00 | | |
| | 16:11 | | | 10.47 | | |
| | | | | 10.68 | | |
| | | | | 10.83 | | |
| | | | | 10.86 | | |
| | | | | 10.87 | | |
| | 16:13 | | 9.85' | 10.88 | | |
| | 16:14 | | 9.85 | 10.89 | | |
| | 16:15 | | 9.84 | 10.89 | | |
| | 16:16 | | 9.84 | 10.90 | | |
| | 16:17 | | | | | Slug out |
| | 16:27 | | | | | Test done. |

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW13_B.AQT
Date: 05/30/02
Time: 09:39:31

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-13

## AQUIFER DATA

Saturated Thickness: 47.92 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-13

X Location: 0. ft
Y Location: 0. ft

No. of observations: 165

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.0733 | 7.89 | 0.2566 | 6.652 | 0.8666 | 3.822 |
| 0.0766 | 7.961 | 0.26 | 6.633 | 0.8833 | 3.765 |
| 0.08 | 7.839 | 0.2633 | 6.614 | 0.9 | 3.701 |
| 0.0833 | 7.846 | 0.2666 | 6.594 | 0.9166 | 3.65 |
| 0.0866 | 7.846 | 0.27 | 6.582 | 0.9333 | 3.592 |
| 0.09 | 7.795 | 0.2733 | 6.556 | 0.95 | 3.541 |
| 0.0933 | 7.737 | 0.2766 | 6.543 | 0.9666 | 3.49 |
| 0.0966 | 7.897 | 0.28 | 6.524 | 0.9833 | 3.433 |
| 0.1 | 7.686 | 0.2833 | 6.505 | 1. | 3.381 |
| 0.1033 | 7.91 | 0.2866 | 6.486 | 1.2 | 2.633 |
| 0.1066 | 7.705 | 0.29 | 6.467 | 1.4 | 2.167 |
| 0.11 | 7.801 | 0.2933 | 6.454 | 1.6 | 1.777 |
| 0.1133 | 7.718 | 0.2966 | 6.435 | 1.8 | 1.464 |
| 0.1166 | 7.718 | 0.3 | 6.416 | 2. | 1.189 |
| 0.12 | 7.635 | 0.3033 | 6.403 | 2.2 | 0.959 |
| 0.1233 | 7.629 | 0.3066 | 6.384 | 2.4 | 0.773 |
| 0.1266 | 7.578 | 0.31 | 6.364 | 2.6 | 0.645 |
| 0.13 | 7.584 | 0.3133 | 6.345 | 2.8 | 0.53 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.1333 | 7.559 | 0.3166 | 6.333 | 3. | 0.441 |
| 0.1366 | 7.533 | 0.32 | 6.313 | 3.2 | 0.39 |
| 0.14 | 7.507 | 0.3233 | 6.294 | 3.4 | 0.345 |
| 0.1433 | 7.469 | 0.3266 | 6.275 | 3.6 | 0.313 |
| 0.1466 | 7.431 | 0.33 | 6.262 | 3.8 | 0.281 |
| 0.15 | 7.354 | 0.3333 | 6.243 | 4. | 0.262 |
| 0.1533 | 7.418 | 0.35 | 6.148 | 4.2 | 0.242 |
| 0.1566 | 7.291 | 0.3666 | 6.058 | 4.4 | 0.23 |
| 0.16 | 7.271 | 0.3833 | 5.969 | 4.6 | 0.217 |
| 0.1633 | 7.163 | 0.4 | 5.879 | 4.8 | 0.204 |
| 0.1666 | 7.278 | 0.4166 | 5.79 | 5. | 0.192 |
| 0.17 | 7.124 | 0.4333 | 5.707 | 5.2 | 0.178 |
| 0.1733 | 7.169 | 0.45 | 5.624 | 5.4 | 0.172 |
| 0.1766 | 7.093 | 0.4666 | 5.541 | 5.6 | 0.16 |
| 0.18 | 7.124 | 0.4833 | 5.458 | 5.8 | 0.147 |
| 0.1833 | 7.086 | 0.5 | 5.375 | 6. | 0.16 |
| 0.1866 | 7.061 | 0.5166 | 5.298 | 6.2 | 0.178 |
| 0.19 | 7.054 | 0.5333 | 5.215 | 6.4 | 0.192 |
| 0.1933 | 7.022 | 0.55 | 5.145 | 6.6 | 0.204 |
| 0.1966 | 7.01 | 0.5666 | 5.068 | 6.8 | 0.211 |
| 0.2 | 6.984 | 0.5833 | 4.985 | 7. | 0.217 |
| 0.2033 | 6.965 | 0.6 | 4.915 | 7.2 | 0.217 |
| 0.2066 | 6.945 | 0.6166 | 4.838 | 7.4 | 0.217 |
| 0.21 | 6.92 | 0.6333 | 4.761 | 7.6 | 0.211 |
| 0.2133 | 6.901 | 0.65 | 4.691 | 7.8 | 0.204 |
| 0.2166 | 6.882 | 0.6666 | 4.621 | 8. | 0.198 |
| 0.22 | 6.863 | 0.6833 | 4.551 | 8.2 | 0.192 |
| 0.2233 | 6.837 | 0.7 | 4.481 | 8.4 | 0.185 |
| 0.2266 | 6.824 | 0.7166 | 4.416 | 8.6 | 0.178 |
| 0.23 | 6.799 | 0.7333 | 4.346 | 8.8 | 0.172 |
| 0.2333 | 6.786 | 0.75 | 4.289 | 9. | 0.185 |
| 0.2366 | 6.767 | 0.7666 | 4.193 | 9.2 | 0.204 |
| 0.24 | 6.748 | 0.7833 | 4.135 | 9.4 | 0.211 |
| 0.2433 | 6.729 | 0.8 | 4.072 | 9.6 | 0.217 |
| 0.2466 | 6.703 | 0.8166 | 4.072 | 9.8 | 0.23 |
| 0.25 | 6.69 | 0.8333 | 3.963 | 10. | 0.236 |
| 0.2533 | 6.671 | 0.85 | 3.88 | 12. | 0.242 |

## SOLUTION

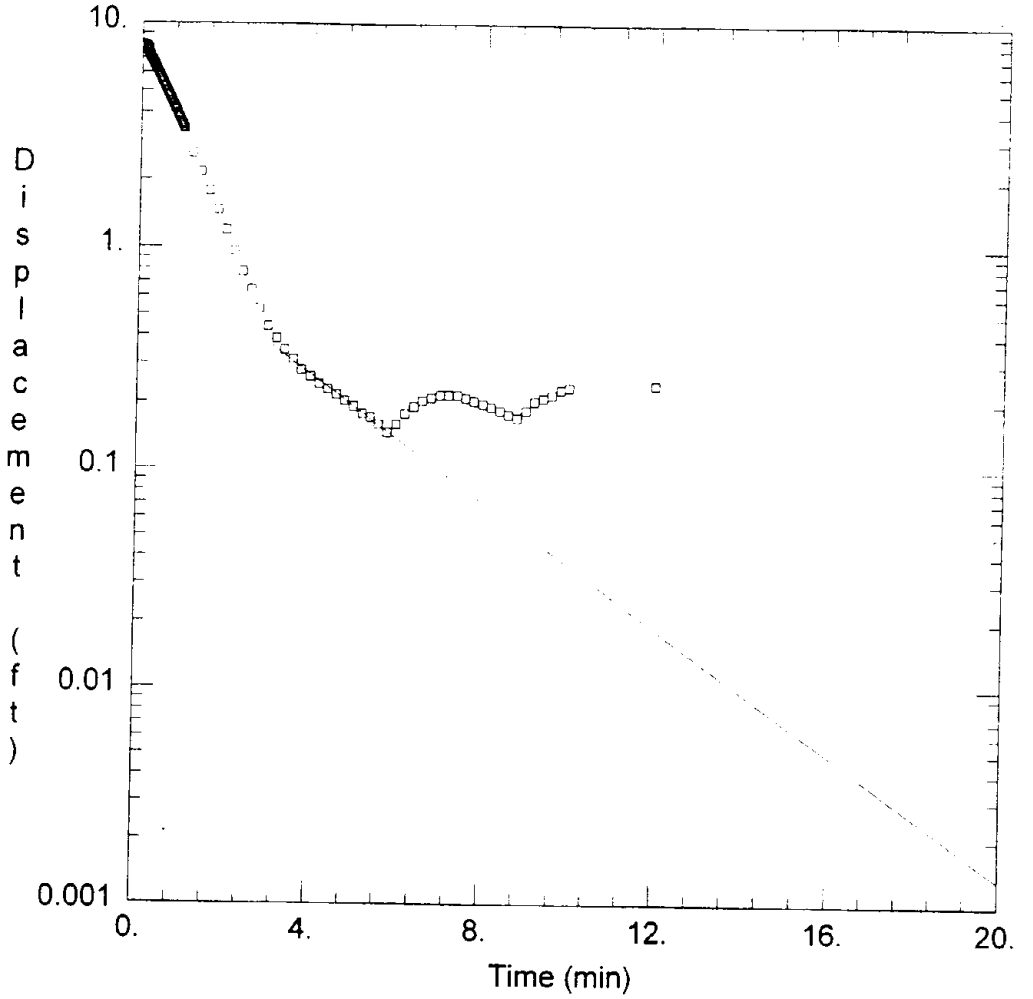
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

## VISUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate |
|---|---|

| | | |
|---|---|---|
| K | 0.001538 | ft/min |
| y0 | 1.017 | ft |




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW13_B.AQT
Date: 05/21/02 Time: 11:26:59

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-13
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 47.92 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

Initial Displacement: 8.031 ft
Casing Radius: 0.0833 ft
Screen Length: 11. ft
Water Column Height: 28.92 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.001538 ft/min

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA\MW13_H.AQT
Date: 05/30/02
Time: 09:39:42

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Location: NWSSB Concord
Test Date: 2002
Test Well: MW-13

## AQUIFER DATA

Saturated Thickness: 47.92 ft
Anisotropy Ratio (Kz/Kr): 0.1

## OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-13

Location: 0. ft
Y Location: 0. ft

No. of observations: 165

Observation Data

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.0733 | 7.89 | 0.2566 | 6.652 | 0.8666 | 3.822 |
| 0.0766 | 7.961 | 0.26 | 6.633 | 0.8833 | 3.765 |
| 0.08 | 7.839 | 0.2633 | 6.614 | 0.9 | 3.701 |
| 0.0833 | 7.846 | 0.2666 | 6.594 | 0.9166 | 3.65 |
| 0.0866 | 7.846 | 0.27 | 6.582 | 0.9333 | 3.592 |
| 0.09 | 7.795 | 0.2733 | 6.556 | 0.95 | 3.541 |
| 0.0933 | 7.737 | 0.2766 | 6.543 | 0.9666 | 3.49 |
| 0.0966 | 7.897 | 0.28 | 6.524 | 0.9833 | 3.433 |
| 0.1 | 7.686 | 0.2833 | 6.505 | 1. | 3.381 |
| 0.1033 | 7.91 | 0.2866 | 6.486 | 1.2 | 2.633 |
| 0.1066 | 7.705 | 0.29 | 6.467 | 1.4 | 2.167 |
| 0.11 | 7.801 | 0.2933 | 6.454 | 1.6 | 1.777 |
| 0.1133 | 7.718 | 0.2966 | 6.435 | 1.8 | 1.464 |
| 0.1166 | 7.718 | 0.3 | 6.416 | 2. | 1.189 |
| 0.12 | 7.635 | 0.3033 | 6.403 | 2.2 | 0.959 |
| 0.1233 | 7.629 | 0.3066 | 6.384 | 2.4 | 0.773 |
| 0.1266 | 7.578 | 0.31 | 6.364 | 2.6 | 0.645 |
| 0.13 | 7.584 | 0.3133 | 6.345 | 2.8 | 0.53 |

| Time (min) | Displacement (ft) | Time (min) | Displacement (ft) | Time (min) | Displacement (ft) |
|---|---|---|---|---|---|
| 0.1333 | 7.559 | 0.3166 | 6.333 | 3. | 0.441 |
| 0.1366 | 7.533 | 0.32 | 6.313 | 3.2 | 0.39 |
| 0.14 | 7.507 | 0.3233 | 6.294 | 3.4 | 0.345 |
| 0.1433 | 7.469 | 0.3266 | 6.275 | 3.6 | 0.313 |
| 0.1466 | 7.431 | 0.33 | 6.262 | 3.8 | 0.281 |
| 0.15 | 7.354 | 0.3333 | 6.243 | 4. | 0.262 |
| 0.1533 | 7.418 | 0.35 | 6.148 | 4.2 | 0.242 |
| 0.1566 | 7.291 | 0.3666 | 6.058 | 4.4 | 0.23 |
| 0.16 | 7.271 | 0.3833 | 5.969 | 4.6 | 0.217 |
| 0.1633 | 7.163 | 0.4 | 5.879 | 4.8 | 0.204 |
| 0.1666 | 7.278 | 0.4166 | 5.79 | 5. | 0.192 |
| 0.17 | 7.124 | 0.4333 | 5.707 | 5.2 | 0.178 |
| 0.1733 | 7.169 | 0.45 | 5.624 | 5.4 | 0.172 |
| 0.1766 | 7.093 | 0.4666 | 5.541 | 5.6 | 0.16 |
| 0.18 | 7.124 | 0.4833 | 5.458 | 5.8 | 0.147 |
| 0.1833 | 7.086 | 0.5 | 5.375 | 6. | 0.16 |
| 0.1866 | 7.061 | 0.5166 | 5.298 | 6.2 | 0.178 |
| 0.19 | 7.054 | 0.5333 | 5.215 | 6.4 | 0.192 |
| 0.1933 | 7.022 | 0.55 | 5.145 | 6.6 | 0.204 |
| 0.1966 | 7.01 | 0.5666 | 5.068 | 6.8 | 0.211 |
| 0.2 | 6.984 | 0.5833 | 4.985 | 7. | 0.217 |
| 0.2033 | 6.965 | 0.6 | 4.915 | 7.2 | 0.217 |
| 0.2066 | 6.945 | 0.6166 | 4.838 | 7.4 | 0.217 |
| 0.21 | 6.92 | 0.6333 | 4.761 | 7.6 | 0.211 |
| 0.2133 | 6.901 | 0.65 | 4.691 | 7.8 | 0.204 |
| 0.2166 | 6.882 | 0.6666 | 4.621 | 8. | 0.198 |
| 0.22 | 6.863 | 0.6833 | 4.551 | 8.2 | 0.192 |
| 0.2233 | 6.837 | 0.7 | 4.481 | 8.4 | 0.185 |
| 0.2266 | 6.824 | 0.7166 | 4.416 | 8.6 | 0.178 |
| 0.23 | 6.799 | 0.7333 | 4.346 | 8.8 | 0.172 |
| 0.2333 | 6.786 | 0.75 | 4.289 | 9. | 0.185 |
| 0.2366 | 6.767 | 0.7666 | 4.193 | 9.2 | 0.204 |
| 0.24 | 6.748 | 0.7833 | 4.135 | 9.4 | 0.211 |
| 0.2433 | 6.729 | 0.8 | 4.072 | 9.6 | 0.217 |
| 0.2466 | 6.703 | 0.8166 | 4.072 | 9.8 | 0.23 |
| 0.25 | 6.69 | 0.8333 | 3.963 | 10. | 0.236 |
| 0.2533 | 6.671 | 0.85 | 3.88 | 12. | 0.242 |

## SOLUTION

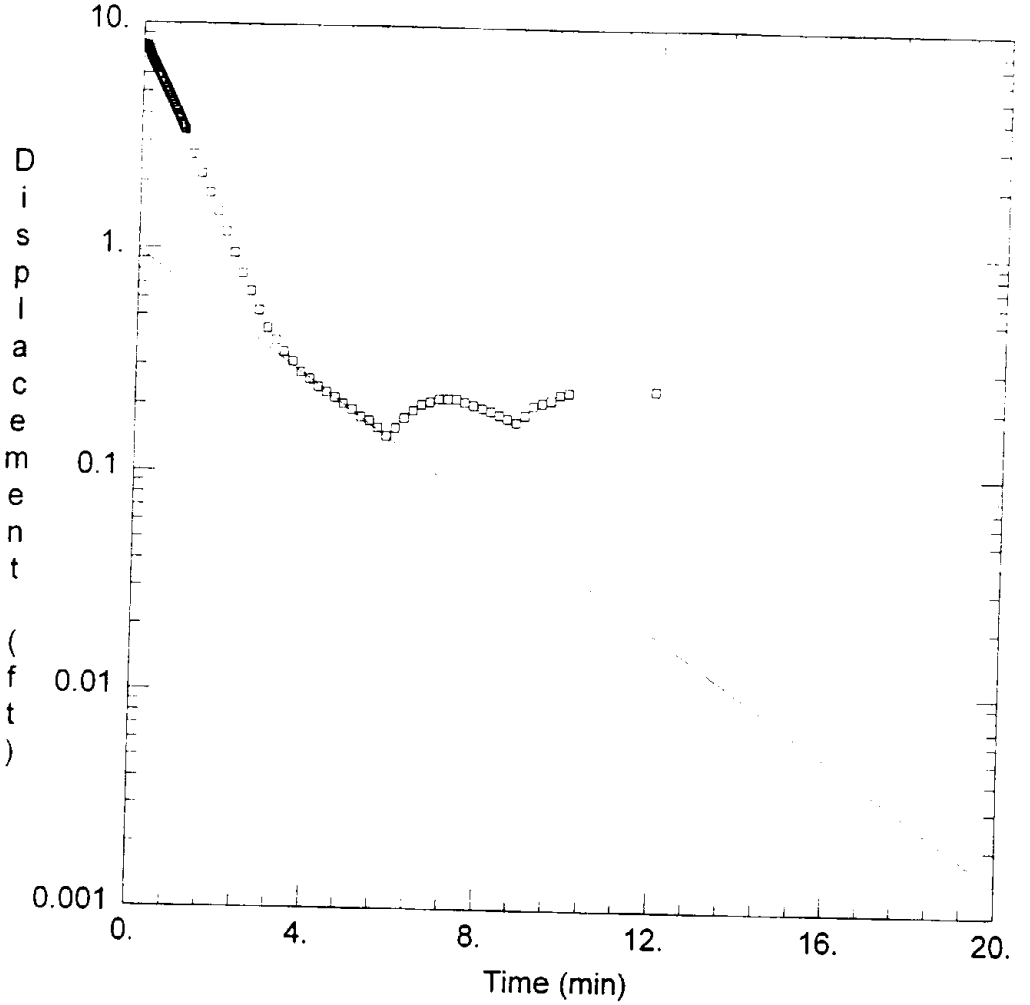
Aquifer Model: Unconfined
Solution Method: Hvorslev

