5090
Ser 1841.1/7289
8 July 1997

From: Commanding Officer, Engineering Field Activity West, Naval Facilities Engineering Command
To: Restoration Advisory Board (RAB) Members Distribution List, Naval Weapons Station (NWS) Concord, CA

Subj: RESTORATION ADVISORY BOARD (RAB): MINUTES OF 19 JUNE 1997 MEETING

Encl: (1) Naval Weapons Station Concord Restoration Advisory Board, Draft Meeting Minutes, Thursday 19 June 1977

1. Draft minutes of the Naval Weapons Station (NWS) Concord Restoration Advisory Board (RAB) meeting of 19 June 1997 are forwarded as enclosure (1). Any corrections or clarifications to these minutes can be provided at the next RAB meeting, at which time the draft minutes will be made final.

2. The next RAB meeting is scheduled for 7:00 p.m on Thursday, 21 August 1997, at the Ambrose Community Center, 3105 Willow Pass Road, Bay Point, CA. Please note that there will be no RAB meeting in July 1997.

3. If you have any questions regarding this matter, please contact me at (415) 244-2523, or Mr. John Rosengard, RAB Community Co-chair, at (510) 601-8740.

ORIGINAL SIGNED BY:
ROY E. SANTANA
By direction

Distribution:
Ms. Elizabeth Robinson Anello
Mr. Steven Bachofer
Mr. Steve Gallo
Mr. Edward Gardner
Ms. Susan Gladstone
Mr. David Kory
Ms. Sylvia Kotecki
Ms. Colleen Monahan
Ms. Nicole Moutoux
Mr. Richard Pieper
Mr. James Pinasco
Mr. Richard Purdue

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Mr. John Rosengard
Ms. Catie Roy
Mr. Roy Santana
Mr. Thomas Shirley
Mr. Larry Steinwandt
Mr. Gene Sylls
Mr. Marcus O'Connell

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NAVAL WEAPONS STATION CONCORD
RESTORATION ADVISORY BOARD

DRAFT MEETING MINUTES

Ambrose Community Center
3105 Willow Pass Road
Bay Point, California

Thursday, June 19, 1997

I. Welcome and Introduction

The Naval Weapons Station (NWS) Concord Restoration Advisory Board (RAB) met on Thursday, June 19, 1997, at the Ambrose Community Center in Bay Point, California. Mr. John Rosengard, the RAB community co-chair, opened the meeting at 7:10 p.m. A list of attendees is attached (Attachment A).

II. Community Co-Chair's Report

Mr. Rosengard notified the RAB that comments from Nicole Moutoux, U.S. EPA, are available on the Tidal Area Remedial Investigation Report (Attachment B).

Nominations for the Concord RAB Community Co-Chair position are open, and the election will be held at the August RAB meeting. Mr. Rosengard encouraged members to comment on what duties they would like to see for the co-chair position and invited self nominations. The Navy Co-Chair, Richard Pieper, requested that nominees each provide a five minute presentation to be given before the election on August 21.

Ronald Yee, Navy Remedial Project Manager, announced reorganization underway at EFA West. He will now be project manager for Point Hueneme. Roy Santana will be Mr. Yee's replacement. Mr. Rosengard extended a hearty thanks from the RAB to Mr.Yee for his assistance to the RAB.

Co-Chair Rosengard shared information on beryllium gathered from the Agency for Toxic Substances and Disease Registry. He learned that a quarter of National Priority List (NPL) sites contain beryllium, a byproduct of a variety of industrial processes. Copies of his findings were distributed at the meeting.

Mr. Rosengard noted that three RAB members have missed three meetings: Tatiana Roodkowsky, Scott Etzel, and Sylvia Kotecki and would be dropped from membership according to RAB procedures. He will be contacting all three RAB members to discuss their interest in continuing to receive copies of meeting minutes.

III. Approval of April RAB Meeting Minutes

The April RAB Meeting Minutes were approved noting spelling corrections to Larry Steinwandt's and Gene Sylls' names.

IV. RAB and Regulatory Agency Comments on the Tidal Area RI Report

James Pinasco, Department of Toxic Substances Control (DTSC), informed the RAB that a 30 day review extension was granted on the Tidal Area RI Report. This extends their due date to 17 July, though they will strive to submit the State comments in two weeks.

RAB reviewers noted a positive improvement in the Draft Tidal Area RI Report. Text, figures, and tables were more clear. Specific comments from the RAB include:

1. In Section 7.0, the Table numbers referenced in the text need to be corrected.
2. There is a TCDD reference to dioxins and furans in the 9th Section. Reviewers could not find TCDD in the list on Table 6-10 and questioned whether TCDD is as toxic as furans and dioxins.
3. Industrial and residential risk factors are clear, but the RAB questioned whether the recreational scenario is suitable at sites 1, 2, 9 and 11.
4. The RAB requests that the reference year for the San Francisco Basin Plan be corrected.
5. Table 6-7 requires more explanation of the screening criteria data.
6. Mr. Gallo would like to see definitions of acronyms, i.e., ERLs, PRGs, ERMs, in the first volume, as well as specific chemicals, definitions, and appropriate screening ranges. He noted they were referenced in Volume 3, but asks for that information in Volume 1.
7. Mr. Gallo requested an accelerated remediation schedule because there appears to be little contamination that will impact people, due to low mobility of the contaminants.
8. The RAB questioned the appropriateness of the presumptive cap remedy on the tidal area landfill.
9. The Wood Hogger residential scenario presented a Hazard Index greater than one. The RAB questioned the appropriateness of remediation if contamination is due to ambient levels of metals.
10. The RAB questioned the appropriateness of the "risk based, risk management decision" process. Mr. Gallo asked the Navy to specify what the chemicals and risks are that warrant this decision-making process.

Mr. Rosengard elaborated on information regarding bay mud, a naturally occurring material in and around landfill Site 1 that has slight to no permeability. He asked about its effectiveness as a natural landfill cap, noting that the RI proposes a presumptive remedy of some type of cap. John Bosche, PRC, stated that soil on top of the landfill had not been sampled. Co-Chair Pieper offered that the material on top of the landfill is not likely to be the same impermeable bay mud

found in samples taken along the periphery and north and west of the site. He presumed the material on top of the landfill was imported from off-site, citing physical differences between material found on the sides of the landfill and the top. The top material has a different color, is more sandy, and crumbles, whereas the sides are impermeable.

Roy Santana made the distinction between a "prescriptive cap" which has layers of PVC, plastic, and layered impermeable clay material and the "presumptive remedy", which may be an engineered, simpler, less expensive alternative soil cap.

Mr. Rosengard requested costs for the 13-20 acre landfill non-RCRA cap that includes recontouring, soil, and cap. Susan Gladstone, Regional Water Quality Control Board (RWQCB), requested that the cost also include the long term monitoring costs. This was deferred until the Tidal Area Feasibility Study is completed late this year.

Additional draft RAB comments will be forwarded through Mr. Rosengard to RAB members (Attachment B).

V. Discussion of RAB Mission and Goals

Mr. Rosengard opened discussion on RAB goals and asked for suggestions on discussion topics.

Mr. Santana offered to present a schedule of upcoming documentation and events at the next RAB meeting that may help the RAB formulate its goals and plan meeting schedules and topics. Ms. Gladstone added that Solid Waste Management Unit (SMWU) site documentation will be folded into the CERCLA process for RAB review.

Mr. Gallo confirmed that a Site Management Plan (schedule) presentation might be helpful for the public to understand the NWS Concord cleanup program and work in progress.

Mr. Rosengard suggested inviting community representatives from non-profit organizations and the government to talk about their concerns and what they would like to see at NWS Concord. Mr. Gallo suggested the Avian Society. Mr. Pieper stated they may be able to present a general ecological picture and suggest wildlife preservation mechanisms. Mr. Pieper suggested the City of Concord may have a point of contact and an interest in NWS Concord, as well as Congressman Miller's office. Steve Gallo stated that Congressman Miller's office is open to suggestions offered by a unified body working towards action.

The RAB would like to address the issue of long term management of dredged soil, wetland creation, long term monitoring, and delta issues. Ms. Gladstone will determine contacts for Cal-Fed and long term management.

Mr. Gallo asked about the feasibility of moving RAB meetings to Concord. The County Bus Depot was suggested. The Co-Chairs will research this possibility and share results.

Documentation and activities available to interested community members and new RAB members may be found in the "Green Book", EPA websites, previous meeting minutes, and small group tours. Mr. Rosengard will also distribute e-mail addresses (Attachment B).

The RAB and Remedial Project Managers agreed to skip the July RAB meeting and meet 21 August. The location will be determined and active RAB members will be notified by mail and phone.

VI. Adjournment

There was no public comment. Mr. Rosengard adjourned the meeting at 9:00 p.m.

VII. Attachments

A. Attendance sheet from the June 19, 1997 RAB meeting
B. Presentation materials from the June 19, 1997 RAB meeting

The next meeting is scheduled for Thursday, August 21, 1997, 7:00 p.m., location to be determined.

A copy of these meeting minutes will be made available for public review at the Information Repository located at the Main Branch of the Contra Costa County Library in Pleasant Hill, CA.

ATTACHMENT A

Attendance List
NWS Concord
Restoration Advisory Board Meeting
Thursday, June 19, 1997

Naval Weapons Station, Concord
Restoration Advisory Board Meeting Attendance
Date: 6/19/97

RAB MEMBER	*Signature*
~~Elizabeth Robinson~~ Anello	
Steven Bachofer	
~~Jim Campbell~~	
George Delacruz	
~~Scott Etzel~~	
~~John~~ Fuery	
Edward Gardner	
~~James Koeppel~~	
~~James Kory~~	
Sylvia Kotecki	
~~Clint~~ Mayfield	
Dr. Eugenia McNaughton	
Colleen Monahan	Colleen Monahan
~~Larry~~ Myers	
Connie Peak	
James Pinasco	
Ricard Purdue	
Tatiana Roodkowsky	
John Rosengard	John Rosengard
Catie Roy	
Thomas Shirley	
GENE SYLLS	
Steve Callo	
MARLUS O'CONNELL	
LARRY STONEWARCHT	

Naval Weapons Station, Concord
Restoration Advisory Board Meeting Attendance
Date: 6/19/97

NAVY REPRESENTATIVES	*Signature*
Richard Pieper (NWS Concord)	R. Pieper
Ronald Yee (EFA West)	Ronald Yee
Roy Santana (EFA West)	Roy Santana
REGULATORY AGENCIES	
Susan Gladstone (RWQCB)	Susan Gladstone
Nicole Moutoux (U.S. EPA)	
Phillip Ramsey (U.S. EPA)	
CONSULTANTS	
Kathy Walsh (PRC, EMI)	
John Boscha PRC	John Boscha
Darlene Brown (GPI)	
Barry Gutierrez (GPI)	Barry Gutierrez

ATTACHMENT B

Presentation Materials
NWS Concord
Restoration Advisory Board Meeting
Thursday, June 19, 1997

NWS Concord Restoration Advisory Board Comments on
Tidal Area RI Report
U.S. EPA Comments on Tidal Area RI Report
NWS Concord RAB Membership List, including e-mail addresses

RESTORATION ADVISORY BOARD
NAVAL WEAPONS STATION CONCORD

525 HAMPTON ROAD
PIEDMONT, CA94611

NAVY CO-CHAIR
RICHARD PIEPER

COMMUNITY CO-CHAIR
JOHN ROSENGARD

June 23, 1997

Mr. Ron Yee & Mr. Roy Santana
Remedial Project Managers
Engineering Field Activity West
US Naval Facilities Engineering Command
900 Commodore Drive, Bldg 206
San Bruno, CA 94066-2402

Dear Mr. Yee and Mr. Santana:

On behalf of the Restoration Advisory Board, the attached comments are submitted on the draft Remedial Investigation Tidal Area Sites 1, 2, 9, and 11, dated April 16, 1997.