## VISUAL ESTIMATION RESULTS

### Estimated Parameters

| Parameter | Estimate |
|---|---|

| | | |
|---|---|---|
| K | 0.00194 | ft/min |
| y0 | 0.9787 | ft |




## WELL TEST ANALYSIS

Data Set: H:\LFPUBLIC\NAVY\CONCORD-\AQUIFERT\DATA2\MW13_H.AQT
Date: 05/21/02 Time: 11:27:24

## PROJECT INFORMATION

Company: LFR Levine Fricke
Client: TtEMI
Project: 001-05506-00/069-324B0501
Test Location: NWSSB Concord
Test Well: MW-13
Test Date: 2002

## AQUIFER DATA

Saturated Thickness: 47.92 ft
Anisotropy Ratio (Kz/Kr): 0.1

## WELL DATA

nitial Displacement: 8.031 ft
Casing Radius: 0.0833 ft
Screen Length: 11. ft
Water Column Height: 28.92 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

## SOLUTION

Aquifer Model: Unconfined
K = 0.00194 ft/min

LFR Levine Fricke

# AQUIFER SLUG TEST DATA SHEET

| | |
|---|---|
| **Project Name:** NWSSB Concord | **Client:** TEMI |
| **Project Number:** | **Date:** 5/16/02 |
| **Well No.** MW-13 | **Test No.** 4 |
| **Performed By:** TLR/GN | **Test Type:** Slug Test - Mechanical Withdrawl 12' |
| **Measuring Equipment: Datalogger -** | **Measuring Equipment: Transducer -** |

| Time Data | Water Level Data | Slug Data |
|---|---|---|
| Time of Slug In: | Static - Depth (ft) TD = 33.61 from riser top | Volume Displaced 3.5 ~~gallons~~ qts |
| | Static - Elevation (ft msl) | $ft^3$ |
| Time of Slug Out: | Measuring Point Elevation (ft msl) | |

Riser Pipe added → 3.2'
dtw in Riser = 2.08

| Date | Clock Time (24 hour clock) | Elapsed Time Since Slug Out (minutes) | Manual Depth to Water (ft TOC) | Groundwater Elevation (ft msl) | $h/h_o$ | Comments |
|---|---|---|---|---|---|---|
| | | 0 | | | | Start Time |
| | | | dtw in Riser | transducer: | | |
| | 14:30 | | | 30.12 | | Slug In; water still rising. |
| | 14:32 | | | 30.18 | | |
| | 14:33 | | | 30.17 | | |
| | 14:34 | | | 30.19 | | |
| | 14:35 | | | 30.19 | | |
| | 14:36 | | 5.25 | | | Slug Out |
| | 14:36:15 | | 5.20 | | | |
| | 14:50 | | | | | Stop Test. |

# APPENDIX E
# QUALITY ASSURANCE AND QUALITY CONTROL DATA RESULTS

# APPENDIX E

## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402EQ013 | 02/20/02 | Equipment Blank | TPH | Gasoline range organic compounds | 130 G | G | 50 | µg/L |
| QC SAMP | 32402EQ013 | 02/20/02 | Equipment Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | 2.8 | | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402EQ013 | 02/20/02 | Equipment Blank | VOC | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | 4.1 | | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 3.9 | | 1 | µg/L |
| | | | | | Bromoform | 0.4 J | J | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 1 | | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 11 | | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402EQ013 | 02/20/02 | Equipment Blank | VOC | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | 5.1 | | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | 15 | | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | 51 | | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | 0.6 J | J | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | 8.8 | | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | 0.4 J | J | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | 34 | | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402EQ013 | 02/20/02 | Equipment Blank | VOC | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32402TB001 | 02/19/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402TB001 | 02/19/02 | Trip Blank | VOC | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402TB001 | 02/19/02 | Trip Blank | VOC | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402TB001 | 02/19/02 | Trip Blank | VOC | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32402TB160 | 03/01/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32402TB160 | 03/01/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402TB160 | 03/01/02 | Trip Blank | VOC | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 J | UJ | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402TB160 | 03/01/02 | Trip Blank | VOC | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 J | UJ | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402TB160 | 03/01/02 | Trip Blank | VOC | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32402TB194 | 03/05/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32402TB194 | 03/05/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402TB194 | 03/05/02 | Trip Blank | VOC | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 J | UJ | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402TB194 | 03/05/02 | Trip Blank | VOC | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32402TB194 | 03/05/02 | Trip Blank | VOC | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32403TB012 | 02/20/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32403TB012 | 02/20/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32403TB012 | 02/20/02 | Trip Blank | VOC | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32403TB012 | 02/20/02 | Trip Blank | VOC | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32403TB012 | 02/20/02 | Trip Blank | VOC | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405EQ036 | 02/21/02 | Equipment Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32405EQ036 | 02/21/02 | Equipment Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ036 | 02/21/02 | Equipment Blank | VOC | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ036 | 02/21/02 | Equipment Blank | VOC | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 5.4 J | J | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 2 J | J | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 22 J | J | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ036 | 02/21/02 | Equipment Blank | VOC | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405EQ056 | 02/22/02 | Equipment Blank | TPH | Diesel range organic compounds | <100 | U | 100 | µg/L |
| | | | | | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| | | | | | Motor oil range organic compounds | <100 | U | 100 | µg/L |
| QC SAMP | 32405EQ056 | 02/22/02 | Equipment Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ056 | 02/22/02 | Equipment Blank | VOC | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ056 | 02/22/02 | Equipment Blank | VOC | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 5 J | J | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 1 J | J | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 20 J | J | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ056 | 02/22/02 | Equipment Blank | VOC | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405EQ079 | 02/25/02 | Equipment Blank | TPH | Diesel range organic compounds | 50 J | J | 100 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ079 | 02/25/02 | Equipment Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| | | | | | Motor oil range organic compounds | <100 | U | 100 | µg/L |
| QC SAMP | 32405EQ079 | 02/25/02 | Equipment Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ079 | 02/25/02 | Equipment Blank | VOC | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 5.8 J | J | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 2 J | J | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 23 J | J | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)

## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ079 | 02/25/02 | Equipment Blank | VOC | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ079 | 02/25/02 | Equipment Blank | VOC | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405EQ101 | 02/26/02 | Equipment Blank | TPH | Diesel range organic compounds | <100 | U | 100 | µg/L |
| | | | | | Gasoline range organic compounds | <50 J | UJ | 50 | µg/L |
| | | | | | Motor oil range organic compounds | <100 | U | 100 | µg/L |
| QC SAMP | 32405EQ101 | 02/26/02 | Equipment Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ101 | 02/26/02 | Equipment Blank | VOC | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | 0.7 J | J | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 5.4 J | J | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ101 | 02/26/02 | Equipment Blank | VOC | Chlorodibromomethane | 1 J | J | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 22 J | J | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB029 | 02/21/02 | Trip Blank | VOC | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB029 | 02/21/02 | Trip Blank | VOC | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ101 | 02/26/02 | Equipment Blank | VOC | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405EQ208 | 03/07/02 | Equipment Blank | TPH | Diesel range organic compounds | <100 | U | 100 | µg/L |
| | | | | | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| | | | | | Motor oil range organic compounds | <100 | U | 100 | µg/L |
| QC SAMP | 32405EQ208 | 03/07/02 | Equipment Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ208 | 03/07/02 | Equipment Blank | VOC | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 5.6 | | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ208 | 03/07/02 | Equipment Blank | VOC | Bromoform | 0.9 J | J | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 3.3 | | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 18 | | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 J | UJ | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405EQ208 | 03/07/02 | Equipment Blank | VOC | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405SW026 | 02/20/02 | Source Blank | TPH | Diesel range organic compounds | <100 | U | 100 | µg/L |
| | | | | | Gasoline range organic compounds | 190 G | G | 50 | µg/L |
| | | | | | Motor oil range organic compounds | <100 | U | 100 | µg/L |
| QC SAMP | 32405SW026 | 02/20/02 | Source Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW026 | 02/20/02 | Source Blank | VOC | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW026 | 02/20/02 | Source Blank | VOC | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | 6.5 J | J | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 5.5 J | J | 1 | µg/L |
| | | | | | Bromoform | 0.6 J | J | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 2 J | J | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 16 J | J | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | 9.1 J | J | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW026 | 02/20/02 | Source Blank | VOC | M,p-xylenes | 16 J | J | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | 60 J | J | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | 1 J | J | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | 17 J | J | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | 57 J | J | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405SW037 | 02/21/02 | Source Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32405SW037 | 02/21/02 | Source Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW037 | 02/21/02 | Source Blank | VOC | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW037 | 02/21/02 | Source Blank | VOC | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 5.9 J | J | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 2 J | J | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 25 J | J | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW037 | 02/21/02 | Source Blank | VOC | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW055 | 02/22/02 | Source Blank | TPH | Diesel range organic compounds | <100 | U | 100 | µg/L |
| | | | | | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| | | | | | Motor oil range organic compounds | <100 | U | 100 | µg/L |
| QC SAMP | 32405SW055 | 02/22/02 | Source Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW055 | 02/22/02 | Source Blank | VOC | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 6.2 J | J | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 2 J | J | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 26 J | J | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW055 | 02/22/02 | Source Blank | VOC | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405SW055 | 02/22/02 | Source Blank | VOC | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405TB029 | 02/21/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32405TB029 | 02/21/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB029 | 02/21/02 | Trip Blank | VOC | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405TB051 | 02/22/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32405TB051 | 02/22/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB051 | 02/22/02 | Trip Blank | VOC | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB051 | 02/22/02 | Trip Blank | VOC | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB051 | 02/22/02 | Trip Blank | VOC | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405TB078 | 02/25/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32405TB078 | 02/25/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB078 | 02/25/02 | Trip Blank | VOC | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | U'1 | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB078 | 02/25/02 | Trip Blank | VOC | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB078 | 02/25/02 | Trip Blank | VOC | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405TB100 | 02/26/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32405TB100 | 02/26/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB100 | 02/26/02 | Trip Blank | VOC | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB100 | 02/26/02 | Trip Blank | VOC | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB100 | 02/26/02 | Trip Blank | VOC | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405TB122 | 02/27/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32405TB122 | 02/27/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB122 | 02/27/02 | Trip Blank | VOC | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB122 | 02/27/02 | Trip Blank | VOC | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 J | UJ | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB122 | 02/27/02 | Trip Blank | VOC | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405TB141 | 02/28/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB141 | 02/28/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB141 | 02/28/02 | Trip Blank | VOC | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 J | UJ | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 J | UJ | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB141 | 02/28/02 | Trip Blank | VOC | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB141 | 02/28/02 | Trip Blank | VOC | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405TB198 | 03/06/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32405TB198 | 03/06/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB198 | 03/06/02 | Trip Blank | VOC | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1.8 | U | 1.8 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB198 | 03/06/02 | Trip Blank | VOC | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB198 | 03/06/02 | Trip Blank | VOC | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32405TB207 | 03/07/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32405TB207 | 03/07/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB207 | 03/07/02 | Trip Blank | VOC | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB207 | 03/07/02 | Trip Blank | VOC | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 J | UJ | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32405TB207 | 03/07/02 | Trip Blank | VOC | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32418EQ173 | 03/04/02 | Equipment Blank | TPH | Diesel range organic compounds | <100 | U | 100 | µg/L |
| | | | | | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| | | | | | Motor oil range organic compounds | 70 J | J | 100 | µg/L |
| QC SAMP | 32418EQ173 | 03/04/02 | Equipment Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418EQ173 | 03/04/02 | Equipment Blank | VOC | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 8.9 | | 1 | µg/L |
| | | | | | Bromoform | 1 | | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418EQ173 | 03/04/02 | Equipment Blank | VOC | Bromomethane | <1 J | UJ | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 6.2 | | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 14 | | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418EQ173 | 03/04/02 | Equipment Blank | VOC | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32418SW174 | 03/04/02 | Source Blank | TPH | Diesel range organic compounds | <100 | U | 100 | µg/L |
| | | | | | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| | | | | | Motor oil range organic compounds | <100 | U | 100 | µg/L |
| QC SAMP | 32418SW174 | 03/04/02 | Source Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)

## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418SW174 | 03/04/02 | Source Blank | VOC | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418SW174 | 03/04/02 | Source Blank | VOC | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | 9.3 | | 1 | µg/L |
| | | | | | Bromoform | 2 | | 1 | µg/L |
| | | | | | Bromomethane | <1 J | UJ | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | 6.4 | | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | 15 | | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418SW174 | 03/04/02 | Source Blank | VOC | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32418TB172 | 03/04/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| QC SAMP | 32418TB172 | 03/04/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418TB172 | 03/04/02 | Trip Blank | VOC | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418TB172 | 03/04/02 | Trip Blank | VOC | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 J | UJ | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418TB172 | 03/04/02 | Trip Blank | VOC | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| QC SAMP | 32418TB229 | 03/08/02 | Trip Blank | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418TB229 | 03/08/02 | Trip Blank | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418TB229 | 03/08/02 | Trip Blank | VOC | 2-butanone | <100 J | UJ | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 J | UJ | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418TB229 | 03/08/02 | Trip Blank | VOC | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | <1 | U | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| QC SAMP | 32418TB229 | 03/08/02 | Trip Blank | VOC | Vinyl chloride | <1 | U | 1 | µg/L |
| SB011 | 32405GW031 | 02/21/02 | Duplicate | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | 1 J | J | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | 0.3 J | J | 1 | µg/L |
| | | | | | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| SB011 | 32405GW031 | 02/21/02 | Duplicate | VOC | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 | U | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |
| | | | | | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| SB011 | 32405GW031 | 02/21/02 | Duplicate | VOC | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | 0.5 J | J | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | 2 J | J | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 J | UJ | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | 0.4 J | J | 1 | µg/L |
| | | | | | O-xylene | 0.7 J | J | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | 1 J | J | 1 | µg/L |
| | | | | | Toluene | 2.7 J | J | 1 | µg/L |
| | | | | | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| SB011 | 32405GW031 | 02/21/02 | Duplicate | VOC | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |
| SB023 | 32405GW072A | 02/22/02 | Duplicate | TPH | Gasoline range organic compounds | <50 | U | 50 | µg/L |
| SB023 | 32405GW072 | 02/22/02 | Duplicate | VOC | 1,1,1,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,1-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2,2-tetrachloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1,2-trichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | 1,1-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,3-trichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2,4-trimethylbenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromo-3-chloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dibromoethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloroethane | <1 | U | 1 | µg/L |
| | | | | | 1,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,3,5-trimethylbenzene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| SB023 | 32405GW072 | 02/22/02 | Duplicate | VOC | 1,3-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 1,3-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 1,4-dichlorobenzene | <1 | U | 1 | µg/L |
| | | | | | 2,2-dichloropropane | <1 | U | 1 | µg/L |
| | | | | | 2-butanone | <100 | U | 100 | µg/L |
| | | | | | 2-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-chlorotoluene | <1 | U | 1 | µg/L |
| | | | | | 4-methyl-2-pentanone | <50 | U | 50 | µg/L |
| | | | | | Acetone | <50 J | UJ | 50 | µg/L |
| | | | | | Benzene | <1 | U | 1 | µg/L |
| | | | | | Bromobenzene | <1 | U | 1 | µg/L |
| | | | | | Bromochloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromodichloromethane | <1 | U | 1 | µg/L |
| | | | | | Bromoform | <1 | U | 1 | µg/L |
| | | | | | Bromomethane | <1 | U | 1 | µg/L |
| | | | | | Carbon disulfide | <1 | U | 1 | µg/L |
| | | | | | Carbon tetrachloride | <1 | U | 1 | µg/L |
| | | | | | Chlorobenzene | <1 | U | 1 | µg/L |
| | | | | | Chlorodibromomethane | <1 | U | 1 | µg/L |
| | | | | | Chloroethane | <1 | U | 1 | µg/L |
| | | | | | Chloroform | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| SB023 | 32405GW072 | 02/22/02 | Duplicate | VOC | Chloromethane | <1 | U | 1 | µg/L |
| | | | | | Cis-1,2-dichloroethene | 0.8 J | J | 1 | µg/L |
| | | | | | Cis-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Dibromomethane | <1 | U | 1 | µg/L |
| | | | | | Dichlorodifluoromethane | <1 | U | 1 | µg/L |
| | | | | | Ethylbenzene | <1 | U | 1 | µg/L |
| | | | | | Hexachlorobutadiene | <1 | U | 1 | µg/L |
| | | | | | Isopropylbenzene | <1 | U | 1 | µg/L |
| | | | | | M,p-xylenes | <1 | U | 1 | µg/L |
| | | | | | Methyl tertiary butyl ether | <10 | U | 10 | µg/L |
| | | | | | Methylene chloride | <1 | U | 1 | µg/L |
| | | | | | N-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | N-propylbenzene | <1 | U | 1 | µg/L |
| | | | | | Naphthalene | <1 | U | 1 | µg/L |
| | | | | | O-xylene | <1 | U | 1 | µg/L |
| | | | | | P-isopropyltoluene | <1 | U | 1 | µg/L |
| | | | | | Sec-butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Styrene | <1 | U | 1 | µg/L |
| | | | | | Tert- butylbenzene | <1 | U | 1 | µg/L |
| | | | | | Tetrachloroethene | 5.1 J | J | 1 | µg/L |
| | | | | | Toluene | <1 | U | 1 | µg/L |

## APPENDIX E (cont.)
## QUALITY ASSURANCE/QUALITY CONTROL DATA RESULTS
## SWMUs 2, 5 7, AND 18 REMEDIAL INVESTIGATION
## NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

| Location | Field Sample Identification | Date Sampled | Sample Type | Analytical Group | Analyte | Result | Laboratory Qualifiers | Detection Limit | Units |
|---|---|---|---|---|---|---|---|---|---|
| SB023 | 32405GW072 | 02/22/02 | Duplicate | VOC | Trans-1,2-dichloroethene | <1 | U | 1 | µg/L |
| | | | | | Trans-1,3-dichloropropene | <1 | U | 1 | µg/L |
| | | | | | Trichloroethene | 4.3 J | J | 1 | µg/L |
| | | | | | Trichlorofluoromethane | <1 | U | 1 | µg/L |
| | | | | | Vinyl chloride | <1 | U | 1 | µg/L |

NOTES:

< Analyte was not detected at or greater than the detection limit reported.
G Chromatographic pattern resembles gasoline
J Concentration is estimated
µg/L Microgram per liter
TPH Total Petroleum Hydrocarbons
U Not detected at or greater than the detection limit reported.
VOCs Volatile Organic Compounds

# APPENDIX F
# SOIL GAS VAPOR TRANSPORT EVALUATION CALCULATIONS

TABLE F-1
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

SG-SCREEN
Version 2.0; 04/03

**DTSC / HERD**
**Version 2.0-mod3; 11/1/03**
**Default for Unclassified Soil**

Reset to Defaults

Soil Gas Concentration Data

| ENTER Chemical CAS No. (numbers only, no dashes) | ENTER Soil gas conc., $C_g$ ($\mu g/m^3$) | OR | ENTER Soil gas conc., $C_g$ (ppmv) | Chemical |
|---|---|---|---|---|
| 127184 | 1.20E+05 | | | Tetrachloroethylene |

MORE ↓

| ENTER Depth below grade to bottom of enclosed space floor, $L_F$ (15 or 200 cm) | ENTER Soil gas sampling depth below grade, $L_s$ (cm) | ENTER Average soil temperature, $T_S$ ($^oC$) | ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined vadose zone soil vapor permeability, $k_v$ ($cm^2$) |
|---|---|---|---|---|---|
| 15 | 152.4 | 20 | C | | |

MORE ↓

| ENTER Vandose zone SCS soil type (Lookup Soil Parameters) | ENTER Vadose zone soil dry bulk density, $\rho_b^A$ ($g/cm^3$) | ENTER Vadose zone soil total porosity, $n^V$ (unitless) | ENTER Vadose zone soil water-filled porosity, $\theta_w^V$ ($cm^3/cm^3$) | ENTER Average vapor flow rate into bldg. (Leave blank to calculate) $Q_{soil}$ (L/m) |
|---|---|---|---|---|
| C | 1.43 | 0.459 | 0.215 | |

MORE ↓

| ENTER Averaging time for carcinogens, $AT_C$ (yrs) | ENTER Averaging time for noncarcinogens, $AT_{NC}$ (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|---|---|---|---|
| 70 | 30 | 30 | 350 |

END

TABLE F-1
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Diffusivity in air, $D_a$ ($cm^2/s$) | Diffusivity in water, $D_w$ ($cm^2/s$) | Henry's law constant at reference temperature, H (atm-$m^3$/mol) | Henry's law constant reference temperature, $T_R$ ($^oC$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, $T_B$ ($^oK$) | Critical temperature, $T_C$ ($^oK$) | Unit risk factor, URF ($\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) | Molecular weight, MW (g/mol) |
|---|---|---|---|---|---|---|---|---|---|
| 7.20E-02 | 8.20E-06 | 1.84E-02 | 25 | 8,288 | 394.40 | 620.20 | 5.9E-06 | 3.5E-02 | 165.83 |

**END**

TABLE F-1
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Source-building separation, $L_T$ (cm) | Vadose zone soil air-filled porosity, $\theta_a^V$ ($cm^3/cm^3$) | Vadose zone effective total fluid saturation, $S_{te}$ ($cm^3/cm^3$) | Vadose zone soil intrinsic permeability, $k_i$ ($cm^2$) | Vadose zone soil relative air permeability, $k_{rg}$ ($cm^2$) | Vadose zone soil effective vapor permeability, $k_v$ ($cm^2$) | Floor-wall seam perimeter, $X_{crack}$ (cm) | Soil gas conc. ($\mu g/m^3$) | Bldg. ventilation rate, $Q_{building}$ ($cm^3/s$) |
|---|---|---|---|---|---|---|---|---|
| 137.4 | 0.244 | 0.324 | 2.30E-09 | 0.821 | 1.89E-09 | 4,000 | 1.20E+05 | 3.39E+04 |

| Area of enclosed space below grade, $A_B$ ($cm^2$) | Crack-to-total area ratio, $\eta$ (unitless) | Crack depth below grade, $Z_{crack}$ (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, $H_{TS}$ (atm-$m^3$/mol) | Henry's law constant at ave. soil temperature, $H'_{TS}$ (unitless) | Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s) | Vadose zone effective diffusion coefficient, $D^{eff}_V$ ($cm^2/s$) | Diffusion path length, $L_d$ (cm) |
|---|---|---|---|---|---|---|---|---|
| 1.00E+06 | 5.00E-03 | 15 | 9,451 | 1.40E-02 | 5.81E-01 | 1.78E-04 | 3.12E-03 | 137.4 |

| Convection path length, $L_p$ (cm) | Source vapor conc., $C_{source}$ ($\mu g/m^3$) | Crack radius, $r_{crack}$ (cm) | Average vapor flow rate into bldg., $Q_{soil}$ ($cm^3/s$) | Crack effective diffusion coefficient, $D^{crack}$ ($cm^2/s$) | Area of crack, $A_{crack}$ ($cm^2$) | Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, $\alpha$ (unitless) | Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|
| 15 | 1.20E+05 | 1.25 | 3.35E+00 | 3.12E-03 | 5.00E+03 | 8.56E+00 | 9.58E-05 | 1.15E+01 |

| Unit risk factor, URF $(\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) |
|---|---|
| 5.9E-06 | 3.5E-02 |

**END**

TABLE F-1
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

INCREMENTAL RISK CALCULATIONS:

| Incremental risk from vapor intrusion to indoor air, carcinogen (unitless) | Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless) |
|---|---|
| 2.8E-05 | 3.1E-01 |

MESSAGE SUMMARY BELOW:

**END**

TABLE F-2
SITE-SPECIFIC JOHNSON ETTINGER MODEL
TCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

SG-SCREEN
Version 2.0; 04/03

**DTSC / HERD**
**Version 2.0-mod3; 11/1/03**
**Default for Unclassified Soil**

Reset to Defaults

Soil Gas Concentration Data

| ENTER Chemical CAS No. (numbers only, no dashes) | ENTER Soil gas conc., $C_g$ ($\mu g/m^3$) | OR | ENTER Soil gas conc., $C_g$ (ppmv) | Chemical |
|---|---|---|---|---|
| 79016 | 1.90E+04 | | | Trichloroethylene |

MORE ↓

| ENTER Depth below grade to bottom of enclosed space floor, $L_F$ (15 or 200 cm) | ENTER Soil gas sampling depth below grade, $L_s$ (cm) | ENTER Average soil temperature, $T_S$ ($^oC$) | ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined vadose zone soil vapor permeability, $k_v$ ($cm^2$) |
|---|---|---|---|---|---|
| 15 | 152.4 | 20 | C | | |

MORE ↓

| ENTER Vandose zone SCS soil type (Lookup Soil Parameters) | ENTER Vadose zone soil dry bulk density, $\rho_b^A$ ($g/cm^3$) | ENTER Vadose zone soil total porosity, $n^V$ (unitless) | ENTER Vadose zone soil water-filled porosity, $\theta_w^V$ ($cm^3/cm^3$) | ENTER Average vapor flow rate into bldg. (Leave blank to calculate) $Q_{soil}$ (L/m) |
|---|---|---|---|---|
| C | 1.43 | 0.459 | 0.215 | |

MORE ↓

| ENTER Averaging time for carcinogens, $AT_C$ (yrs) | ENTER Averaging time for noncarcinogens, $AT_{NC}$ (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|---|---|---|---|
| 70 | 30 | 30 | 350 |

END

TABLE F-2
SITE-SPECIFIC JOHNSON ETTINGER MODEL
TCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Diffusivity in air, $D_a$ ($cm^2/s$) | Diffusivity in water, $D_w$ ($cm^2/s$) | Henry's law constant at reference temperature, H (atm-$m^3$/mol) | Henry's law constant reference temperature, $T_R$ ($^oC$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, $T_B$ ($^oK$) | Critical temperature, $T_C$ ($^oK$) | Unit risk factor, URF ($\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) | Molecular weight, MW (g/mol) |
|---|---|---|---|---|---|---|---|---|---|
| 7.90E-02 | 9.10E-06 | 1.03E-02 | 25 | 7,505 | 360.36 | 544.20 | 2.0E-06 | 6.0E-01 | 131.39 |

**END**

TABLE F-2
SITE-SPECIFIC JOHNSON ETTINGER MODEL
TCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Source-building separation, $L_T$ (cm) | Vadose zone soil air-filled porosity, $\theta_a^V$ ($cm^3/cm^3$) | Vadose zone effective total fluid saturation, $S_{te}$ ($cm^3/cm^3$) | Vadose zone soil intrinsic permeability, $k_i$ ($cm^2$) | Vadose zone soil relative air permeability, $k_{rg}$ ($cm^2$) | Vadose zone soil effective vapor permeability, $k_v$ ($cm^2$) | Floor-wall seam perimeter, $X_{crack}$ (cm) | Soil gas conc. ($\mu g/m^3$) | Bldg. ventilation rate, $Q_{building}$ ($cm^3/s$) |
|---|---|---|---|---|---|---|---|---|
| 137.4 | 0.244 | 0.324 | 2.30E-09 | 0.821 | 1.89E-09 | 4,000 | 1.90E+04 | 3.39E+04 |

| Area of enclosed space below grade, $A_B$ ($cm^2$) | Crack-to-total area ratio, $\eta$ (unitless) | Crack depth below grade, $Z_{crack}$ (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, $H_{TS}$ (atm-$m^3$/mol) | Henry's law constant at ave. soil temperature, $H'_{TS}$ (unitless) | Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s) | Vadose zone effective diffusion coefficient, $D^{eff}_V$ ($cm^2/s$) | Diffusion path length, $L_d$ (cm) |
|---|---|---|---|---|---|---|---|---|
| 1.00E+06 | 5.00E-03 | 15 | 8,433 | 8.06E-03 | 3.35E-01 | 1.78E-04 | 3.42E-03 | 137.4 |

| Convection path length, $L_p$ (cm) | Source vapor conc., $C_{source}$ ($\mu g/m^3$) | Crack radius, $r_{crack}$ (cm) | Average vapor flow rate into bldg., $Q_{soil}$ ($cm^3/s$) | Crack effective diffusion coefficient, $D^{crack}$ ($cm^2/s$) | Area of crack, $A_{crack}$ ($cm^2$) | Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, $\alpha$ (unitless) | Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|
| 15 | 1.90E+04 | 1.25 | 3.35E+00 | 3.42E-03 | 5.00E+03 | 7.07E+00 | 9.94E-05 | 1.89E+00 |

| Unit risk factor, URF $(\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) |
|---|---|
| 2.0E-06 | 6.0E-01 |

**END**

TABLE F-2
SITE-SPECIFIC JOHNSON ETTINGER MODEL
TCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

INCREMENTAL RISK CALCULATIONS:

| Incremental risk from vapor intrusion to indoor air, carcinogen (unitless) | Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless) |
|---|---|
| 1.6E-06 | 3.0E-03 |

MESSAGE SUMMARY BELOW:

**END**

TABLE F-3
SITE-SPECIFIC JOHNSON ETTINGER MODEL
CIS-1,2-DCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

SG-SCREEN
Version 2.0; 04/03

**DTSC / HERD**
**Version 2.0-mod3; 11/1/03**
**Default for Unclassified Soil**

Reset to Defaults

Soil Gas Concentration Data

| ENTER Chemical CAS No. (numbers only, no dashes) | ENTER Soil gas conc., $C_g$ ($\mu g/m^3$) | OR | ENTER Soil gas conc., $C_g$ (ppmv) | Chemical |
|---|---|---|---|---|
| 156592 | 8.10E+03 | | | cis-1,2-Dichloroethylene |

MORE ↓

| ENTER Depth below grade to bottom of enclosed space floor, $L_F$ (15 or 200 cm) | ENTER Soil gas sampling depth below grade, $L_s$ (cm) | ENTER Average soil temperature, $T_S$ ($^oC$) | ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined vadose zone soil vapor permeability, $k_v$ ($cm^2$) |
|---|---|---|---|---|---|
| 15 | 152.4 | 20 | C | | |

MORE ↓

| ENTER Vandose zone SCS soil type (Lookup Soil Parameters) | ENTER Vadose zone soil dry bulk density, $\rho_b^A$ ($g/cm^3$) | ENTER Vadose zone soil total porosity, $n^V$ (unitless) | ENTER Vadose zone soil water-filled porosity, $\theta_w^V$ ($cm^3/cm^3$) | ENTER Average vapor flow rate into bldg. (Leave blank to calculate) $Q_{soil}$ (L/m) |
|---|---|---|---|---|
| C | 1.43 | 0.459 | 0.215 | |

MORE ↓

| ENTER Averaging time for carcinogens, $AT_C$ (yrs) | ENTER Averaging time for noncarcinogens, $AT_{NC}$ (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|---|---|---|---|
| 70 | 30 | 30 | 350 |

END

TABLE F-3
SITE-SPECIFIC JOHNSON ETTINGER MODEL
CIS-1,2-DCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Diffusivity in air, $D_a$ ($cm^2/s$) | Diffusivity in water, $D_w$ ($cm^2/s$) | Henry's law constant at reference temperature, H (atm-$m^3$/mol) | Henry's law constant reference temperature, $T_R$ ($^oC$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, $T_B$ ($^oK$) | Critical temperature, $T_C$ ($^oK$) | Unit risk factor, URF ($\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) | Molecular weight, MW (g/mol) |
|---|---|---|---|---|---|---|---|---|---|
| 7.36E-02 | 1.13E-05 | 4.07E-03 | 25 | 7,192 | 333.65 | 544.00 | 0.0E+00 | 3.5E-02 | 96.94 |

**END**

TABLE F-3
SITE-SPECIFIC JOHNSON ETTINGER MODEL
CIS-1,2-DCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Source-building separation, $L_T$ (cm) | Vadose zone soil air-filled porosity, $\theta_a^V$ ($cm^3/cm^3$) | Vadose zone effective total fluid saturation, $S_{te}$ ($cm^3/cm^3$) | Vadose zone soil intrinsic permeability, $k_i$ ($cm^2$) | Vadose zone soil relative air permeability, $k_{rg}$ ($cm^2$) | Vadose zone soil effective vapor permeability, $k_v$ ($cm^2$) | Floor-wall seam perimeter, $X_{crack}$ (cm) | Soil gas conc. ($\mu g/m^3$) | Bldg. ventilation rate, $Q_{building}$ ($cm^3/s$) |
|---|---|---|---|---|---|---|---|---|
| 137.4 | 0.244 | 0.324 | 2.30E-09 | 0.821 | 1.89E-09 | 4,000 | 8.10E+03 | 3.39E+04 |

| Area of enclosed space below grade, $A_B$ ($cm^2$) | Crack-to-total area ratio, $\eta$ (unitless) | Crack depth below grade, $Z_{crack}$ (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, $H_{TS}$ (atm-$m^3$/mol) | Henry's law constant at ave. soil temperature, $H'_{TS}$ (unitless) | Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s) | Vadose zone effective diffusion coefficient, $D^{eff}_V$ ($cm^2/s$) | Diffusion path length, $L_d$ (cm) |
|---|---|---|---|---|---|---|---|---|
| 1.00E+06 | 5.00E-03 | 15 | 7,633 | 3.27E-03 | 1.36E-01 | 1.78E-04 | 3.19E-03 | 137.4 |

| Convection path length, $L_p$ (cm) | Source vapor conc., $C_{source}$ ($\mu g/m^3$) | Crack radius, $r_{crack}$ (cm) | Average vapor flow rate into bldg., $Q_{soil}$ ($cm^3/s$) | Crack effective diffusion coefficient, $D^{crack}$ ($cm^2/s$) | Area of crack, $A_{crack}$ ($cm^2$) | Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, $\alpha$ (unitless) | Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|
| 15 | 8.10E+03 | 1.25 | 3.35E+00 | 3.19E-03 | 5.00E+03 | 8.16E+00 | 9.67E-05 | 7.83E-01 |

| Unit risk factor, URF $(\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) |
|---|---|
| NA | 3.5E-02 |

**END**

TABLE F-3
SITE-SPECIFIC JOHNSON ETTINGER MODEL
CIS-1,2-DCE (RESIDENTIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

INCREMENTAL RISK CALCULATIONS:

| Incremental risk from vapor intrusion to indoor air, carcinogen (unitless) | Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless) |
|---|---|
| NA | 2.1E-02 |

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

**END**

TABLE F-4
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE, MAXIMUM DETECTED SOIL GAS CONCENTRATION, SILTY-CLAY SOIL)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

SG-SCREEN
Version 2.0; 04/03

**DTSC / HERD**
**Version 2.0-mod3; 11/1/03**
**Default for Unclassified Soil**

Reset to Defaults

Soil Gas Concentration Data

| ENTER Chemical CAS No. (numbers only, no dashes) | ENTER Soil gas conc., $C_g$ ($\mu g/m^3$) | OR | ENTER Soil gas conc., $C_g$ (ppmv) | Chemical |
|---|---|---|---|---|
| 127184 | 1.20E+05 | | | Tetrachloroethylene |

MORE ↓

| ENTER Depth below grade to bottom of enclosed space floor, $L_F$ (15 or 200 cm) | ENTER Soil gas sampling depth below grade, $L_s$ (cm) | ENTER Average soil temperature, $T_S$ ($^oC$) | ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined vadose zone soil vapor permeability, $k_v$ ($cm^2$) |
|---|---|---|---|---|---|
| 15 | 152.4 | 20 | SIC | | |

MORE ↓

| ENTER Vandose zone SCS soil type (Lookup Soil Parameters) | ENTER Vadose zone soil dry bulk density, $\rho_b^A$ ($g/cm^3$) | ENTER Vadose zone soil total porosity, $n^V$ (unitless) | ENTER Vadose zone soil water-filled porosity, $\theta_w^V$ ($cm^3/cm^3$) | ENTER Average vapor flow rate into bldg. (Leave blank to calculate) $Q_{soil}$ (L/m) |
|---|---|---|---|---|
| SIC | 1.38 | 0.481 | 0.216 | |

MORE ↓

| ENTER Averaging time for carcinogens, $AT_C$ (yrs) | ENTER Averaging time for noncarcinogens, $AT_{NC}$ (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|---|---|---|---|
| 70 | 30 | 30 | 350 |