This draft was significant improvement over the previous data compilation. Section 7, Human Health Risk Assessment, was very clear and presented both residential and industrial use scenarios. The document is user friendly. The bundling of the tables and figures in Volume 1 and the use of reference locations in the text provided easy access.

The board members who have reviewed the report recommend that the Navy move to expedite the Feasibility Study to reach a final action soon on these sites. Groundwater monitoring that may have occurred during phase 1B of the Remedial Investigation can, if required, be completed after the Record of Decision, to verify that contamination transport is an issue.

The report identifies that the presumptive remedy for the Tidal Area Landfill (Site 1) is capping. The RAB understands that degrees of capping, as well as a "no action" alternative, will be considered in a Feasibility Study. In light of the current minimal risk, the RAB believes that Navy and regulators should work to keep costs for any Tidal Area remedy to a minimum.

The recommendations in the report for no action on sites 2 and 9 appear reasonable and action should be expedited with agencies to get concurrence with this recommendation. Additional studies and activities would be unwarranted and wasteful spending.

The report recommends that the Wood Hogger (Site 11) be evaluated in the context of a risk management decision. The human health risk assessment shows a Hazard Index value greater than 1.0 only in the residential use scenario, and only for arseinc, a chemical which is already naturally-occurring at significant concentrations.

RAB members are unanimous in their observation that residential use seems unlikely in an area that is regularly flooded in the winter. The report conclusion should be more specific about how the public benefits from this analysis, and what quantifiable benefits would be generated with and without specific action under Superfund.

We recommend that decisions on final actions at the sites be based on the industrial use. Any beneficial reuse, or rezoning, of this property would be coupled with an environmental impacyt statement and a RCRA closure. Members of the RAB are again unananimous in encouraging the Navy and regulators to avoid duplicative actions, or steps which would be covered by regulations other than Superfund in the future.

The current schedule for remedial studies and final action extends several years into the future. The reviewers feel this schedule needs to be abbreviated. Final actions will be the same and likely achieved at lower cost due to the reduced time frame. The Tidal Area contamination does not merit extensive additional studies and reports.

The reviewers wish to thank the Navy and regulators from the USEPA, California EPA and RWQCB for inviting this public comment period and making the continued investment in educating the public about the work at this Superfund site. We also commend the project managers at PRC and its subcontractors for the quality and standards demonstrated in this report, which greatly aided our discussions.

Sincerely,

John Rosengard
Community Co-Chair
Restoration Advisory Board

RAB Member Comments
on the
Draft Remedial Investigation Tidal Area Sites 1, 2, 9, and 11

Reviewer: Steve Gallo

Page 2-2 The water treatment plant is operated by the Contra Costa Water District, not the City of Concord.
Page 2-15 Are any of the values in the paragraphs on this page "J" qualified data? Please add a sentence to clarify.
Page 7-11 and 7-28 The landfill area is different on these pages, 13 acres versus 20 acres. Which one is correct?
Page 7-28 Change table 7-4 to 7-5
Page 7-29 Change table 7-2 to 7-3
Page 7-30 Change table 7-2 to 7-3, 7-7 to 7-8
Page 7-32 Change table 7-2 to 7-3
Table 4-1 The San Francisco Bay Regional Basin Plan was modified in 1995. The June 1992 version is out of date.
Table 4-1 This table needs a title such as Remediation Site Requirements.
Table 6-7 Analytical Results and Comparison to Screening Criteria. Explain that screening criteria columns identify the # of analytes that exceed / # of analytes sampled.
Tables in general Provide a table that has the various screening criteria values so comparisons can be made more readily. The screening criteria are in appendices such as I, N, Q. A table in volume 1 referenced by the screening criteria paragraph on page 6-2 and at the base of the various tables would be helpful. The table could gather together the values on the concerned materials.

Reviewer: Connie Peak

Page 1-6 refers to 3 volumes not 4.
Figure 5-8 Notation. RADPZ002 (-3.85*) The * is not in the legend.
Page 9-9 statement. This area is considered for a "recreational" human health risk. This seems quite odd considering the area is only 800' x 300' and the area is restricted to base personnel only. What type of recreation do the writers have in mind?
Page 9-12 What is the comparison between the referenced "Dioxins and furans ...detected in one soil sample to the TCDD reference? Reviewer didn't notice TCDD listed in table 6-10. Are the writers suggesting that this is the same or equally toxic?

Reviewer: John Rosengard

The overall quality of the workproduct is quite good. This area of the Station was originally thought to be the source of considerable environmental risk. Based on this study, we can conclude that extensive contamination is not present, and we can follow the presumptive remedy track to control the landfill as a source.

Due to the low levels and inconsistent distribution of contaminants found, I infer that the low permeability of bay mud, which underlies the Tidal Area, has reduced contaminant fate and transport offsite. Given this condition, and the

possibility that any remaining contaminant source within the former landfill may be (or have been) quite minimal, I would encourage the Navy to explore remedial options which fall well short of a RCRA-closure cap.