END

TABLE F-4
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE, MAXIMUM DETECTED SOIL GAS CONCENTRATION, SILTY-CLAY SOIL)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Diffusivity in air, $D_a$ ($cm^2/s$) | Diffusivity in water, $D_w$ ($cm^2/s$) | Henry's law constant at reference temperature, H (atm-$m^3$/mol) | Henry's law constant reference temperature, $T_R$ ($^oC$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, $T_B$ ($^oK$) | Critical temperature, $T_C$ ($^oK$) | Unit risk factor, URF ($\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) | Molecular weight, MW (g/mol) |
|---|---|---|---|---|---|---|---|---|---|
| 7.20E-02 | 8.20E-06 | 1.84E-02 | 25 | 8,288 | 394.40 | 620.20 | 5.9E-06 | 3.5E-02 | 165.83 |

**END**

TABLE F-4
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE, MAXIMUM DETECTED SOIL GAS CONCENTRATION, SILTY-CLAY SOIL)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Source-building separation, $L_T$ (cm) | Vadose zone soil air-filled porosity, $\theta_a^V$ ($cm^3/cm^3$) | Vadose zone effective total fluid saturation, $S_{te}$ ($cm^3/cm^3$) | Vadose zone soil intrinsic permeability, $k_i$ ($cm^2$) | Vadose zone soil relative air permeability, $k_{rg}$ ($cm^2$) | Vadose zone soil effective vapor permeability, $k_v$ ($cm^2$) | Floor-wall seam perimeter, $X_{crack}$ (cm) | Soil gas conc. ($\mu g/m^3$) | Bldg. ventilation rate, $Q_{building}$ ($cm^3/s$) |
|---|---|---|---|---|---|---|---|---|
| 137.4 | 0.265 | 0.284 | 1.51E-09 | 0.844 | 1.27E-09 | 4,000 | 1.20E+05 | 3.39E+04 |

| Area of enclosed space below grade, $A_B$ ($cm^2$) | Crack-to-total area ratio, $\eta$ (unitless) | Crack depth below grade, $Z_{crack}$ (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, $H_{TS}$ (atm-$m^3$/mol) | Henry's law constant at ave. soil temperature, $H'_{TS}$ (unitless) | Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s) | Vadose zone effective diffusion coefficient, $D^{eff}_V$ ($cm^2/s$) | Diffusion path length, $L_d$ (cm) |
|---|---|---|---|---|---|---|---|---|
| 1.00E+06 | 5.00E-03 | 15 | 9,451 | 1.40E-02 | 5.81E-01 | 1.78E-04 | 3.74E-03 | 137.4 |

| Convection path length, $L_p$ (cm) | Source vapor conc., $C_{source}$ ($\mu g/m^3$) | Crack radius, $r_{crack}$ (cm) | Average vapor flow rate into bldg., $Q_{soil}$ ($cm^3/s$) | Crack effective diffusion coefficient, $D^{crack}$ ($cm^2/s$) | Area of crack, $A_{crack}$ ($cm^2$) | Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, $\alpha$ (unitless) | Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|
| 15 | 1.20E+05 | 1.25 | 2.26E+00 | 3.74E-03 | 5.00E+03 | 3.35E+00 | 8.49E-05 | 1.02E+01 |

| Unit risk factor, URF $(\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) |
|---|---|
| 5.9E-06 | 3.5E-02 |

**END**

TABLE F-4
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE, MAXIMUM DETECTED SOIL GAS CONCENTRATION, SILTY-CLAY SOIL)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

INCREMENTAL RISK CALCULATIONS:

| Incremental risk from vapor intrusion to indoor air, carcinogen (unitless) | Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless) |
|---|---|
| 2.5E-05 | 2.8E-01 |

MESSAGE SUMMARY BELOW:

**END**

TABLE F-5
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE AND AVERAGE DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

SG-SCREEN
Version 2.0; 04/03

**DTSC / HERD**
**Version 2.0-mod3; 11/1/03**
**Default for Unclassified Soil**

Reset to Defaults

Soil Gas Concentration Data

| ENTER Chemical CAS No. (numbers only, no dashes) | ENTER Soil gas conc., $C_g$ ($\mu g/m^3$) | OR | ENTER Soil gas conc., $C_g$ (ppmv) | Chemical |
|---|---|---|---|---|
| 127184 | 1.69E+04 | | | Tetrachloroethylene |

MORE ↓

| ENTER Depth below grade to bottom of enclosed space floor, $L_F$ (15 or 200 cm) | ENTER Soil gas sampling depth below grade, $L_s$ (cm) | ENTER Average soil temperature, $T_S$ ($^oC$) | ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined vadose zone soil vapor permeability, $k_v$ ($cm^2$) |
|---|---|---|---|---|---|
| 15 | 152.4 | 20 | C | | |

MORE ↓

| ENTER Vandose zone SCS soil type (Lookup Soil Parameters) | ENTER Vadose zone soil dry bulk density, $\rho_b^A$ ($g/cm^3$) | ENTER Vadose zone soil total porosity, $n^V$ (unitless) | ENTER Vadose zone soil water-filled porosity, $\theta_w^V$ ($cm^3/cm^3$) | ENTER Average vapor flow rate into bldg. (Leave blank to calculate) $Q_{soil}$ (L/m) |
|---|---|---|---|---|
| C | 1.43 | 0.459 | 0.215 | |

MORE ↓

| ENTER Averaging time for carcinogens, $AT_C$ (yrs) | ENTER Averaging time for noncarcinogens, $AT_{NC}$ (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|---|---|---|---|
| 70 | 30 | 30 | 350 |

END

TABLE F-5
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE AND AVERAGE DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Diffusivity in air, $D_a$ ($cm^2/s$) | Diffusivity in water, $D_w$ ($cm^2/s$) | Henry's law constant at reference temperature, H (atm-$m^3$/mol) | Henry's law constant reference temperature, $T_R$ ($^oC$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, $T_B$ ($^oK$) | Critical temperature, $T_C$ ($^oK$) | Unit risk factor, URF ($\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) | Molecular weight, MW (g/mol) |
|---|---|---|---|---|---|---|---|---|---|
| 7.20E-02 | 8.20E-06 | 1.84E-02 | 25 | 8,288 | 394.40 | 620.20 | 5.9E-06 | 3.5E-02 | 165.83 |

**END**

TABLE F-5
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE AND AVERAGE DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Source-building separation, $L_T$ (cm) | Vadose zone soil air-filled porosity, $\theta_a^V$ ($cm^3/cm^3$) | Vadose zone effective total fluid saturation, $S_{te}$ ($cm^3/cm^3$) | Vadose zone soil intrinsic permeability, $k_i$ ($cm^2$) | Vadose zone soil relative air permeability, $k_{rg}$ ($cm^2$) | Vadose zone soil effective vapor permeability, $k_v$ ($cm^2$) | Floor-wall seam perimeter, $X_{crack}$ (cm) | Soil gas conc. ($\mu g/m^3$) | Bldg. ventilation rate, $Q_{building}$ ($cm^3/s$) |
|---|---|---|---|---|---|---|---|---|
| 137.4 | 0.244 | 0.324 | 2.30E-09 | 0.821 | 1.89E-09 | 4,000 | 1.69E+04 | 3.39E+04 |

| Area of enclosed space below grade, $A_B$ ($cm^2$) | Crack-to-total area ratio, $\eta$ (unitless) | Crack depth below grade, $Z_{crack}$ (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, $H_{TS}$ (atm-$m^3$/mol) | Henry's law constant at ave. soil temperature, $H'_{TS}$ (unitless) | Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s) | Vadose zone effective diffusion coefficient, $D^{eff}_V$ ($cm^2/s$) | Diffusion path length, $L_d$ (cm) |
|---|---|---|---|---|---|---|---|---|
| 1.00E+06 | 5.00E-03 | 15 | 9,451 | 1.40E-02 | 5.81E-01 | 1.78E-04 | 3.12E-03 | 137.4 |

| Convection path length, $L_p$ (cm) | Source vapor conc., $C_{source}$ ($\mu g/m^3$) | Crack radius, $r_{crack}$ (cm) | Average vapor flow rate into bldg., $Q_{soil}$ ($cm^3/s$) | Crack effective diffusion coefficient, $D^{crack}$ ($cm^2/s$) | Area of crack, $A_{crack}$ ($cm^2$) | Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, $\alpha$ (unitless) | Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|
| 15 | 1.69E+04 | 1.25 | 3.35E+00 | 3.12E-03 | 5.00E+03 | 8.56E+00 | 9.58E-05 | 1.62E+00 |

| Unit risk factor, URF $(\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) |
|---|---|
| 5.9E-06 | 3.5E-02 |

**END**

TABLE F-5
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (RESIDENTIAL LAND USE AND AVERAGE DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

INCREMENTAL RISK CALCULATIONS:

| Incremental risk from vapor intrusion to indoor air, carcinogen (unitless) | Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless) |
|---|---|
| 3.9E-06 | 4.4E-02 |

MESSAGE SUMMARY BELOW:

**END**

TABLE F-6
SITE-SPECIFIC JOHNSON ETTINGER MODEL
TCE (RESIDENTIAL LAND USE AND AVERAGE DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

SG-SCREEN
Version 2.0; 04/03

**DTSC / HERD**
**Version 2.0-mod3; 11/1/03**
**Default for Unclassified Soil**

Reset to Defaults

Soil Gas Concentration Data

| ENTER Chemical CAS No. (numbers only, no dashes) | ENTER Soil gas conc., $C_g$ ($\mu g/m^3$) | OR | ENTER Soil gas conc., $C_g$ (ppmv) | Chemical |
|---|---|---|---|---|
| 79016 | 2.69E+03 | | | Trichloroethylene |

MORE ↓

| ENTER Depth below grade to bottom of enclosed space floor, $L_F$ (15 or 200 cm) | ENTER Soil gas sampling depth below grade, $L_s$ (cm) | ENTER Average soil temperature, $T_S$ ($^oC$) | ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined vadose zone soil vapor permeability, $k_v$ ($cm^2$) |
|---|---|---|---|---|---|
| 15 | 152.4 | 20 | C | | |

MORE ↓

| ENTER Vandose zone SCS soil type (Lookup Soil Parameters) | ENTER Vadose zone soil dry bulk density, $\rho_b^A$ ($g/cm^3$) | ENTER Vadose zone soil total porosity, $n^V$ (unitless) | ENTER Vadose zone soil water-filled porosity, $\theta_w^V$ ($cm^3/cm^3$) | ENTER Average vapor flow rate into bldg. (Leave blank to calculate) $Q_{soil}$ (L/m) |
|---|---|---|---|---|
| C | 1.43 | 0.459 | 0.215 | |

MORE ↓

| ENTER Averaging time for carcinogens, $AT_C$ (yrs) | ENTER Averaging time for noncarcinogens, $AT_{NC}$ (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|---|---|---|---|
| 70 | 30 | 30 | 350 |

END

TABLE F-6
SITE-SPECIFIC JOHNSON ETTINGER MODEL
TCE (RESIDENTIAL LAND USE AND AVERAGE DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Diffusivity in air, $D_a$ ($cm^2/s$) | Diffusivity in water, $D_w$ ($cm^2/s$) | Henry's law constant at reference temperature, H (atm-$m^3$/mol) | Henry's law constant reference temperature, $T_R$ ($^oC$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, $T_B$ ($^oK$) | Critical temperature, $T_C$ ($^oK$) | Unit risk factor, URF ($\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) | Molecular weight, MW (g/mol) |
|---|---|---|---|---|---|---|---|---|---|
| 7.90E-02 | 9.10E-06 | 1.03E-02 | 25 | 7,505 | 360.36 | 544.20 | 2.0E-06 | 6.0E-01 | 131.39 |

**END**

TABLE F-6
SITE-SPECIFIC JOHNSON ETTINGER MODEL
TCE (RESIDENTIAL LAND USE AND AVERAGE DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Source-building separation, $L_T$ (cm) | Vadose zone soil air-filled porosity, $\theta_a^V$ ($cm^3/cm^3$) | Vadose zone effective total fluid saturation, $S_{te}$ ($cm^3/cm^3$) | Vadose zone soil intrinsic permeability, $k_i$ ($cm^2$) | Vadose zone soil relative air permeability, $k_{rg}$ ($cm^2$) | Vadose zone soil effective vapor permeability, $k_v$ ($cm^2$) | Floor-wall seam perimeter, $X_{crack}$ (cm) | Soil gas conc. ($\mu g/m^3$) | Bldg. ventilation rate, $Q_{building}$ ($cm^3/s$) |
|---|---|---|---|---|---|---|---|---|
| 137.4 | 0.244 | 0.324 | 2.30E-09 | 0.821 | 1.89E-09 | 4,000 | 2.69E+03 | 3.39E+04 |

| Area of enclosed space below grade, $A_B$ ($cm^2$) | Crack-to-total area ratio, $\eta$ (unitless) | Crack depth below grade, $Z_{crack}$ (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, $H_{TS}$ (atm-$m^3$/mol) | Henry's law constant at ave. soil temperature, $H'_{TS}$ (unitless) | Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s) | Vadose zone effective diffusion coefficient, $D^{eff}_V$ ($cm^2/s$) | Diffusion path length, $L_d$ (cm) |
|---|---|---|---|---|---|---|---|---|
| 1.00E+06 | 5.00E-03 | 15 | 8,433 | 8.06E-03 | 3.35E-01 | 1.78E-04 | 3.42E-03 | 137.4 |

| Convection path length, $L_p$ (cm) | Source vapor conc., $C_{source}$ ($\mu g/m^3$) | Crack radius, $r_{crack}$ (cm) | Average vapor flow rate into bldg., $Q_{soil}$ ($cm^3/s$) | Crack effective diffusion coefficient, $D^{crack}$ ($cm^2/s$) | Area of crack, $A_{crack}$ ($cm^2$) | Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, $\alpha$ (unitless) | Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|
| 15 | 2.69E+03 | 1.25 | 3.35E+00 | 3.42E-03 | 5.00E+03 | 7.07E+00 | 9.94E-05 | 2.67E-01 |

| Unit risk factor, URF $(\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) |
|---|---|
| 2.0E-06 | 6.0E-01 |

**END**

TABLE F-6
SITE-SPECIFIC JOHNSON ETTINGER MODEL
TCE (RESIDENTIAL LAND USE AND AVERAGE DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

INCREMENTAL RISK CALCULATIONS:

| Incremental risk from vapor intrusion to indoor air, carcinogen (unitless) | Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless) |
|---|---|
| 2.2E-07 | 4.3E-04 |

MESSAGE SUMMARY BELOW:

**END**

TABLE F-7
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (INDUSTRIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| ENTER Chemical CAS No. (numbers only, no dashes) | Soil Gas Concentration Data: ENTER Soil gas conc., $C_g$ ($\mu g/m^3$) | OR | ENTER Soil gas conc., $C_g$ (ppmv) | DTSC/HERD 12/1/01 Chemical |
|---|---|---|---|---|
| 127184 | 1.69E+04 | | | Tetrachloroethylene |

MORE ↓

| ENTER Depth below grade to bottom of enclosed space floor, $L_F$ (cm) | ENTER Soil gas sampling depth below grade, $L_s$ (cm) | ENTER Average soil temperature, $T_S$ (°C) | ENTER Thickness of soil stratum A, $h_A$ (cm) | ENTER Thickness of soil stratum B, (Enter value or 0) $h_B$ (cm) | ENTER Thickness of soil stratum C, (Enter value or 0) $h_C$ (cm) | ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined stratum A soil vapor permeability, $k_v$ ($cm^2$) |
|---|---|---|---|---|---|---|---|---|
| | | | Totals must add up to value of Ls (cell C24) | | | | | |
| 15 | 152.4 | 20 | 152.4 | 0 | 0 | c | | |

MORE ↓

| ENTER Stratum A soil dry bulk density, $\rho_b^A$ ($g/cm^3$) | ENTER Stratum A soil total porosity, $n^A$ (unitless) | ENTER Stratum A soil water-filled porosity, $\theta_w^A$ ($cm^3/cm^3$) | ENTER Stratum B soil dry bulk density, $\rho_b^B$ ($g/cm^3$) | ENTER Stratum B soil total porosity, $n^B$ (unitless) | ENTER Stratum B soil water-filled porosity, $\theta_w^B$ ($cm^3/cm^3$) | ENTER Stratum C soil dry bulk density, $\rho_b^C$ ($g/cm^3$) | ENTER Stratum C soil total porosity, $n^C$ (unitless) | ENTER Stratum C soil water-filled porosity, $\theta_w^C$ ($cm^3/cm^3$) |
|---|---|---|---|---|---|---|---|---|
| 1.5 | 0.459 | 0.215 | 1.5 | 0.43 | 0.3 | 1.5 | 0.43 | 0.3 |

MORE ↓

| ENTER Enclosed space floor thickness, $L_{crack}$ (cm) | ENTER Soil-bldg. pressure differential, $\Delta P$ ($g/cm\text{-}s^2$) | ENTER Enclosed space floor length, $L_B$ (cm) | ENTER Enclosed space floor width, $W_B$ (cm) | ENTER Enclosed space height, $H_B$ (cm) | ENTER Floor-wall seam crack width, w (cm) | ENTER Indoor air exchange rate, ER (1/h) |
|---|---|---|---|---|---|---|
| 15 | 4 | 1056 | 1056 | 244 | 0.1 | 2 |

| ENTER Averaging time for carcinogens, $AT_C$ (yrs) | ENTER Averaging time for noncarcinogens, $AT_{NC}$ (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|---|---|---|---|
| 70 | 25 | 25 | 250 |

END

TABLE F-7
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (INDUSTRIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Diffusivity in air, $D_a$ ($cm^2/s$) | Diffusivity in water, $D_w$ ($cm^2/s$) | Henry's law constant at reference temperature, H (atm-$m^3$/mol) | Henry's law constant reference temperature, $T_R$ ($^oC$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, $T_B$ ($^oK$) | Critical temperature, $T_C$ ($^oK$) | Molecular weight, MW (g/mol) | Unit risk factor, URF ($\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) |
|---|---|---|---|---|---|---|---|---|---|
| 7.20E-02 | 8.20E-06 | 1.84E-02 | 25 | 8,288 | 394.40 | 620.20 | 165.83 | 5.9E-06 | 3.5E-02 |

**END**

TABLE F-7
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (INDUSTRIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

| Exposure duration, $\tau$ (sec) | Source-building separation, $L_T$ (cm) | Stratum A soil air-filled porosity, $\theta_a^A$ ($cm^3/cm^3$) | Stratum B soil air-filled porosity, $\theta_a^B$ ($cm^3/cm^3$) | Stratum C soil air-filled porosity, $\theta_a^C$ ($cm^3/cm^3$) | Stratum A effective total fluid saturation, $S_{te}$ ($cm^3/cm^3$) | Stratum A soil intrinsic permeability, $k_i$ ($cm^2$) | Stratum A soil relative air permeability, $k_{rg}$ ($cm^2$) | Stratum A soil effective vapor permeability, $k_v$ ($cm^2$) | Floor-wall seam perimeter, $X_{crack}$ (cm) | Soil gas conc. ($\mu g/m^3$) | Bldg. ventilation rate, $Q_{building}$ ($cm^3/s$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.88E+08 | 137.4 | 0.244 | 0.130 | 0.130 | 0.324 | 2.30E-09 | 0.821 | 1.89E-09 | 4,224 | 1.69E+04 | 1.51E+05 |

| Area of enclosed space below grade, $A_B$ ($cm^2$) | Crack-to-total area ratio, $\eta$ (unitless) | Crack depth below grade, $Z_{crack}$ (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, $H_{TS}$ (atm-$m^3$/mol) | Henry's law constant at ave. soil temperature, $H'_{TS}$ (unitless) | Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s) | Stratum A effective diffusion coefficient, $D^{eff}_A$ ($cm^2/s$) | Stratum B effective diffusion coefficient, $D^{eff}_B$ ($cm^2/s$) | Stratum C effective diffusion coefficient, $D^{eff}_C$ ($cm^2/s$) | Total overall effective diffusion coefficient, $D^{eff}_T$ ($cm^2/s$) | Diffusion path length, $L_d$ (cm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.12E+06 | 3.79E-04 | 15 | 9,451 | 1.40E-02 | 5.83E-01 | 1.78E-04 | 3.12E-03 | 0.00E+00 | 0.00E+00 | 3.12E-03 | 137.4 |

| Convection path length, $L_p$ (cm) | Source vapor conc., $C_{source}$ ($\mu g/m^3$) | Crack radius, $r_{crack}$ (cm) | Average vapor flow rate into bldg., $Q_{soil}$ ($cm^3/s$) | Crack effective diffusion coefficient, $D^{crack}$ ($cm^2/s$) | Area of crack, $A_{crack}$ ($cm^2$) | Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, $\alpha$ (unitless) | Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$) | Unit risk factor, URF $(\mu g/m^3)^{-1}$ | Reference conc., RfC ($mg/m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 1.69E+04 | 0.10 | 1.97E-01 | 3.12E-03 | 4.22E+02 | 9.42E+00 | 1.44E-06 | 2.44E-02 | 5.9E-06 | 3.5E-02 |

**END**

TABLE F-7
SITE-SPECIFIC JOHNSON ETTINGER MODEL
PCE (INDUSTRIAL LAND USE AND MAXIMUM DETECTED SOIL GAS CONCENTRATION)
SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA

INCREMENTAL RISK CALCULATIONS:

| Incremental risk from vapor intrusion to indoor air, carcinogen (unitless) | Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless) |
|---|---|
| 3.5E-08 | 4.8E-04 |

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

**SCROLL DOWN TO "END"**

**END**

# APPENDIX G
# DATA QUALITY CONTROL SUMMARY REPORT

## 1.0 INTRODUCTION

This data quality control summary report (QCSR) presents results of the chemical and quality control (QC) data gathered during the remedial investigation (RI) field effort for Solid Waste Management Units (SWMU) 2, 5, 7, and 18 at Naval Weapons Station Seal Beach Detachment (SBD) Concord in Concord, California. RI field activities were conducted from February 19 through March 8, 2002. This report provides an overview of the data validation methodology (Section 2.0), summarizes data evaluation results (Section 3.0), and presents conclusions regarding data quality and data usability (Section 4.0).

## 2.0 DATA VALIDATION METHODOLOGY

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 uses. 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 RI for SWMUs 2, 5, 7, and 18 were validated in accordance with procedures outlined in the Contract Laboratory Program's (CLP) "National Functional Guidelines for Organic Data Review" (U.S. Environmental Protection Agency [EPA] 1990); CLP's "National Functional Guidelines for Inorganic Data Review" (EPA 1994); Tetra Tech EM Inc.'s (TtEMI) "Draft Quality Assurance Project Plan, Remedial Investigation for Groundwater, SMWUs 2, 5, 7, and 18, Naval Weapons Station Seal Beach Detachment Concord" (QAPP) (TtEMI 2001); and the associated analytical methods.

The overall objective of data validation is to ensure that the quality of the chemical data set is adequate for the data's intended purpose as defined by the PARCC parameters. The PARCC parameters are defined in EPA's "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 not meeting quality assurance (QA) and QC requirements
- Reviewing and summarizing the implications of the frequency and severity of qualifiers assigned to the validated data

Data validation occurred in two stages: (1) a cursory review of the analytical reports and the 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 checked calculations and analyte identifications against the raw data. At each stage of validation, qualifiers were assigned to the results in accordance with EPA guidelines, procedures outlined in the QAPP, and associated analytical methods.

The cursory and full review methodologies are described below.

## 2.1 CURSORY REVIEW

This subsection discusses the cursory review methodology for the analytical data, which included the evaluation of the following parameters as applicable: holding times, initial and continuing calibrations, laboratory and field blank results, accuracy, field and laboratory precision, and analytical and matrix performance. Results below the contract-required quantitation limit (CRQL) are also discussed.

### 2.1.1 Holding Times

One objective of data validation is to assess the validity of the chemical data set based on compliance with technical sample holding times. The technical sample holding times is the maximum time allowable between sample collection and, as applicable, sample extraction, preparation, and analysis. The Clean Water Act of 1984 (Title 40 of the *Code of Federal Regulations* [CFR] 136) establishes technical requirements for water sample holding times and preservation (*Federal Register* 1984). EPA has not yet established technical holding times for soil samples or samples from other nonaqueous matrices. For methods not covered by 40 CFR 136, the holding times used for validation purposes were either recommended in the specific analytical methods or are specified in the QAPP (TtEMI 2001).

### 2.1.2 Initial and Continuing Calibrations

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 during the initial calibration.

### 2.1.3 Laboratory and Field Blank Results

Laboratory and field blank samples are analyzed to determine the existence and magnitude of contamination resulting from sample collection or laboratory activities (EPA 1990 and 1994). Blanks prepared and analyzed in the laboratory included calibration blanks and method or 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 table below summarizes the purpose of each laboratory and field blank.

| Blank Type | Purpose |
|---|---|
| Calibration blank | Evaluate analytical instrument for possible laboratory contamination |
| Method or 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 source of field contamination |
| Trip blank | Evaluate shipment and storage procedures as a possible source of field contamination by volatile compounds |

At a minimum, a calibration or a method or 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 1 for every 20 investigative samples collected, whichever was greater (EPA 1998).

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.

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.

When 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 following compounds identified by EPA as common laboratory contaminants (EPA 1990): acetone, methylene chloride, phthalate compounds, 2-butanone, and toluene. Toluene is included only when other substituted benzene compounds were not detected in the environmental sample. These compounds were assessed in all samples at an action level of 10 times the highest level found in the associated laboratory blank (EPA 1990). 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 analysis only), whichever was greater (EPA 1990 and 1994).

### 2.1.4 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, matrix spikes (MS), and laboratory control sample (LCS) spikes. 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 1990). In some cases, professional judgment was used to qualify the data. Any such decisions are clearly identified and documented in the data validation reports. For the inorganic analyses, laboratory accuracy was evaluated using LCS spike and MS recoveries.

### 2.1.5 Field and Laboratory Precision

Another objective of data validation is to assess the precision of the chemical data set. Laboratory precision was evaluated based on the relative percent differences (RPD) of (1) the MSs and matrix spike duplicates (MSD) for organic analyses and (2) 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 are presented in the QAPP (TtEMI 2001). 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 duplicate results were reviewed against the following criteria (EPA 1994):

- An RPD criterion of ± 20 percent for water sample values greater than five times the contract-required detection limit (CRDL)
- An RPD criterion of ± 35 percent for soil sample values greater than five times the CRDL
- An absolute difference of ± the CRDL for water sample results less than five times the CRDL
- An absolute difference of ± two times the CRDL for soil sample results less than five times the CRDL

Field precision was evaluated through the use of field duplicates. Six field duplicate water samples were collected during the field activities. The chemical data were not qualified based on field duplicate precision exceedances (EPA 1990 and 1994). Generally, RPDs calculated for field duplicate sample precision were less than ± 25 percent for analytes detected above the CRQL. The only exceptions were for copper and manganese in samples S05MW08 and S05MW10, toluene in sample SB002, and 1,2,4-trimethylbenzene in sample SB011. All results exceeding the ± 25 percent goal were low-level detections well below the maximum contaminant levels (MCL) and tap water preliminary remediation goals (PRG). Because of 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 percent RPD) were acceptable. These results indicate the consistency of the sampling methodology, which contributed to the high technical quality of the data.

### 2.1.6 Analytical and Matrix Performance

In addition to the data quality requirements discussed above, additional laboratory QA/QC criteria were evaluated during the cursory review. These additional criteria were primarily concerned with analytical and matrix performance. For organic analyses, when applicable, internal standard performance was evaluated. Internal standard performance criteria ensure 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 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 1990).

Inductively coupled plasma emission spectrophotometer (ICPES) serial dilutions were evaluated for inorganic analyses when 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 percent difference (%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).

### 2.1.7 Results Below the CRQL

Analytical instruments can make reliable *qualitative* identification of compounds at concentrations below the CRQL for volatile organic compounds (VOC), total petroleum hydrocarbons (TPH) as purgeables (TPH-p), and TPH as extractables (TPH-e). Results below the CRQL, and therefore outside the calibration range, are considered *quantitatively* uncertain.

## 2.2 FULL REVIEW

A full review was conducted on a random 10 percent of the chemical data. Data qualification during the full review was conducted in accordance with criteria specified in EPA guidelines, the QAPP, and associated analytical methods. In addition to the cursory review discussed above, full review included evaluating additional analytical and matrix performance, analyte identification, and analyte quantification as discussed below.

### 2.2.1 Additional Analytical and Matrix Performance

In addition to cursory review QA/QC requirements, the laboratory must meet additional QA/QC criteria. These additional requirements are primarily concerned with analytical and matrix performance. For VOC analyses, instrument performance check sample results were reviewed.

GC/MS instrument performance check samples 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 the VOC analysis.

For inorganic analyses, the following requirements were evaluated as applicable: ICPES interference check samples, graphite furnace/atomic absorption (GF/AA) duplicate injections, GF/AA analytical spikes, and GFAA method of standard additions (MSA). The ICPES interference check sample verifies the validity of the laboratory's inter-element and background correction factors. High levels of aluminum, iron, calcium, and magnesium can affect sample results if the inter-element and background correction factors have not been optimized. Inaccurate correction factors may result in false positives, false negatives, or biased results. GF/AA duplicate injections and furnace analytical spikes establish the precision and accuracy of each analytical result. MSAs were performed on samples when the GF/AA analytical spike result 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, 100, 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 1998). Hexavalent chromium interference check samples were analyzed to ensure the qualitative response of the methodology.

### 2.2.2 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 VOCs, 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 1998).

Chromatographic peaks in VOC analyses that are not target analytes, surrogates, or internal standards may be reported as tentatively identified compounds (TIC). TICs were qualitatively identified using the National Institute of Standards and Technology (NIST) mass spectra 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 1998). 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 spectra and were reported as unknown compounds. Some VOC TICs were identified as laboratory contaminants. These TIC results were qualified as "R," indicating that the results were rejected (EPA 1990). Rejected TICs were not maintained in the database of RI analytical results.

TPH-p and TPH-e were positively identified when a response was recorded in the appropriate retention time windows for the particular analyte. For TPH-p and TPH-e, fuels were identified using a more definitive fingerprinting of the chromatographic peaks for the type of petroleum product. When the chromatographic peaks fell within the standard ranges for gasoline, diesel, or motor oil, and the chromatographic fingerprint resembled the indicated standard chromatographic fingerprint, the results was assigned a qualifier of "G" for gasoline, "D" for diesel, and "M" for motor oil. When the chromatographic peaks fell outside the standard ranges or displayed a petroleum fuel fingerprint other than that of gasoline, diesel, or motor oil, the data were qualified as "Y," indicating that the compound was a petroleum fuel other than that indicated by the standard. When a single peak was detected, the data were qualified as "Z," indicating that the result was more representative of a single component rather than a fuel pattern.

Metals, sulfite, nitrate, and nitrite 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 was indirectly verified by assessing the instrument's performance.

### 2.2.3 Analyte Quantification

All applicable raw data were reviewed to verify positive results and the reported detection or quantitation limits. Ten 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 chemical data were properly quantitated.

## 3.0 DATA VALIDATION RESULTS

Between February 19 and March 8, 2002, 54 water and 158 soil samples were collected at SWMUs 2, 5, 7, and 18. This section discusses data usability issues that affect the analytical results for samples collected from SWMUs 2, 5, 7, and 18. Data usability and problems identified during data validation are discussed separately for each analyte group. The analyses listed below were conducted in accordance the EPA SW-846 (EPA 1998) methods:

- VOCs by EPA Method 8260B
- TPH-p and TPH-e by EPA Method 8015B
- Metals by EPA Method 200.7
- Sulfate, nitrate, and nitrite by EPA Method 300.0
- Alkalinity by EPA Method 310.1
- Chemical oxygen demand by EPA Method EPA, 410.1
- Methane, ethane and ethane by EPA Method RSK-175
- Hardness by EPA Method 130.1

## 3.1 PRECISION AND ACCURACY

The following subsections summarize the data validation results with respect to precision and accuracy. Results are presented by analyte group.

### 3.1.1 Volatile Organic Compounds

All VOC soil and groundwater data were assessed to be valid and usable, with no rejected data.

A common VOC laboratory contaminant (acetone) was detected in two of the groundwater samples, and the results were qualified as nondetected (UJb) because the sample result was less than five times the blank value. Because of continuing calibration exceedances, detected results for acetone and nondetected results for acetone and 1,1-dichloroethene were qualified as estimated (Ujc, Jc) in four groundwater samples.

Quantitation limits defined in the QAPP for VOCs were met (TtEMI 2001).

### 3.1.2 Total Petroleum Hydrocarbons

All TPH soil and groundwater data (including results for TPH-g, TPH-d, and TPH-mo) were assessed to be valid and usable, with no rejected data.

Because of continuing calibration exceedances, detected TPH-d results for four groundwater samples were qualified as estimated (Jc).

Quantitation limits defined in the QAPP for TPH were met (TtEMI 2001).

### 3.1.3 Metals

All soil and groundwater metals data were assessed to be valid except for 20 nondetected results for antimony for groundwater samples. These results were rejected (Re) because of low MS recovery. Rejection of these data has little impact on the overall usability of the metals results. Laboratory and field blanks contained detectable amounts of antimony. Sample results were qualified as nondetected (UJb) if the sample results were less than five times the associated blank value. Because antimony results exceeded MS criteria, antimony results were qualified as estimated (Je). Spike recoveries were above the acceptance limits of 125 percent, indicating that detected results may be biased high. All detected results below the CRDL but above the IDL were qualified as estimated (Jg). Detected results reported above the IDL but below the CRDL are considered to be qualitatively acceptable but quantitatively unreliable due to uncertainty in analytical precision near the limit of detection.

Quantitation limits defined in the QAPP for metals were met (TtEMI 2001).

### 3.1.4 Sulfate, Nitrate, Nitrite, Alkalinity, Chemical Oxygen Demand, Ethane, Ethene, Hardness, Methane and Nitrite

All sulfate, nitrate, nitrite, alkalinity, chemical oxygen demand, ethane, ethene, hardness, and methane groundwater data were assessed to be valid and usable, with no estimated or rejected data.

Quantitation limits defined in the QAPP for sulfate, nitrate, nitrite, alkalinity, chemical oxygen demand, ethane, ethene, hardness, and methane were met (TtEMI 2001).

## 3.2 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 sample collection, transport, and analysis. Selection of representative sampling locations is important to ensure that the medium sampled is typical of site conditions. Correct sample collection, transport, and analytical procedures are also important to ensure that samples closely resemble the medium sampled, with minimum of cross-contamination.

The sampling locations, frequency, and collection protocols are described in the QAPP (TtEMI 2001). These protocols follow 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 met all relevant requirements for data representativeness.

## 3.3 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.

Rejected and unusable data were qualified during the cursory review based on the following: calibration problems, low surrogate spike recovery, low MS recovery, and low internal standard areas. The full review of 10 percent of the 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 data evaluated in this QCSR displayed a 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 QAPP (TtEMI 2001) was greatly exceeded. In addition, EPA has indicated that Level IV data sets achieve an average completeness of only 80 percent nationwide (EPA 1987).

## 3.4 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 specific EPA analyses, approved laboratories, and the standardized process of data review and validation give the data a high degree of comparability.

For the soil gas analysis, split samples were collected at seven locations and submitted to an off-site laboratory for low-level analysis. RPDs were calculated to compare mobile and off-site laboratory results. RPD was calculated using the following equation:

$$\text{RPD} = \frac{|A - B|}{(A + B)/2} \times 100\%$$

where:

A = Stationary laboratory concentration

B = Mobile laboratory concentration

Of the seven samples submitted to the stationary laboratory for confirmation analysis, only samples 324SG018 and 324SG025 contained detectable concentrations of PCE and TCE. The highest RPD calculated for PCE or TCE was 42 percent, which indicates a high degree of comparability between the results submitted by the stationary and mobile laboratories.

## 4.0 CONCLUSIONS REGARDING 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 indicates that the data are of high overall quality. The data meet all requirements for Level IV data described in EPA's "Data Quality Objectives for Remedial Response Activities" (EPA 1987) and all the requirements of "definitive data" described in EPA's "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 study purposes. The overall assessment of the sampling program, QA/QC data, data review, and data validation results indicates that the data are generally acceptable with regard to PARCC. 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 EPA's "Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Part A" (EPA 1989). Exhibit 5-5 in this guidance 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 SWMUs 2, 5, 7, and 18. Accordingly, all J-qualified data and no R-qualified data were used for the SWMUs 2, 5, 7, and 18 RI.

## 5.0 REFERENCES


Tetra Tech EM Inc. (TtEMI). 2001. "Draft Final Quality Assurance Project Plan, Remedial Investigation for Groundwater, SWMU Sites 1, 2, 5, 7, and 18, Naval Weapons Station Seal Beach Detachment Concord, California." January 23.

U.S. Environmental Protection Agency (EPA). 1986. "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, Draft Supplement." January.

EPA. 1987. "Data Quality Objectives for Remedial Response Activities." Volumes I and II. EPA/540/87/003. Office of Solid Waste and Energy Response (OSWER) Directive 9355.0-7B. March.