Such a highly-engineered solution would be unreasonable for three reasons. The first is effectiveness. Very little contamination is appearing outside the landfill boundary; while we don't have comprehensive information on the source materials inside the landfill, it may be minimal, trapped inside the native soil/mud mixture, or both. The second is land reuse. The Navy, RAB or regulators anticipate no beneficial reuse of the Tidal Area. Since it is overlain by US Navy-defined explosive safety arcs, the probable exposure pathway for calculating environmental risk would be based on the few human receptors passing by the landfill site on the Station roadway system.

The third reason a RCRA cap would be unreasonable for this site is cost relative to benefits. Aside from the significant capital cost, regular inspection and sampling would create a financial drain. In light of the minute risks to human receptors, both before and after capping the landfill, I believe the Navy should not consider this a reasonable alternative.

This report provides credible evidence that the feasibility study and Record of Decision should proceed without delay. I encourage the Navy and regulators to take cooperate as closely as possible to conclude the Superfund activity on the Tidal site as soon as possible.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

June 18, 1997

Ronald Yee
Project Manager
Engineering Field Activity West
Naval Facilities Engineering Command
900 Commodore Drive, Building 206
San Bruno, CA 94066

Re: Remedial Investigation, Tidal Area Sites 1,2, 9, and 11, Naval Weapons Station, Concord, April 1997

Dear Mr. Yee:

Enclosed please find U.S. EPA's comments on the Remedial Investigation (RI) for the Tidal Area sites at Concord Naval Weapons Station (CNWS). In general, we found the report to be thorough, well-written, and the exhibits very helpful.

Issues that deserve further discussion include possible investigation of the role of groundwater contamination transport, any needed removal actions for hot spot areas (ie, the Wood Hogger site), and whether or not continued work is needed to monitor these sites.

As discussed with you on June 16, I have not included comments on the ARARs section from our regional counsel. I will send these under separate cover by June 27, 1997.

We have separated our comments by volume, with general comments first, followed by the specific comments. If you have any questions, please call me at (415) 744-2366.

Sincerely,

Nicole G. Mouteux
Remedial Project Manager
Navy Section
Federal Facilities Clean-up Branch

cc: Susan Gladstone, CARWQCB
Jim Pinasco, DTSC
Rich Pieper, CNWS
Susan Ellis, CAF&G
Jim Haas, CAF&WS
Helen Hillman, NOAA
John Rosengard, RAB Co-Chair

Comments on Volume 1, 2, 4
Remedial Investigation and Appendices

General Comments

1. I still have concerns about groundwater contamination transported through possible preferential pathways. The explanation for why groundwater samples were not collected and analyzed was not consistent. Was it because groundwater samples could not be collected from wells screened in Bay Mud, or were determinations made that it was unnecessary due to limited contamination in soil and sediment? An attempt at sampling some of these wells may be warranted, particularly in areas that can be considered "hot spots". In any case, this topic warrants further discussion.

2. The rational for arsenic levels being completely from nonanthropogenic sources may not be accurate, particularly for the R Area and the Wood Hogger sites. Although arsenic is indigenous to these soils at concentrations higher than PRGs, there is evidence that some arsenic may be due to site use and practices. Arsenic is often a constituent in pesticides as well as in wood preservatives, both of which were used at CNWSTA. Although this may not change our risk management decision, it should be clarified.

3. Since no samples were collected from within the landfill itself, the risk calculated for the landfill is not representative of the true risk. This should be made clear in the text of the document.

4 Dioxins were detected in the only two samples analyzed for this compound in the Wood Hogger site. It may be necessary to pursue this contaminant further given the clear potential source from the former incinerator.

4. The figures should include PRG values for easier comparison. PRGs should be included in the tables which show the proportion of samples above PRGs

5. Appendix L indicates that some data gaps may remain. See specific comments on this section below

Specific Comments

p. ES-3 **[Executive Summary, fourth paragraph]** Please define the abbreviation HPCDD and identify this compound as a dioxin.

p. ES-3 **[Executive Summary, fifth paragraph]** This sentence indicates a residential RME hazard index greater than 1 for the Wood Hogger Site. Please identify the contaminant(s) resulting in this designation.

p 2-16 **[Subsection 2.7.1.2, first complete paragraph on page]** The VOCs that are considered naturally occurring should be identified and the rationale for the assumption of their natural occurrence briefly discussed in the text. In accordance with RAGS guidance, organic chemicals should not be eliminated as contaminants of potential concern (COPCs) unless a strong case can be made for their natural or ambient occurrence in site media. Common laboratory contaminants should be included as COPCs if the sample concentration(s) exceed ten times the maximum amount detected in blank samples; if samples concentrations are less than ten times the blank concentration, the blank-related concentration(s) should be considered the sample quantitation limit(s) (SQLs) for the lab contaminant(s). For chemicals detected in blanks that are not considered lab contaminants, site sample results should be considered positive if the concentration in the site sample exceeds five times the maximum amount detected in any blank; samples containing less than five times the amount in any blank should be considered non-detects and the blank concentration(s) as the SQL(s) for that chemical.

p. 2-18 **[Subsection 2.7.2.2, Site Investigation, third paragraph]** This paragraph mentions filtered surface water samples being collected as part of the SI. Similarly, the descriptions of results of the SI for the other Tidal Area sites contain discussions of surface water sample results (e.g., p. 2-20, paragraph 1) and discuss results for filtered samples. It is unclear if all surface water samples were filtered and if samples for organic chemical analysis were also filtered. Please clarify the text referring to surface water analyses conducted during the RI throughout Subsection 2.6.

p. 2-23 **[Subsection 2.7.2.2, Confirmation Sampling, second paragraph]** For this and the other Tidal Area site descriptions in Section 2.7, state the rationale for conducting the confirmation sampling

p. 2-28 **[Subsection 2.7.4.2, Results of Previous Investigations (Wood Hogger Site 11), Confirmation Sampling]** The summary should identify the number, media, date(s), and locations of samples collected during the CS.