EPA. 1989. "Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Part A." OSWER. December.

EPA. 1990. "National Functional Guidelines for Organic Data Review." Contract Laboratory Program (CLP). Draft. December. Revised June 1991.

EPA. 1993. "Data Quality Objectives Process for Superfund." Interim Final Guidance. EPA/540/G-93/071. September.

EPA. 1994. "National Functional Guidelines for Inorganic Data Review." CLP Document No. EPA-540/R-94-013. February.

EPA. 1998. "Test Methods for Evaluating Solid Waste, 5th Edition (SW-846)."

# APPENDIX H
# NAVY RESPONSES TO REGULATORY AGENCY COMMENTS ON DRAFT REMEDIAL INVESTIGATION

**RESPONSES TO REGULATORY AGENCY COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION FOR SOLID WASTE MANAGEMENT UNITS 2, 5, 7, AND 18 NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**

This document presents draft U.S. Department of the Navy's (Navy) responses to comments received from the U.S. Environmental Protection Agency (EPA); California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region; and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) on the "Draft Remedial Investigation [RI] for Solid Waste Management Units [SWMU] 2, 5, 7, and 18, Naval Weapons Station Seal Beach Detachment [SBD] Concord, Concord, California," dated October 18, 2002. The Navy received the comments addressed below from EPA on December 17, 2002; from RWQCB on November 12, 2002; and from DTSC on December 18, 2002.

## RESPONSES TO COMMENTS FROM EPA

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| **EPA General Comment 1** | **The draft SWMUs RI Report requires an expanded discussion and description of past site operations involving waste generation, waste disposal, past site investigations, and removal actions completed. In general, U.S. EPA believes that the Navy site history discussion fails to provide a complete presentation of past activities at the site. Examples include the fire burn pit at Solid Waste Management Unit (SWMU) 2, where wastes were burned and later likely excavated and disposed in a drainage canal west of the site that leads to Seal Creek; the waste oil tank closed under Resource Conservation and Recovery Act (RCRA) at SWMU 5; a pesticide area where releases occurred and a clean up action was conducted near SWMU 18; and a former hazardous waste storage area (SWMU 16) near Building IA-46. As a stand alone document, the RI Report should document or at least summarize all past activities and not rely of the numerous past studies completed for individual source areas.** |
| Response | The Navy will include an expanded discussion of past site operations in the draft final RI report. |
| **EPA General Comment 2** | **The site description is also incomplete because there are no maps of subsurface utilities, even though utilities are discussed as potential conduits for contaminant migration. Also, the draft SWMUs RI Report should provide information on climate, soils, demographics and land use.** |
| Response | The Navy will expand the site description in the draft final RI report, including climate, soils, and land use. The Navy will also revise the draft final RI report to include a map illustrating the locations of sanitary and storm sewer utilities in portions of the site where the highest concentrations of volatile organic compounds (VOC) were detected in groundwater.<br><br>Additionally, the Navy will revise the draft final RI report to clarify the potential role of buried subsurface utilities. |

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| **EPA General Comment 3** | **The Navy should revise the draft SWMUs RI Report to document regulatory involvement in the planning process. The discussion in Section 1.2, Scope of Work, and Section 3.0, Field Investigation Approach, does not characterize U.S. EPA's role in resolving disagreements over a January 23, 2001, draft final Sampling and Analysis Plan (SAP) or set forth the Agency's recommendations to reach consensus and finalize the plan through a November 8, 2001, SAP Addendum. At a minimum, create a revised Section 3.0, entitled " Investigation Approach/Regulatory Involvement" and document and cite the Draft Final SAP, SAP Addendum, an October 1, 2001, SAP Informal Dispute Resolution meeting and U.S. EPA's January 15, 2002, work plan approval letter.** |
| Response | The Navy will revise the draft final RI report, as requested. |
| **EPA General Comment 4** | **The Navy must classify groundwater beneficial use following Federal Groundwater Classification Guidelines. U.S. EPA Program staff has determined that the groundwater meets the federal definition of a current drinking water supply, based upon the existence of the Contra Costa Water District production wells at Mallard Reservoir (even though not recently used) and possible residential wells in the community of Clyde. Also, the aquifer meets the definition of a drinking water supply based upon an estimated yield and total dissolved solids (TDS) concentrations (less than 10, 000 mg/l), per Federal Guidelines. As a result, U.S. EPA's drinking water Maximum Contaminant Levels (MCLs) are Applicable and Relevant and Appropriate Requirements (ARARs).** |
| Response | The Navy will revise the draft final RI report to include discussion of the Federal Groundwater Classification Guidelines. The Navy will include an evaluation of applicable and relevant or appropriate requirements (ARARs) in the feasibility study (FS) report. |
| **EPA General Comment 5** | **Similarly, U.S. EPA does not believe the draft SWMUs RI has adequately documented the use of groundwater in the general vicinity of Concord Naval Weapons Station, which includes current use of groundwater for irrigation at the Diablo Creek Golf Course, potential use of groundwater for irrigation and possibly drinking water by residents in Clyde, nor past use by Contra Costa Water District. For completeness these current and past uses should be better described, assessed and mapped.** |
| Response | The Navy will revise the draft final RI report to include a description of the Mallard Reservoir wells and the Golf Course well. The locations of these wells will be shown on a figure and the revised text will include a discussion of the potential use of groundwater at the wells. |

An additional well may exist near Naval Weapons Station SBD Concord property (identified as the Conco well) and the Navy will add the location of this well to a figure in the draft final RI report.

The Navy has discovered that prior to 1960, the Town of Clyde received its drinking water from a well located adjacent to Naval Weapons Station SBD Concord property near the northwest corner of the town. Although this well has apparently been capped (specific details on it's closure status are unknown to the Navy), its former location will also be added to the draft final RI report.

The Navy initiated a request for well records from Contra Costa County for the Town of Clyde. The request to Contra Costa County was denied because of security issues. As a result, details about other wells in the Town of Clyde were unavailable and could not be included in the draft final RI report. Although the information is not available, it is not considered a data gap for the following reasons:

1. Drinking water is currently supplied to the Town of Clyde by Contra Costa County Water District.

2. Based on review of site topography, the Town of Clyde is located on the western flank of the western end of the Los Mendanos Hills. The lowest elevation contours in the Town of Clyde lie at the western end of the town between about 20 and 25 feet. The alluvial plain to the west has elevations that vary from 5 to 15 feet. The most likely direction of groundwater flow through the Town of Clyde is to the west, as implied by surface topography.

   The contaminated groundwater plume in the Inland Area at Naval Weapons Station SBD Concord flows in a westerly direction from its point of origin. The groundwater flow direction takes the plume toward the lowest lying ground in the area, which is centered on Seal Creek. From that point, ground surface topography suggests that groundwater flow would be directed to the northwest.

   The Town of Clyde is located at least 25 to 30 degrees north of the direction of groundwater flow from the site. This direction, in combination with the fact that the town is located on the flanks of the Los Mendanos Hills, suggests that it is very unlikely that groundwater would flow diagonally across the ground surface topography toward an area with higher ground surface elevations. Thus, it is highly unlikely that the Town of Clyde is located downgradient from the site.

3. Concentrations of tetrachloroethene (PCE) in groundwater within the Inland Area of Naval Weapons Station SBD Concord attenuate from the maximum detected value of 102 micrograms per liter (µg/L) to 5 or 6 µg/L within about 600 feet. The Town of Clyde is located about 5,000 feet from the 100-µg/L concentration of PCE. Even if the Town of Clyde was located directly downgradient and 5,000 feet from the site, it is highly unlikely that detectible VOCs would be present in groundwater at that location.

**EPA General Comment 6**

**U.S. EPA notes that a large number (156 out of 158) of volatile organic compound (VOC) soils samples had non-detected levels of contamination. Analysis of so many samples may not have represented the most efficient use of DoDs financial resources for this investigation (these 'non-detects' may represent as much as $50,000 in analysis costs). U.S. EPA Program staff would have considered modifications to the approved sampling plan, including a short term archiving of VOC samples pending groundwater grab and TPH soil results, with an resulting elimination of some of the required VOC soil samples, had the Navy considered such discussions with the regulators. However, U.S. EPA noted reluctance from the Navy in sharing preliminary data even after the analysis was completed. This delay in coordination and communication may have resulted in a less efficient investigation.**

Response

The Navy completed the investigation of the site as outlined in the EPA-approved sampling plan (EPA 2001, TtEMI 2001a, 2001b, and 2001c). The Navy worked collaboratively and extensively with the agencies to develop the approved plan. The Navy also carefully considered the cost for this investigation. As just one example, the Navy procured a laboratory that provided the sample analyses at a cost of about half of EPA's estimate.

Data were not reviewed with EPA during the field program due to logistical constraints to complete the field program and analyses. The holding time for VOC analysis is 14 days. Preliminary data for presentation to the agencies was only available after the field work and analyses were complete.

Preliminary sampling results were presented to the agencies during the June 2002 RPM meeting.

However, the Navy is open to consideration of modifications in investigation techniques for future projects to enable the EPA more access to preliminary data, especially given the willingness expressed by the comment for EPA to perhaps agree to less extensive analyses should preliminary results support such a change. Data can be made available for rapid review to enable the fine-tuning of an investigation. While such methods do provide more flexibility in the design of an investigation, there are additional costs, which can be significant, when expediting lab analyses to accommodate decision-making needs during field events. To be successful, the process, deadlines, and rapid turnaround analytical testing would need to carefully evaluated and then detailed in the project sampling and analysis plan.

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| **EPA General Comment 7** | **Despite considerable resources spent assessing subsurface soil contamination via the collection of soil samples, U.S. EPA does not agree with the Navy that all significant potential source areas have been assessed. U.S. EPA recommends that the Navy consider conducting an active soil gas survey at the locomotive wash rack/steam cleaning area and the waste oil tank areas (SWMU 5) where elevated VOCs were detected in groundwater. The soil gas information may prove beneficial in evaluating an active remedial action alternative (air sparging/soil vapor extraction) as part of the FS analysis of alternatives.** |
| Response | The Navy will perform additional characterization of the site to address EPA's concerns. The Navy will revise the draft final RI report to include the results of additional analyses. The Navy will meet with EPA to discuss the extent of the additional sampling requested. |
| **EPA General Comment 8** | **Quality Assurance/data validation documentation appears incomplete. The data validation reports do not explain what the data were qualified for and if there are any limitations to the data. At the minimum a detailed narrative of how the data was validated, by whom, and information to interpret the data validation reports should be provided.** |
| Response | The Navy will revise the draft final RI report to include a complete data quality summary report. |
| **EPA General Comment 9** | **As part of the FS scoping and identification and analysis of remedial action alternatives, U.S. EPA recommends that the FS include and analyze the following additional action alternatives: air sparging/soil vapor extraction, accelerated bioremediation using slow release compounds, and pump and treat. Institutional Controls (ICs) that protect against the use of groundwater must also be included, and are typically analyzed both on their own and in combination with the other remedial action alternatives.** |
| Response | The Navy plans to review the most appropriate technologies and alternatives to be included in the FS with the regulatory agencies. However, discussion of appropriate technologies is not a required element of the RI; therefore, it will be removed from the draft final RI report. |

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| **EPA General Comment 10** | **While geochemical data was collected in order to evaluate monitored natural attenuation (MNA), the report does not provide any clear conclusions regarding the reaction rate or effectiveness of this process. U.S. EPA notes limited concentrations of VOC break-down products down-gradient of monitoring well MW-10 and the locomotive wash rack/waste oil tank source areas, even though total VOC concentrations appear to decrease with distance. As indicated in the Conclusions, "VOC concentrations have remained relatively consistent at the Site over time". Also, please clarify if sufficient chemical data have been collected to estimate for the FS the time required for contaminant concentrations to attenuate to below MCLs.** |
| Response | The Navy believes that sufficient information has been collected to indicate that natural attenuation is occurring at the site. The Navy will estimate the rate of natural attenuation for the FS report to estimate the time required for chemical concentrations to attenuate below maximum contaminant levels (MCL). |
| **EPA General Comment 11** | **U.S. EPA notes numerous grammatical and typographical errors. A technical proof-reading of future deliverables prior to transmittal to the regulators and the public is recommended. A few examples include: 1) the text on Page ES-3 appears to be missing a word, it currently reads "Chemical concentrations in soil and pose minimal risk to ecological receptors."; 2) at the bottom of page 18, the word " exiting" should be replaced with the word "existing"; 3) the fourth sentence of Section 4.2.2.2 appears to be missing a word, it currently reads, " PCE and TCE were generally detected at relatively concentrations the cis and trans 1,2-DCE " ; and 4) in the heading for Section 5.1, the word volatile is misspelled.** |
| Response | The Navy will complete a full editorial review of the draft final RI. |
| **EPA General Comment 12** | **For readability and given the primary focus on CERCLA contaminants (more specifically volatile organic compounds or VOCs), U.S. EPA requests a rearrangement in the order of contaminant discussions. Please present the various discussions of data in the order of VOCs followed by total petroleum hydrocarbons (TPH).** |
| Response | The Navy will incorporate this suggestion into the draft final RI report, as requested. |

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| **EPA Specific Comment 1** | **Section 1.2, Scope of Work: The discussion of Agency involvement in work plan development and approval needs significant revision and should be described in a separate section. At a minimum, create a revised section 3.0, entitled " Investigation Approach/Regulatory Involvement". As part of the narrative please document and cite the Draft Final Work Plan, Work Plan Addendum, the RI Work Plan Informal Dispute Resolution meeting held on October 1, 2001, and U.S. EPA's RI Work Plan approval letter dated January 15, 2002.** |
| Response | The Navy will incorporate this change in the draft final RI report, as requested. |
| **EPA Specific Comment 2** | **Section 2.2, Site History: Please add that Naval Weapons Station Seal Beach Detachment Concord was added to the National Priority List (i.e., became a Superfund Site) on December 16, 1994, and that a Federal Facilities Agreement was signed by the Navy and U.S. EPA in June 2001.** |
| Response | The Navy will incorporate this suggestion into the draft final RI report, as requested. |
| **EPA Specific Comment 3** | **Section 2.3.1, Solid Waste Management Units 2,5,7, and 18: On page 5, briefly describe what Buildings IA-7, 114, IA-17, IA-18, IA-48, IA-37, IA-38, IA-51, and IA-52 were used for to support the Navy's determination that hazardous chemicals were not used or stored there.** |
| Response | The Navy will incorporate this suggestion into the draft final RI report, as requested. |
| **EPA Specific Comment 4** | **Section 2.3.2, Operations Area: In the second paragraph on page 6, U.S. EPA suggests that a term such as "dismantle and backfill of the turntable pit" replace "removal" to avoid any confusing regarding the non-CERCLA action taken at this area.** |
| Response | The Navy will incorporate this change in the draft final RI report to avoid the word “removal” in this context. |
| **EPA Specific Comment 5** | **Section 2.3.2.1, SWMUs 2, Building IA-7: U.S. EPA notes this site discussion is extremely limited and excludes any discussion of a non-CERCLA removal action taken at the fire burn pit, where soils were possibly excavated and deposited in a drainage channel west of the site that leads to Seal Creek. It was in this general area that an additional boring was located at the insistence of U.S. EPA. Please provide additional text regarding this possible historical release.** |

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| Response | Unfortunately, only limited additional information is available regarding prior activities at the alleged fire burn pit. The Navy will revise the draft RI report to include the available additional information. Based on review of Naval Weapons Station Seal Beach Detachment (SBD) Concord documents, DTSC is the original source of information about alleged burning and disposal practices in the area. The document identifying DTSC as the source was the Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) dated 1992. The DTSC's source of information is not referenced in the RFA. The Navy is not aware of any removal action ever performed at the site, nor is the Navy aware of any actions beyond those described in the draft RI report. |
| **EPA Specific Comment 6** | **Section 2.3.2.2, SWMUs 5, Buildings IA-12 and IA-43: Regarding the waste-oil tank removed at Bldg. IA-12, please present a summary of analytical data collected during the tank investigation(s) and document any soils removal action(s) completed. Also, indicate residual contaminant concentrations, as this area does appear to have a groundwater impact (the second highest groundwater detections were identified at SB024, slightly down-gradient from the tank site).** |
| Response | The Navy will incorporate this change in the draft final RI report, as requested. |
| **EPA Specific Comment 7** | **Section 2.3.2.2: Last paragraph indicates that Building IA-43 is a covered locomotive steam cleaning area; however Figure 2 and Figure 3 indicate that an adjacent Quonset hut is Bldg. IA-43. Please correct this discrepancy. Also detail how waste water generated at the wash rack is pre-treated (wastewater clarifier/ separator) and discharged. As the locomotive wash rack/steam cleaning and the waste oil tank areas appear to be associated with the most significant groundwater contamination at the SWMU sites, U.S. EPA requests that these areas be given a more thorough analysis and presentation of data, which would include appurtenant piping and utility systems (past and present).** |
| Response | The text will be revised to accurately state building names. The steam cleaning facility is Building 269. When the facility was operational, wastewater was directed to pass through an oil/water separator before discharging to the sanitary sewer. The Navy will revise the draft RI report to include this information. Additionally, the Navy will revise the report figures to include buried utilities in the area. |
| **EPA Specific Comment 8** | **Section 2.3.2.3, SWMUs 7, Buildings IA-15 and IA-16. Please illustrate on Figure 2 the approximate location of the sump referenced on page 8.** |
| Response | The Navy will add the location of the sump to the figure if drawings can be found at the public works office at Naval Weapons Station SBD Concord. |