Table 5-1 **[Tidal Survey Results]** The length of the monitoring period should be included in the table notes

p. 6-3 **[First Section, Last Sentence]** As mentioned in the general comments above, the statement that there are no known anthropogenic sources in the tidal area may be misleading.

p 6-7 **[Subsection 6.1.3, Summary of Chemical Characterization, Organic Compounds in Soil, second paragraph]** It is stated in the first sentence and throughout this section that carbon disulfide occurs naturally in bay sediments. However, Section 2.0, page 2-19, first partial paragraph, indicates that it does not occur naturally in bay environments. Please change the text in the appropriate section.

p. 6-8 **[Subsection 6.1.4, Revised Conceptual Site Model for Tidal Area Landfill Site, last paragraph]** The second sentence mentions transport of and exposure to asbestos, as does Figure 6-1. Table 6-1 does not specify any asbestos analyses, nor is there a discussion of asbestos analytical results. Please include any asbestos analytical results in this document.

p 6-10 **[Subsection 6.2.2, third full paragraph]** Based upon the site investigation information and data, the western border of the landfill site is a potential munitions source. Why were soil samples not analyzed for explosives at this location?

p. 6-13 **[Subsection 6.2.3.1, Organic Compounds in Soil, Pesticides/PCBs, first paragraph]** It is stated that "pesticides were not detected in subsurface samples." However, no subsurface samples were analyzed for pesticides below the surface samples containing the highest concentration of DDT (RADSB010 and RADSB011). Therefore the above statement is misleading.

p. 6-16 **[Subsection 6.2.3.2, Inorganic Compounds in Soil, top partial paragraph]** The last sentence of this paragraph indicates that deposition of beryllium can occur "through flooding, ponding, and drying conditions." Although this can occur naturally, it is also likely that this can occur from beryllium that was placed in the landfill as debris. The flooding can carry beryllium from the debris to these water collection areas (low spots), and can then be deposited onto the surface soil when the water evaporates. Please revise this and any other similar discussions to include potential anthropogenic sources of high metals concentrations

p 6-20 **[Subsection 6.2.5.2, Inorganic Compounds in Surface Water, first paragraph]** The second sentence states that there are "documented disposal areas in the northeast corner...." This is not indicated in Section 2.0 as a source area. However, the southwest corner of the site does contain high metal concentrations. Please clarify or correct this paragraph or Section 2.0.

p. 6-20 **[Subsection 6.2.5.2, Inorganic Compounds in Surface Water, second paragraph]** This paragraph discusses the procedures, the results, and the conclusions. It does not discuss how the results support the conclusion. Is it that for those analytes where surface water screening criteria are exceeded, if the leachate (DI or acid?) is much greater than the surface water concentration, then the source of surface water contamination may be the sediment?

p. 6-21 **[Subsection 6.2.6.1, Inorganic Compounds in Soil, last paragraph]** The statement that "the geographic distribution of elevated concentrations does not strongly suggest an anthropogenic source" is questionable for arsenic. At least half of the locations where arsenic exceeds the ambient concentrations are where past disposal activities have been documented. Please reassess this conclusion and support it further.

p. 6-34 **[Subsection 6.4.1.1, Soil]** It is explained in this section that the depth to Bay Mud was determined while drilling. Were any samples collected from the Bay Mud? Was this depth determination performed at any of the other sites? If so, it is recommended that the rationale for Bay Mud depth determination and sampling/no sampling be discussed at the beginning of Section 6.0.

p. 6-44 **[Subsection 6.4.4.2, Inorganic Compounds in Sediment, first paragraph]** The second sentence in this paragraph implies that all inorganic constituents in the previous sentence exceed residential PRGs. Please revise the sentence.

p. 6-49 **[Subsection 6.4.6.3, Surface Water, Inorganic Compounds in Surface Water]** The last sentence states that sediment concentrations have not affected surface water quality, yet Subsection 6.4.5.2 states that the results of sediment WET tests indicate that the iron in Otter Sluice sediments may have resulted in high surface water iron concentrations. Please clarify or revise.

p 6-50 **[Subsection 6.4.7, Revised Conceptual Site Model for Wood Hogger Site]** The last sentence of this section appears out of place. Either revise the text or remove the sentence.

Table 6-1 Samples from the Tidal Area Landfill Site were analyzed for metals following the WET leachate extractions. Please include these methods on Table 6-1. Also, Subsection 6.1.1 indicates that hexavalent chromium was only analyzed in one sample. Table 6-1 lists hexavalent chromium analysis for all samples. Tables 6-1 through 6-5 should be reviewed for accuracy and completeness and compared to the text for consistency. It should be specified whether usable data were obtained or whether samples were just collected (which may have rejected data associated with them).

Table 6-2 Some samples are listed which have no analyses associated with them (e.g., 28IRAD066, 28IRAD067). Please explain or remove these from Tables 6-1 through 6-5

Table 6-17 Please include an explanation of the footnotes in this table.

p. 7-1 **[Section 7.0, Second paragraph]** It should also be noted, if accurate, that the shallow aquifer underlying the Tidal Area does not impact existing or potential future potable aquifers.

p. 7-1 **[Section 7.0, second paragraph]** It is assumed that the preliminary remediation goals (PRGs) are based on target cancer risks of 1E-06 and target noncancer health hazards, or hazard quotients (HQs), of 1. Please indicate the target risk or HQ.

p. 7-2 **[Subsection 7.1.1, Data Evaluation, third paragraph]** The CS was so limited that it could not possibly support the conclusions presented. Please revise and caveat the discussion and assumptions about the significance of the CS data.

p. 7-3 **[Subsection 7.1.1, Data Evaluation, second complete paragraph]** It is unclear if the PRG is the residential soil PRG for total chromium, chromium VI, or the CAL-Modified PRG. At a target risk level of 2E-05 the residential soil PRG could range from 4 mg/kg to 4200 mg/kg, a considerable variation. Please clarify which chromium soil PRG was used.

p. 7-3 **[Subsection 7.1.1, Data Evaluation, third complete paragraph on page]** As discussed above in the comment for p. 2-16 (Subsection 2.7.1.2, first complete paragraph, third sentence), the SQL(s) for the analytes in the samples should be the blank-related analyte concentration(s).

p. 7-3 **[Subsection 7.1.1, Data Evaluation, third complete paragraph on page, second sentence]** It is unclear how COPC selection could not have been affected as a result of elevated detection limits. Further clarification seems appropriate, including brief discussions on how the "small portion of the detection limits" exceeding the 1E-04 target risk for residential soil PAHs and SVOCs was dealt with, and if any potential COPCs could have been eliminated due to the high detection limits.

p 7-4 **[Subsection 7.1.2, Identification of Chemicals of Potential Concern, first paragraph]** As discussed above in the comment for p. 2-16 [Subsection 2.7.1.2, first complete paragraph, third sentence] the approach used to deal with chemicals detected in lab blanks (e.g., common lab contaminants and non-lab contaminants) should also be presented in this section.

p 7-4 **[Subsection 7.1.2, Identification of Chemicals of Potential Concern, Item No. 3]** It remains unclear how analytes exceeding the 80/95 LCL in less than 5 percent of the data were addressed. Were analytes in hot spots retained, eliminated, or addressed separately? Were analytes which did not indicate hot spots excluded? Please provide further clarification. To avoid unnecessary confusion, it is recommended that all inorganic constituents whose maximum site concentration exceeded background be included as COPCs.

p. 7-5 **[Subsection 7.1.2, Identification of Chemicals of Potential Concern, first bullet at top of page]** The discussion is somewhat confusing. It is assumed that "(B)arium exceeded in five of 131 samples" means that five of the 131 samples had detectable levels of barium that exceeded the 80/95 background concentration. This should be so stated.

p. 7-5 **[Subsection 7.1.2, Identification of Chemicals of Potential Concern, third bullet, Site 11 - Wood Hogger Site]** Since maximum arsenic, chromium and nickel exceeded background or ambient concentrations, it is recommend that they be carried through further evaluation as COPCs. Nickel and chromium could be considered site-related but would be eliminated as COPCs following comparisons with the soil PRGs (assuming no hexavalent chromium [Cr VI] is present). Arsenic, however, should be considered site-related since wood treated with copper arsenate may have been stored at the site as reusable wood,

wood scrap, or sawdust. Arsenic should be carried through as a contaminant of concern (COC) since it exceeds both residential and industrial soil PRGs and, consequently could pose a potential health risk to exposed receptors.

p. 7-6 **[Subsection 7.1.3.3, Comparison of Ambient Conditions, last paragraph]** As discussed in the above comment (p. 7-5, third bullet, Site 11), the rationale for eliminating arsenic as a COPC is highly questionable. A case could certainly be made that arsenic is a site-related contaminant since it (copper arsenate) could have been used to treat wood that was stored or disposed at the site and soil samples contained arsenic at concentrations above the 80/95 background level. The estimated incremental cancer risks for residential exposure to arsenic in soils at concentrations of 10.1 mg/kg (surface soil RME) and 37 mg/kg (maximum soil concentration) are 3E-05 and 1E-04, respectively. These are not negligible cancer risks and should not be ignored. It is also unclear how the 80/95 background or ambient concentrations can be compared to values based on a 95 percent UCL of the arithmetic mean (95 UCL). Please clarify. Also, the reference to Subsection 7.1.4 is incorrect, it should be 7.1.2.

p. 7-7 **[Subsection 7.2.1, Exposure Setting and Land Use, second complete paragraph on page]** Regional topography is generally insufficient to determine the groundwater gradient. Hydrologic studies and other information on the surface characteristics that support the conclusion that potable water wells in the Inland Area and west of NWS Concord are not affected should be discussed and cited.

p. 7-9 **[Subsection 7.2.1.5, Recreational Receptors, last paragraph on page]** Since recreational receptors include sport fisherman, it is unclear why receptors would not be exposed through ingestion of contaminated fish or shellfish. Please clarify.

p. 7-11 **[Subsection 7.2.2.1, Site 1 - Tidal Area Landfill, second complete paragraph]** There is no mention of any data identifying the nature and extent of asbestos in the soils. Please clarify and discuss the nature and extent of asbestos contamination present in the landfill and why asbestos is not carried through the HHRA.

p. 7-11 **[Subsection 7.2.2.1, Site 1 - Tidal Area Landfill, second complete paragraph]** If there is a potential for Site 1 contaminants to enter Otter Sluice and Suisun Bay then the surface water and fish/shellfish ingestion pathways should be evaluated for Site 1 COPCs. Please explain why these pathways are not included in the HHRA.

p. 7-12 **[Subsection 7.2.2.2, Site 2 - R Area Disposal Site, second paragraph on page]** As discussed in the above comment for Site 1, if there is a potential for R Area contaminants to enter Otter Sluice (and Suisun Bay) then the fish/shellfish ingestion pathway should also be evaluated for recreational

receptors. Please explain the omission of this pathway from the HHRA.

p. 7-13 **[Subsection 7.2.2.3, Site 9 - Froid and Taylor Roads Site, first complete paragraph on page]** Since Site 9 surface water, as well as groundwater, may be draining into Otter Sluice and Suisun Bay, it would seem reasonable that fish/shellfish ingestion for recreational fishermen is another exposure pathway. Please explain why this pathway was not included.