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| **EPA Specific Comment 9** | **Section 2.3.2.4, SWMUs 18, Bldg. IA-51, Steam Cleaning Facility, and Locomotive Turntable: Please make sure the statement on page 9 ("[b]efore the early 1960s, a zinc chromate rust inhibitor was added to motor antifreeze and waste antifreeze was disposed of by a contractor") is consistent with earlier RCRA reports for this SWMU. Also, please clarify if the Navy has design information regarding the "drop pit" located adjacent to the former locomotive turntable. Lastly, U.S. EPA understands a pesticide storage area near SWMU 18 had a RCRA clean up action conducted (plus a documented release of chemicals to an adjacent grazing area) and there was a hazardous waste storage area near Building IA-46. Please document in the SWMUs RI Report these areas and closure actions (described in a June 1992 RCRA Report and U.S. EPA in our work plan approval letter dated January 15, 2002).** |
| Response | The text is consistent with the 1997 RCRA Facility Assessment Confirmation Study Report prepared by TtEMI. If details regarding the drop pit design are available from the public works office of Naval Weapons Station SBD Concord, they will be described in the draft final RI report. The Navy will revise the draft RI report to describe the interim RCRA corrective action at SWMU 16 and the existing hazardous waste accumulation area at Building 433. |
| **EPA Specific Comment 10** | **Section 2.3.2.4: The text states, "after the early 1960s, antifreeze, which was believed to be free of chromates was typically discharged to the ground and into storm drains," and later states, "chromates were detected in Seal Creek in 1978", but does not discuss whether the storm drains discharge into Seal Creek. Please discuss whether storm drains discharged into Seal Creek and provide a map that includes storm drain lines and discharge points.** |
| Response | The Navy will illustrate the location of storm drain discharges on a figure in the draft final RI report. |
| **EPA Specific Comment 11** | **Section 2.4.1.1, SWMU 1, Previous Investigation: The text states that tetrachloroethene (PCE) detected at concentrations of 5 to 6 micrograms per liter (µg/L), was "below the EPA Contract Laboratory Program (CLP) required detection limit of 10 µg/L". It appears that there is confusion about the terms "reporting limit" and "detection limit." The text should state that this detection is below the CLP required reporting limit. Concentrations between the detection limit and the reporting limit are typically J-qualified (i.e., are estimated values). Also, it is unclear why it is relevant to discuss the CLP reporting limit when the detection of PCE is above the MCL. Please revise the text to state that the detection is below the CLP required reporting limit, or remove this statement from the text and simply report the PCE concentration.** |

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| Response | The Navy will remove discussion of the Contract Laboratory Program (CLP) reporting limits from this section in the draft final RI report. |
| **EPA Specific Comment 12** | **Section 2.6.3, Groundwater Basin Plan: The Navy characterizes groundwater as a potential groundwater supply only using State of California criteria. Based upon Federal Groundwater Classification Guidelines, Program staff believes the groundwater also meets the Federal definition of a current drinking water supply aquifer. The SWMUs RI Report should either confirm this determination or explain why it does not believe it meets Federal criteria. For an existing or potential drinking water supply, MCLs are Applicable or Relevant and Appropriate Requirements (ARARs).** |
| Response | Please see the response to EPA general comment 4. |
| **EPA Specific Comment 13** | **Section 4.1.2, Groundwater Flow and Hydraulic Gradients: Please indicate to what extent the Navy has considered the impact of Diablo Creek Golf Course irrigation well(s) on groundwater flow direction. For example, please indicate if the operational frequency and pumping rates of irrigation well(s) at the adjacent area has been considered.** |
| Response | Only one irrigation well is present at the Diablo Creek Golf Course. This well is the sole source of irrigation water for the golf course. The well pumps about ¾ of a million gallons per day during the hottest summer months and pumps only a small quantity of water for most of the wet winter months. Based on the four quarters of groundwater measurements previously taken in the Inland Area of Naval Weapons Station SBD Concord, no significant change has occurred in the direction of groundwater flow from summer to winter. |
| **EPA Specific Comment 14** | **Section 4.1.2: The text states that the water level in MW-13 indicates the well is artesian, but does not provide a basis for this conclusion. An examination of the hydrogeologic cross-section (figure 6) does not reveal why this well is artesian, but there may be other wells up-gradient that provide information regarding this condition. Please discuss whether any up-gradient wells provide useful information to explain why MW-13 is artesian.** |

Response

Well MW-13 is known to be an artesian well because water flows from the well at the ground surface without pumping when its sealed well cap is removed. The Navy will revise the draft RI report to describe the observed flow condition at MW-13.

Water levels have been measured in the past at this well by connecting a watertight extension pipe to the well and allowing the groundwater level to stabilize above the ground surface. When left undisturbed with a riser pipe, groundwater eventually stabilizes about 2 feet above the ground surface.

The artesian conditions at MW-13 are due to a hydraulic confining layer of relatively impermeable clayey soil. No wells are located upgradient of MW-13.

**EPA Specific Comment 15**

**Section 4.2.2, Groundwater Sample Results: The text states that "Tables 9 and 10 present detected concentrations of TPH and VOCs (specifically PCE, [trichloroethylene] TCE, and cis- and trans-1,2-DCE), respectively," but Table 10 has analytical results for compounds other than the ones listed in the parenthetical comment. Please delete the parenthetical comment or revise it to accurately describe the content of Table 10.**

Response

The Navy will incorporate this change in the draft final RI report, as requested.

**EPA Specific Comment 16**

**Section 4.2.2.2, Volatile Organic Compounds in Groundwater: The concentrations of specific analytes cited in the text do not match the values in Table 10. The text states that "concentrations of PCE ranged from...to a quantifiable concentration of 102 µg/L in the sample collected from MW-10," but the maximum concentration listed in Table 10 is 100 µg/L. Similarly, the maximum concentration cited in the text for cis-1,2-dichloroethene is 5.6 µg/L, but the concentration in Table 10 is 6.5 µg/L. Also, the maximum concentration cited for trans-1,2-dichloroethene was 3.8 µg/L, but the concentration in Table 10 is 4 µg/L. Please resolve these discrepancies.**

Response

The Navy will review the data and resolve such discrepancies in the draft final RI report.

**EPA Specific Comment 17**

**Section 4.2.2.2: It is unclear why PCE was not detected in the groundwater sample collected from SB-10. It appears possible that the depth at which the groundwater sample was collected at this boring location was different than the depths from which grab groundwater samples were collected in nearby borings, but there is no information provided in the draft SWMUs RI Report regarding sampling depths. Please discuss whether there are any contaminant concentration trends relative to the depth at which groundwater samples were collected, and provide sampling depth information in Tables 3 and 10.**

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| Response | Identical sampling techniques were used for all borings in accordance with the procedures detailed in the approved sampling and analysis plan (TtEMI 2001a, 2001b, and 2001c). The Navy consistently collected groundwater samples from borings and wells at a depth of at least 1 foot from the groundwater surface. Each well or boring was sampled only once, so there is insufficient data to evaluate the effect of groundwater sampling depth. In the draft final RI report the Navy will provide a table including the depth of each groundwater sample. |
| **EPA Specific Comment 18** | **Section 4.2.2, Groundwater Sample Results. This discussion seems very brief and should be expanded to provide additional discussion of the data and the areal extent of groundwater contamination (ie., approximate volume and/or number of gallons of contaminated groundwater).** |
| Response | The Navy will revise the draft RI report to further explain the distribution of VOCs detected in groundwater.<br><br>The Navy prefers to delay calculating volume estimates until preparation of the FS report begins, when calculated results would be useful in evaluating specific areas and determining the cost or duration of potential remediation. |
| **EPA Specific Comment 19** | **Section 4.2.3, Natural Attenuation Parameters in Groundwater: The text states that nitrite was sampled as part of the natural attenuation parameter suite, but it does not appear that there are nitrite results in Table 12 or in Appendix A. Please resolve this discrepancy.** |
| Response | The results of the nitrite analysis did not appear in Appendix A, Table A-2, of the draft RI report because nitrite was not detected. The Navy will include nondetected nitrite results in the draft final RI report. |
| **EPA Specific Comment 20** | **Section 5.1, Potential Sources of Volatile Organic Compounds and TPH: The text discusses the potential that "underground sewer lines and utility corridors" were preferential migration pathways, but with the exception of the conceptual site model, there is no figure depicting the location of underground utilities. Please provide a figure that shows underground utilities.** |
| Response | Please see the response to EPA general comment 2. |
| **EPA Specific Comment 21** | **Section 6.0, Qualitative Human Health Risk Screen (3rd paragraph): The reason for using residential preliminary remedial goals (PRGs) is not to add a level of conservatism, but rather to evaluate unrestricted land use. This same comment also applies to Section 6.4 (2nd paragraph).** |
| Response | The Navy will revise the draft RI report, as requested. |

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| **EPA Specific Comment 22** | **Section 6.4, Perform a Screening Evaluation and Table 16, Comparison of Maximum Detected Concentrations in Groundwater with Screening Levels for Protection of Human Health: As part of our review, U.S. EPA used "Draft Guidance for Evaluating Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils" (November 2002) (this guidance can be found at http://www.epa.gov/correctiveaction/eis/vapor.htm). Include in Table 16 a column comparing the screening value from the referenced guidance to the maximum detected groundwater values. In doing so, the Navy will find that PCE and TCE fail the screen, based upon a residential land use; therefore, the groundwater concentrations represent a future indoor air risk for residential reuse. Conclusions need to reflect this evaluation. This information supports the inclusion in the FS of an IC alternative analysis.** |
| Response | The Navy will add a column to the table in the draft final RI report, as requested.<br><br>Please note that PCE and trichloroethene (TCE) fail the screen in the EPA's draft guidance report because the screening values set by the EPA are equal to the MCLs for these chemicals. These MCLs were established to protect human health from potential ingestion of groundwater containing these chemicals. The MCL concentration values are not related to the potential risk associated with the groundwater to indoor air pathway; therefore, are inappropriate screening values for this pathway.<br><br>Although the draft final RI report will include the requested MCL screening values for PCE and TCE, please note that Table 16 of the Draft RI report includes RWQCB's indoor air screening values for these chemicals. The Navy believes that the RWQCB's screening values for these chemicals are more appropriate for the assessment of risk from indoor air. |
| **EPA Specific Comment 23** | **Section 7.0, Screening Level Ecological Risk Assessment for COPECs in Soil and Groundwater (page 45): The text states that the screening-level ecological risk assessment (SLERA) would assess potential risk associated with exposure to chemicals of potential concern in groundwater. However, the text on page 47 states that there is not a direct exposure pathway from groundwater to ecological receptors. The text in Section 7 should be revised to clearly reflect that the only potential exposure pathway for exposure of ecological receptors to groundwater contamination is via discharge from groundwater to Seal Creek, which is at least several hundred feet away from any significant groundwater contamination.** |
| Response | Section 7.5 of the draft RI report explains the potential ecological risk at Seal Creek. For clarity, the Navy will revise the draft RI report to explain that the only potential exposure pathway for groundwater is through discharge from groundwater to Seal Creek, as indicated above. |

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| **EPA Specific Comment 24** | **Section 7.0 (page 46): The text states that no fish or invertebrate surveys have been conducted at Seal Creek, but "based on habitat characteristics," their presence is expected. To aid the reader in understanding the ecological setting, please provide a specific description of the characteristics of Seal Creek that lead the Navy to believe that fish and invertebrates are present.** |
| Response | The Navy will revise the draft RI report to indicate that the habitat characteristics of Seal Creek. These include the unaltered, natural makeup of the stream combined with flowing water during the rainy season and areas of ponded water during drier months. There is no reason to suspect that fish and invertebrates are not present during the rainy season. The assumed presence of fish or invertebrates is the most conservative assumption available. |
| **EPA Specific Comment 25** | **Section 7.3, Risk to Terrestrial Invertebrates: In the absence of a soil screening benchmark to evaluate exposure of invertebrates to toluene, the SLERA uses trinitrotoluene as a surrogate. This approach is not appropriate; trinitrotoluene does not have chemical or toxicological properties similar to those of toluene. Please remove this comparison from the report, and remove the statement that "toluene is below effects levels reported in the literature". Instead. The report should discuss the potential effects of both toluene and xylene qualitatively. This brief discussion could refer to the comparison of the detected concentration at the site (0.003 mg/kg) to the available benchmark for terrestrial plants (200 mg/kg).** |
| Response | The use of trinitrotoluene as a surrogate for toluene will be removed from the draft final RI report. Instead, available toxicological information on toluene and xylene will be presented qualitatively and more appropriate benchmarks will be presented. |
| **EPA Specific Comment 26** | **Section 9.1, Summary: The text sates that the detection concentration of PCE was 120 µg/L, but this concentration does not match the number cited elsewhere in the text, tables or figures. Please resolve this discrepancy.** |
| Response | The correct value is 102 µg/L. The Navy will correct the typographical error in the draft final RI report. |
| **EPA Specific Comment 27** | **Section 9.2, Conclusion: As indicated above, U.S. EPA does not agree with the Navy and believes that the locomotive wash rack/steam cleaning and waste oil tank areas at SWMU 5 represent potential ongoing source areas that have not been sufficiently characterized. U.S. EPA recommends that the Navy consider conducting an active soil gas survey at these areas to provide additional data necessary to evaluate an air sparging/soil vapor extraction alternative in the FS.** |

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| Response | The Navy intends to perform additional investigation to determine if residual sources exist at the site. The Navy will revise the draft final RI report to include the results of the additional field investigation.<br><br>Please note that the wash rack/steam cleaning area was rebuilt in 1995 to better collect and properly handle potentially contaminated rinsate. Washing, steam cleaning, and maintenance of locomotives and railcars is no longer conducted in the Inland Area of the Naval Weapons Station SBD Concord. The draft RI report will be revised to describe that railcar and locomotive maintenance activities are no longer conducted at the site. |
| **EPA Specific Comment 28** | **Section 9.3, Recommendations: At this time, based upon the information presented, U.S. EPA cannot concur with the Navy recommendation to sample only monitoring wells MWIA-17, MW-3, MW-7, MW-9, MW-10, MW-12, and MW-14. Wells MW-02 and MW-12 need continued monitoring and the Navy should consider additional well(s) within the groundwater plume (near SB004 and SB024).** |
| Response | The Navy will remove the recommendation for future monitoring of specific wells from Section 9.3 of the draft final RI report. The Navy will discuss the appropriate wells to monitor with EPA before collecting additional groundwater samples. |
| **EPA Specific Comment 29** | **Figure 1, Regional Location Map: This map is fairly limited in regional features. For example, the map should include Contra Costa Water District - Mallard Reservoir, Diablo Creek Golf Course, any know irrigation and/or production wells (including those at Mallard Reservoir, the golf course, and residential community of Clyde), major highways and residential areas.** |
| Response | The Navy will revise the draft RI report to include a figure depicting Mallard Reservoir, Diablo Creek Golf Course, known irrigation and/or production wells, major highways and residential areas. |
| **EPA Specific Comment 30** | **Figure 2, General Site Location Map: This map should indicate the building function in addition to building number. In the text this information should also be described. Also in this figure please add the former locomotive turntable and "sump pit" at SWMU 18, the paint locker and sump at SWMU 7, and better illustrate the drainage channel leading from SWMU 2 to Seal Creek.** |
| Response | The Navy will include a figure with the requested information in the draft final RI report. |

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| **EPA Specific Comment 31** | **Figure 3, Site Conceptual Model: This figure correctly shows a Quonset hut - building adjacent to the locomotive wash rack/steam cleaning area at SWMU 5, labeled Building IA-43; however, text on page 7 indicates Bldg. IA-43 is the steam cleaning area. Please correct this discrepancy. Also, similar to comments on Figure 2, please add the former locomotive turntable and sump pit at SWMU 18 and drainage channel at SWMU 2 to Figure 3. Also please clarify why buildings in the vicinity of Building IA-46 are outlined in red.** |
| Response | The Navy will revise the draft RI report, as requested. The red outline on the figure will be removed in the draft final RI. |
| **EPA Specific Comment 32** | **Figure 4, Site Plan Showing Borehole and Monitoring Well Locations: Please add the location of the Diablo Creek Golf Course irrigation well(s). Also, it would improve the illustration if the monitoring wells that were sampled and slug tested were better identified.** |
| Response | The Navy will revise the draft RI report to show the location of the golf course irrigation well.<br><br>Section 3.3 of the draft RI report discusses hydraulic testing of the wells, and Section 3.2.1.2 of the draft RI report lists the wells sampled. Most borings and wells on Figure 4 were sampled. A figure in the draft final RI report will indicate which wells and borings were sampled and slug tested. |
| **EPA Specific Comment 33** | **Figure 5, Site Plan Showing Hydrogeologic Sections: U.S. EPA recommends that one additional cross section be included C - C') that would present the hydrogeology through monitoring well MW-10 (the well with the highest groundwater contamination) in a northwest - southeast direction.** |
| Response | The Navy will include a new cross section in the draft final RI report, as requested. |
| **EPA Specific Comment 34** | **Figures 6 and 7, Hydrogeologic Cross Sections: These figures intersect at well MW-9, but the cross-sections do not show the same lithologic units in the vicinity of MW-9. Please revise the cross-sections to show the same units at MW-9. Also, on Figure 6, it appears monitoring well MW-2 was not included; please correct.** |
| Response | The Navy will revise the draft RI report, as requested. |
| **EPA Specific Comment 35** | **Figures 6 and 7: The descriptions of lithology in the legend are misaligned on these figures. As a result, the boxes with the main lithologic units are mislabeled and it looks like the light color represents sand and the darker color represents silt and clay. Please correct.** |

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| Response | The Navy will correct the draft RI report, as requested. |
| **EPA Specific Comment 36** | **Figure 8, Site Potentiometric Surface Map. The single groundwater potentiometric map for the draft SWMUs RI Report provides an extremely limited presentation of groundwater flow direction data. At a minimum include all existing groundwater flow direction data/maps prepared to date for the site.** |
| Response | The Navy will add an appendix in the draft final RI report that will include previous groundwater flow direction maps prepared for the site. |
| **EPA Specific Comment 37** | **Figure 9, TPH Analytical Data for Soil: Several values are qualified with a D or an H, but these qualifiers are not defined in the legend. Please provide definitions for the D and H qualifiers.** |
| Response | The Navy will add definitions for D and H qualifiers to the draft final RI report. |
| **EPA Specific Comment 38** | **Figures 9 and 11 (TPH data). As indicated in general comments, for better readability and report priority please present the TPH figures after the VOC data.** |
| Response | Navy will revise the draft RI report, as requested. |
| **EPA Specific Comment 39** | **Figure 12, VOC Analytical Results for Groundwater and Table 10: Please reconcile figure and table data for MW-10, that show different PCE concentrations.** |
| Response | The results in Table 10 were rounded, while the results on Figure 12 were not rounded. The Navy will revise the draft RI report to be consistent throughout. |
| **EPA Specific Comment 40** | **Figures 13 and 14, PCE and TCE Concentrations in Groundwater. In addition to the dot-plot data presentations, these figures should be expanded to show groundwater iso-concentration contours.** |
| Response | The Navy will revise the draft RI report to include an iso-concentration contour of 10 µg/L on these figures. |
| **EPA Specific Comment 41** | **Tables 3 and 10: The depth at which the groundwater samples were collected should be specified in these tables. This will allow any discrepancies in the data to be evaluated.** |
| Response | The draft RI report will be revised to include a table of groundwater sample depths. |