p. 7-14 **[Subsection 7.2.2.4, Site 11 - Wood Hogger Site, first paragraph on page]** Contaminants in surface water and groundwater draining from Site 11, as well as the other three sites, may be migrating into Otter Sluice, Suisun Bay, and other surface waters at NWS Concord. Consequently, potential receptors may be exposed to these contaminants not only through dermal contact but also through the ingestion of fish and shellfish caught in these waters. Please explain the omission of this exposure pathway.

p. 7-14 **[Subsection 7.2.3, Exposure Point Concentrations, second paragraph on page]** The RME for nonparametric distributions (assumed to be normal), as indicated in Appendix J, is "a quantile equivalent of the 95th UCL." A brief clarification should be presented in the text defining this statistical value and why it is used.

p. 7-15 **[Subsection 7.2.4, Quantification of Exposure, first complete paragraph]** Table 7-1 does not present equations and parameters, these are presented in Tables 7-2 and 7-3. Please correct.

p. 7-15 **[Subsection 7.2.4, Quantification of Exposure, second complete paragraph]** How would the inclusion of contaminant uptake into garden produce effect the risk assessment and would it be reasonable under any conditions?

p. 7-16 **[Subsection 7.2.4, second complete paragraph]** The preamble to the PRG table is not included in Appendix I. Please add. Also add the reference for the electronic version.

p 7-16 **[Subsection 7.2.4, Quantification of Exposure, third paragraph]** Appendix I includes the PRGs, soil screening levels, and toxicity information (toxicity values, CAS No., skin absorption) but not exposure parameter values and PRG equations. Please correct or include this information in Appendix I.

p. 7-19 **[Subsection 7.3, Toxicity Assessment, first paragraph on page, last sentence]** The meaning of this sentence is unclear. It should be indicated that the COPC toxicity values (slope factors and reference doses) applied in this HHRA are included in the PRG Table presented in Appendix I.

p. 7-20 **[Subsection 7.3.1.3, third paragraph]** Add to the discussion that speciation of PCBs was not done and therefore the health protective approach is being used; unlike with chromium.

p. 7-21 **[Subsection 7.3.1.3, EPA Toxicity Factors, last paragraph on page]** Appendix H includes toxicity profiles for chemicals that are not COCs (barium, chromium) but does not provide profiles for HPCDD, OCDD, and mercury. Please include toxicity profiles for all identified COCs.

p. 7-22 **[Subsection 7.3.1.4, Chemicals With No EPA Toxicity Values, first paragraph on page]** Table 7-4 provides a list of COPCs without PRGs and their surrogates. There is no table providing a list of chemicals without toxicity values. Please correct.

p. 7-27 **[Subsection 7.4.1.2, Noncarcinogenic Hazards, second paragraph on page]** It should be noted in the text that segregating HIs is not a simple matter but a potentially complicated analysis of the effects and mechanisms of action of the various COPCs or COCs. All specific data, toxicological information, and assumptions germane to the analysis should be included in the HHRA.

p. 7-27 **[Subsection 7.4.2, Risk and Hazard Estimates, fourth paragraph on page, last sentence]** The risk characterization results are summarized in Tables 7-5 through 7-10. Please correct the text.

p. 7-27 **[Subsection 7.4.2, Risk and Hazard Estimates, fifth paragraph on page, second sentence]** Table 7-1 does not present surface water exposure parameter values or equations; this information is presented in Tables 7-2 and 7-3. Please correct the text.

p. 7-27 **[Subsection 7.4.2, Risk and Hazard Estimates, fifth paragraph, last sentence]** Table 7-3, not Table 7-2, provides risks and hazards. Please correct the text.

p 7-28 **[Subsection 7.4.2.1, Site 1 - Tidal Area Landfill, first paragraph]** As discussed in the following comment, health risks and hazards for the residential receptors should be based on COPC RME exposure point concentrations in surface soils (0 to 0.5 feet bgs). Risks and hazards for the industrial receptor should be based on RME exposure point concentrations in subsurface soils (0 to 10 feet bgs). Table 7-5, not 7-4, summarizes the health risks and hazards for the industrial and residential receptors. Please correct text.

p. 7-28 **[Subsection 7.4.2.1, Site 1 - Tidal Area Landfill, second paragraph]** It appears that the RME concentrations used to estimate risks and hazards for the residential receptor are based on subsurface rather than surface soil concentrations. Residents, particularly children, would more likely be exposed to contaminants in surface soil. The RME surface soil arsenic concentration presented in Table J-1 is 33.8 mg/kg; the subsurface soil concentration is 19.2 mg/kg; the RME surface soil beryllium concentration is 0.51 mg/kg; the subsurface concentration is 0.56 mg/kg. Consequently, the cumulative cancer risk for residents exposed to surface soil contaminants would be 1E-04. Risks due to exposure to arsenic in surface soils would be 9E-05. The HI would be

2.6, and the HQ for arsenic would be 1.5, representing an unacceptable hazard. In addition, since there is no analysis presented supporting the HI segregation, the assumption of additivity should stand. There is also no supporting evidence that arsenic and beryllium are not site related, and surface soil concentrations exceed the calculated 80/95 ambient levels. It should also be noted that residential risks and health hazards do not reflect potential COPC exposure through uptake of homegrown produce, milk, eggs, meats, or shellfish/fish. Please revise the text accordingly by using surface soil concentrations for the residential receptors, and indicate that the COCs pose an unacceptable noncarcinogenic health hazard to potentially exposed future residential receptors.

p. 7-29 **[Subsection 7.4.2.2, Site 2 - R Area Disposal, first incomplete paragraph at top of page]** Table 7-3 provides the surface water results. As discussed above, the residential receptor health risks and hazards presented in Table 7-6 should be based on COPC RME concentrations in surface (0 to 0.5 feet bgs) not subsurface soil (0 to 10 feet bgs).