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| **EPA Specific Comment 42** | **Appendix A, Table A-2, Summary of groundwater Analytical Results. Please note that a new MCL for arsenic will be 10 µg/L, when it officially goes into effect on January 23, 2006. U.S. EPA recommends in the interim that the 10 µg/L concentration be used for a screening value.** |
| Response | The Navy will add the 10 µg/L screening concentration to the draft final RI report, as requested. |

**RESPONSES TO COMMENTS FROM RWQCB:**

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| **RWQCB General Comment 1** | **Board Staff is concerned that the high detections of Total Petroleum Hydrocarbon (TPH) diesel and gasoline in soils were detected near a sewer line on the south side of Building IA-12. This area needs to be integrated in the Basewide Stormwater Pollution Prevention Plan. The source and potential linkage of this soil contamination need to be determined. The Navy needs to succinctly discuss in this report how the TPH data will be integrated into the planned Site Characterization and Analysis Penetrometer (SCAP).** |
| Response | Because petroleum hydrocarbon remediation is not conducted under the Installation Restoration Program, the Navy will address this comment under the Navy's underground storage tank (UST) program. |
| **RWQCB General Comment 2** | **The Navy makes the argument that the groundwater sample results "may not actually be of like quality" (p 28) due to turbidity interference to sample analysis. It is unknown to Board Staff if a statistically supported causation was found between sample turbidity and VOC concentration to support this statement. Furthermore, it is unknown to Board Staff if the air sealed samples were filtered prior to analysis.** |
| Response | The conclusions and recommendations of the draft RI report were not based upon any supposition that grab groundwater samples might be biased higher. The use of the word "may" was intended to suggest uncertainty. The Navy, and most state and federal regulatory agencies, do not consider grab groundwater samples to be as representative of hydrologic conditions as groundwater samples collected from wells. Therefore, the sentence was written to reflect a potential difference even though actual differences are uncertain. It is the Navy's opinion that sample bias, if any, tends toward higher analytical results for grab groundwater samples than for groundwater samples from properly developed and purged wells.<br><br>Air-sealed samples were not filtered in the field or the laboratory prior to analysis. |

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| **RWQCB General Comment 3** | **Due to the fugacity of Volatile Organic Carbons (VOC) compounds the Navy needs to illustrate how atmospheric gas exchange was minimized during soil and groundwater samplings in order to preserve sample integrity.** |
| Response | The samples were collected using a peristaltic pump as described in the draft RI report and outlined in the RI work plan (TtEMI 2001a, 2001b, and 2001c). Discharge from the pump tube was fed directly to volatile organic analysis (VOA) vials that were filled full, without air bubbles, and sealed. |
| **RWQCB General Comment 4** | **It is essential to Board Staff, the Navy reports why (1,1,1,2 and 1,1,2,2) Tetrachloroethane (TCA) concentrations were not reported during this soil and groundwater characterization effort. Furthermore, the Navy needs to indicate which isomers were sampled/ reported for groundwater quality screening purposes.** |
| Response | The Navy did not report VOCs (such as tetrachloroethane) and semivolatile organic compounds because they were not detected during the investigation. The Navy will revise the draft final RI to include the full list of detected and non-detected analytes for each sample. |
| **RWQCB Specific Comment 1** | **RWQCB Specific Comment No. 1: Executive Summary, p ES-3: Please identify the upgradient source of VOCs at SWMU 2.** |
| Response | The Navy will revise the Executive Summary of the draft RI report to include a description of the upgradient source of VOCs at SWMU 2. |
| **RWQCB Specific Comment 2** | **Section 2.4.1.2, Solid Waste Management Unit 2, p 11: The Total Petroleum Hydrocarbon ranges (TPH) detected in the soils and groundwater at the site need to be reported.** |
| Response | The Navy will revise the draft RI report to include the requested analytical results. |
| **RWQCB Specific Comment 3** | **Section 2.4.1.3, Solid Waste Management Unit 5, p12: The term "gas" needs clarification. Is the Navy referring to TPH-g (gasoline) or gaseous compounds?** |
| Response | "Gas" in this paragraph refers to TPH-g. The Navy will revise the draft RI report to clarify the definition. |
| **RWQCB Specific Comment 4** | **Section 2.4.1.4, Solid Waste Management Unit 7, p 12: Please clarify the sentence: "TPH-d was detected in of the several soil samples."** |
| Response | The Navy will correct the typographical error in the draft final RI report. |

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| **RWQCB Specific Comment 5** | **Section 3.2, Field Sampling Program, p 19: In a Board Staff letter dated December 7th 2001, a recommendation was made to sample soil and groundwater for MTBE. The Navy needs to elucidate why this analyte was not reported in the report.** |
| Response | Methyl tertiary butyl ether was included in the list of chemicals analyzed, but none was detected in any sample. The summary tables included results for samples with detected chemicals only. The Navy will add the full analytical results to the draft final RI report, as indicated in the response to RWQCB general comment 4. |
| **RWQCB Specific Comment 6** | **Section 3.2.1.2, Monitoring Well Groundwater Sample Collection, p 22: Board Staff was not able to locate analytical results generated by the sampling of GCW-1 in the subsequent analytical tables. Please provide this data for review.** |
| Response | VOCs were not detected in GCW-1. The Navy will revise the draft RI report to include all nondetected results, as discussed in the response to RWQCB general comment 4. |
| **RWQCB Specific Comment 7** | **Section 4.2.3, Natural Attenuation Parameters in Groundwater, p 31: It is incorrect to generalize that an aerobic environment is preponderant at the site. Anaerobic conditions indicated by low Oxygen Reduction Potential (ORP) and Dissolved Oxygen (DO) were found directly downgradient of IA-43 where field data indicate some of the highest VOC concentrations.** |
| Response | The statement was meant to indicate that aerobic conditions are more prevalent at the site when considered as a whole. Lower concentrations of dissolved oxygen in an aerobic environment at locations near the spill tend to indicate that biodegradation is taking place. |
| **RWQCB Specific Comment 8** | **Section 4.3, Aquifer Testing Results, p 33: The Navy needs to map the results (hydraulic conductivity, groundwater velocities) of the aquifer slug testing.** |
| Response | The hydraulic conductivity and groundwater velocities for each slug test will be provided on a new figure in the draft final RI report. |
| **RWQCB Specific Comment 9** | **Section 5.2.1, Volatilization of Contaminants to the Atmosphere, p 35: It is incorrect to assume that VOC "venting to either outdoor or indoor air is generally inhibited by pavement and by concrete floors within buildings." This volatilization pathway needs to be appropriately characterized to protect human health.** |

Response

The Navy considers volatilization to be an active transport pathway as stated in the text of the draft RI report in Section 5.2.1 and in Section 6.4. Although the Navy considers pavement and concrete floors to inhibit (but not prevent) volatilization to indoor air, the effect of pavements and concrete floors was not taken into consideration in evaluating the pathway. This pathway was screened using the RWQCB's risk-based screening levels for indoor air (presented on Table 16 of the Draft RI report). To avoid future confusion in the draft final RI report, the Navy will alter the text of the Site Conceptual Model to avoid discussion of pavement and concrete slabs.

**RWQCB Specific Comment 10**

**Section 7.5, Risk to Fish and Aquatic Invertebrates, p 51: Board Staff recommends including Seal Creek in the proposed monitoring program for the chemical of potential concern investigated in this report.**

Response

The Navy does not believe that monitoring of VOCs at Seal Creek is warranted by potential risk from observed concentrations in groundwater. The concentrations of VOCs in groundwater at the site near SWMU Site 1 are between about 5 and 6 μg/L. The MCL for drinking water that contains PCE is currently 5 μg/L. The analytical method detection limit for PCE and TCE is 1 μg/L.

Please consider the following hypothetical example, which demonstrates that collection and analysis of VOCs in Seal Creek will not show detectable concentrations of PCE or TCE. Because the following example is hypothetical only, it is not based on actual or presumed flow conditions in Seal Creek. For the purpose of the example only, assume the following:

(1) That the groundwater plume containing PCE intersects the Seal Creek drainage channel and a portion of that groundwater flows directly into the Seal Creek channel and commingles with the creek flow.

(2) That Seal Creek above the groundwater plume flows at a volume of 5 liters per second and that creek water flowing into the plume area contains no PCE concentrations.

(3) That the Seal Creek flow volume increases to 6 liters per second as a result of the contribution of groundwater from the plume area. An increase of 1 liter per second within the plume area represents a 20 percent gain in the Seal Creek flow rate from the contribution of the plume.

(4) That the plume contains PCE at a concentration of 6 μg/L, where it meets Seal Creek.

Given the above assumptions, for each second of mixing, 5 liters of clean creek water will mix with 1 liter of groundwater from the plume that contains 6 μg of PCE. After mixing, the 6 μg of PCE will be contained in 6 liters of creek water. The resulting concentration of PCE in Seal Creek is 1 μg/L.

Under this hypothetical scenario, PCE in Seal Creek is:

- Not detectable.
- Legal for human consumption (only with respect to PCE) because it does not exceed the MCL of 5 μg/L.
- Considered to pose little or no risk to ecological receptors (please refer to Table 17 in the draft RI report).

The above example presents an extremely conservative scenario for the potential contamination of Seal Creek and the actual conditions at Seal Creek are very unlikely to resemble the above hypothetical example. Even in this extremely conservative hypothetical scenario, the existing PCE groundwater plume is not a significant concern for Seal Creek.

The actual groundwater recharge to Seal Creek from the area of the groundwater plume likely contributes a very small fraction of a percent, if anything, to the overall flow volume of Seal Creek and not a 20 percent increase as assumed in the above hypothetical example. Because the above example represents a gross overestimation of the potential for the plume to contribute flow to Seal Creek, and because the hypothetical example results in little risk to Seal Creek, the actual discharge of PCE to Seal Creek must present even less risk than the hypothetical example.

Because the contaminated groundwater plume is unlikely to pose a significant risk to Seal Creek, the Navy does not recommend inclusion of Seal Creek in a future VOC sampling program.

**RWQCB Specific Comment 11**

**Figure 4, Site Plan Showing Borehole and Monitoring Well Locations: Well GCW-1 needs to be mapped on this figure.**

Response

The Navy will revise the draft RI report to include the location of the irrigation supply well referred to as GCW-1.

**RWQCB Specific Comment 12**

**Figure 5, Site Plan Showing Hydrogeological Sections: Board Staff recommends adding a third hydrogeologic cross section C-C' spanning soil borings locations 09 and 24. This map would provide crucial information linking site contaminants distribution and hydrogeology.**

Response

The Navy will revise the draft RI report to include a third cross section as requested by the EPA and the RWQCB. The new cross section passes through monitoring wells MW-9 and MW-10, close to the location of soil borings SB09 and SB24.

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| **RWQCB Specific Comment 13** | **Table 15, Comparison if Maximum Detected Concentrations in Soil: The locations, depths and sampling dates at which these maximum concentrations were detected need to be indicated in the table.** |
| Response | The Navy will revise the draft RI report to include the requested information. |
| **RWQCB Specific Comment 14** | **Table 16, Comparison if Maximum Detected Concentrations in Groundwater: The locations, depths at which these maximum concentrations were detected need to be indicated in the table.** |
| Response | The Navy will revise the draft RI report to include the location of the maximum detected concentrations, as requested. The depth of groundwater samples will be added to a table in the draft final RI report. |
| **RWQCB Specific Comment 15** | **Appendix C, Aquifer Slug Testing Procedures and Results: Please include Aqtesolve observation data generated by the pressure transducer lowered in MW-7.** |
| Response | The Navy will revise the draft RI report to include the missing information. |
| **RWQCB Editorial Comment 1** | **Executive Summary, p ES-1: The executive summary would gain clarity if sampling locations were referenced to the maps found in the report.** |
| Response | The Navy will revise the draft RI report to reference the figures, as requested. |
| **RWQCB Editorial Comment 2** | **Acronyms/ Abbreviations Glossary: Following IUPAC nomenclature, please modify the spelling of PCE to Tetrachloroethene.** |
| Response | The Navy will correct the spelling in the draft final RI report. |
| **RWQCB Editorial Comment 3** | **Section 2.3.2.1, Solid Waste Management Unit 2 – Building IA-7: Please indicate where Building 433 is located on a map.** |
| Response | The Navy will revise the draft RI report to include the location of Building 433. |
| **RWQCB Editorial Comment 4** | **Section 2.3.2.3, Solid Waste Management Unit 7 – Building IA-16: The Underground Storage tanks locations in the proximity of all the SWMUs should be indicated by a different color code on all the figures where analytical results are reported.** |
| Response | The Navy will highlight or shade UST locations on one or more figures in the draft final RI. |

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| **RWQCB Editorial Comment 5** | **Section 2.3.2.5, Solid Waste Management Unit 1 – Building IA-6: Please label SWMU-1 and map Building IA-6 UST sites.** |
| Response | The Navy will revise the draft RI report, as requested. |
| **RWQCB Editorial Comment 6** | **Table 13, Aquifer Slug Test Results SWMU 2, 5, 7 and 18 Investigation: Please map MW-112 outlined in the well name column or correct the spelling of this location.** |
| Response | The Navy will correct the typographical error in the draft final RI report. |

**RESPONSES TO COMMENTS FROM DTSC**

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| **DTSC General Comment 1** | **Soil borings were used exclusively to determine the extent of volatile organic compounds (VOCs) in soil. This strategy may have produced a false negative. Results of soil boring data reported nearly 100% non-detect for VOCs in soil. However ground water data could not rule out the possibility of VOC sources areas. The experience of DTSC at other similar sites has been that soil gas surveys have been more reliable in locating or ruling out the presence of VOCs in the soil.**<br><br>**DTSC recommends that potential source areas be identified and soil gas surveys be performed. The benefits of soil gas surveys are as follows:**<br>**a. Confirmation or repudiation of soil boring data.**<br>**b. Development of a more complete data set for a more reliable feasibility study (FS) and risk assessment.** |
| Response | The Navy will perform additional site characterization using a soil gas survey for the draft final RI report. |
| **DTSC General Comment 2** | **The FS alternatives recommended include no further action, active ground water remediation, and monitoring. DTSC recommends that the scope of the FS be broadened to include other possible remedial actions. Suggested additions to the FS include institutional controls and source reduction.** |
| Response | The FS will be developed in consultation with the agencies. The Navy will remove the recommendation to evaluate specific alternatives from the draft final RI report. Please note that the monitored natural attenuation alternative must include institutional controls and that the mentioned active groundwater remediation is a means to achieve source reduction. The Navy looks forward to the discussion of other technologies and alternatives during the FS process. |

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| **DTSC Specific Comment 1** | **Section 2.3.1 identifies buildings IA-7, 114, IA-17, IA-18, IA-48, IA-37, IA-38, IA-51, and IA-52 as support facilities that had no storage or use of hazardous chemicals. Please provide documentation to support this declaration.** |
| Response | The Navy will revise the draft RI report to include additional information about the operational histories of these buildings. |
| **DTSC Specific Comment 2** | **Section 2.4.1.1 states that at SWMU 1 tetrachloroethene (PCE) was detected at 5 to 6 µg/L. The Report further states that this is below the EPA contract laboratory program detection limit of 10 µg/L and infers that these concentrations are trivial. The text fails to acknowledge that the PCE concentrations at SWMU 1 are at or above the maximum concentration level (MCL). Please provide discussion regarding the significance of the CLP detection limit when the concentrations exceed the MCL.** |
| Response | The Navy will remove the reference to CLP detection limits from the draft RI report. The Navy will also revise the section to indicate an MCL of 5.0 µg/L for PCE. Although the detected concentrations are low, the Navy does not mean to infer that the concentrations are trivial. |
| **DTSC Specific Comment 3** | **Section 4.1.2 states that monitoring well (MW) 13 is an artesian well. Please provide a discussion regarding this phenomena and how it relates to the ground water gradient.** |
| Response | Please see response to EPA Specific Comment 14. |
| **DTSC Specific Comment 4** | **Section 4.2.2 discusses VOCs, including PCE, cis-1,2-dichloroethene, and trans-1,2-dichloroethene. The concentrations listed in the discussion are not consistent with those provided in table 10. The inconsistencies appear to be typographical, please revise for accuracy and consistency.** |
| Response | The Navy will revise the draft RI report to correct inconsistencies. |
| **DTSC Specific Comment 5** | **Section 4.2.3 discusses nitrate sampling. Please provide the results of nitrate sampling.** |
| Response | The results of nitrate sampling are presented in Table 12. |
| **DTSC Specific Comment 6** | **Section 5.1 discusses the possibility of underground utility conduits serving as potential pathways for contamination. No other references or details are submitted to support this hypothesis. The Report should include a more elaborate discussion of these conduits, possibly tying them to potential source areas. A map referencing these conduits should also be included.** |

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| Response | Please see the response to EPA general comment 2. |
| **DTSC Specific Comment 7** | **Section 9.1 indicates PCE was reported a 120 µg/L. This reported level is supported in text or tables please revise.** |
| Response | The Navy will correct the typographical error in the draft final RI report. |
| **DTSC Specific Comment 8** | **Figures 6 and 7 (cross sections) meet at monitoring well (MW) 9. The lithology at MW 9 is inconsistent on each figure. Please insure that the lithology on each figure is consistent.** |
| Response | The Navy will revise the draft RI report for consistency between these two figures. |
| **DTSC Specific Comment 9** | **Figure 9 indicates sampling qualifiers as D and H. Please provide a notation in the legend as to what the D and H qualifiers are.** |
| Response | The Navy will revise the draft RI report to include the requested notation. |

## REFERENCES

U.S. Environmental Protection Agency. 2002. "Conditional Approval on Inland SWMUs RI Work Plan Addendum, Concord NWS." January 15.

Tetra Tech EM Inc. (TtEMI). 2001a. "Draft Final Quality Assurance Project Plan, Remedial Investigation for Groundwater, SWMU Sites 1, 2, 5, 7, and 18, Naval Weapons Station Seal Beach Detachment Concord, California." January 23.

TtEMI. 2001b. "Draft Final Field Sampling Plan, Remedial Investigation for Groundwater, SWMU Sites 1, 2, 5, 7, and 18, Naval Weapons Station Seal Beach Detachment Concord, California." January 23.

TtEMI. 2001c. "Addendum to Draft Final Field Sampling Plan and Quality Assurance Project Plan, Remedial Investigation for Groundwater at SWMU Sites 1, 2, 5, 7, and 18, Naval Weapons Station Concord, California." November 8.