p. 7-29 **[Subsection 7.4.2.2, Site 2 - R Area Disposal, first and second complete paragraphs on page (Soil - Residential Scenario)]**. As discussed above, the residential risks and health hazards should be based on the surface soil COPC RME. Although the risks and HI are not significantly affected, the text should be revised to reflect that the risk attributable to arsenic, at a concentration of 13.6 mg/kg, is 4E-05, and 2E-06 for both benzo(a)pyrene and dibenz(a,h)anthracene. The HI is 1.6. In addition, unless HI segregation is supported, health hazards due to exposure to multiple noncarcinogenic COPCs should continue to be considered additive.

p. 7-29 **[Subsection 7.4.2.2, Site 2 - R Area Disposal, last paragraph on page (Sediment - Residential Scenario), second sentence]** As discussed above, since there is no supporting analysis presented in the HHRA for HI segregation, health hazards due to exposure to multiple noncarcinogenic COPCs in sediments should continue to be considered additive.

p. 7-30 **[Subsection 7.4.2.2, Site 2 - R Area Disposal, third complete paragraph on page (Surface Water - Recreational Scenario)]** It should be noted in the text that risks and health hazards do not reflect COPC exposure through uptake of potentially contaminated fish and shellfish.

p. 7-30 **[Subsection 7.4.2.3, Site 9 - Froid and Taylor Road Site, fourth complete paragraph on page, last sentence]** Table 7-8 presents the risk/hazards for Site 9 not Table 7-7. As discussed above for Sites 1 and 2, residential cancer risks and health hazards should be based on COPC RME surface soil concentrations.

p. 7-30 **[Subsection 7.4.2.3, Site 9 - Froid and Taylor Road Site, last paragraph on page (Soil - Residential Scenario)]** As discussed above, exposure to COPCs in surface, not subsurface, soils should be used to estimate risks and health

hazards. Although there is little difference in the risks and health hazards (i.e., the cumulative cancer risk for exposure to surface soil COPCs is slightly higher at 4E-05, and the HI is lower at 1.1), the text should be revised to reflect surface soil arsenic and benzo(a)pyrene RME concentrations.

p. 7-31 **[Subsection 7.4.2.3, third complete paragraph on page (Soil - Lead)]** The RME surface soil lead concentration of 515 mg/kg should be used for residential receptors. Consequently, the lead concentration exceeds both residential soil lead criteria. The text should be revised to reflect the surface soil lead RME and potential adverse effects (elevated blood lead levels > 10 µg/dl) to exposed residential receptors (primarily children).

p. 7-31 **[Subsection 7.4.2.4, Site 11 - Wood Hogger Site, last paragraph on page, last two sentences carried over to top of pp. 7-32]** Table 7-3 presents the surface water risk/hazard evaluation, not Table 7-2. Tables 7-9 and 7-10 present the risks/hazards for soils and sediments. Please correct the text accordingly.

p. 7-32 **[Subsection 7.4.2.4, Site 11 - Wood Hogger Site, first complete paragraph on page (Soil - Residential Scenario)]** As discussed above for Sites 1, 2, and 9, exposure to COPCs in surface, not subsurface, soils should be used to estimate risks and health hazards. When surface soil RME concentrations for the COPCs are applied for the residential scenario (see Table J-26), the cumulative RME risks are 5E-05 instead of 2E-05, and the HI is 1.1 instead of 0.9. The risk drivers remain benzo(a)pyrene at an RME concentration of 1.3 mg/kg and risk of 2E-05, and dibenz(a,h)anthracene at a risk of 1E-05; but benzo(a)anthracene, at an RME concentration of 1.3 mg/kg, is another COC at an estimated risk of 2E-06. The text should be revised to reflect the risks and health hazards estimated for the surface soil RME concentrations. In addition, it is recommended that arsenic be added as a site-related COPC, since copper arsenate-treated wood may have been stored at the site.

p. 7-32 **[Subsection 7.4.2.4, Site 11 - Wood Hogger Site, third complete paragraph on page (Soil - Lead), first sentence]** The surface soil RME lead concentration (108.7 mg/kg) should be used for any comparisons to residential soil lead PRGs or other criteria. Please revise the text to reflect surface soil lead concentrations for the residential receptor.

p. 7-33 **[Subsection 7.4.2.4, Site 11 - Wood Hogger Site, second paragraph on page (Surface Water - Recreational), second sentence]** It should be noted in the text that RME risks do not reflect exposure to site COPCs through ingestion of potentially contaminated fish or shellfish. It is also unclear what the source of the arsenic concentrations for Site 11 is, since there are no surface water data presented for this site in Appendix J. Please clarify.

p. 7-34 **[Subsection 7.4.3, Uncertainty, first paragraph on page, first sentence]** The

reference to "greater than 10^{-4}" should be clarified. It is assumed that some detection limits were greater than PRGs based on a cancer target risk of 1E-04, or 100 times the PRGs listed in the EPA Region IX Table.

p. 7-34 **[Subsection 7.4.3, Uncertainty, third paragraph on page, last sentence]** It should be noted in the text, however, that many potentially noncarcinogenic adverse health effects resulting from exposure to multiple COPCs were dismissed by segregating the effects (without any supporting analysis).

p. 7-34 **[Subsection 7.5, Risk Assessment Summary, last paragraph on page, last sentence continued onto p. 7-35]** The EPA Region IX PRGs are more accurately defined as back- calculated media concentrations based on a target cancer risk of 1E-06 (1 in 1,000,000) and/or a hazard quotient of one.

p. 7-35 **[Subsection 7.5, Risk Assessment Summary, first complete paragraph, first sentence]** Exposure to Tidal Area site COCs are not expected to result in significant risks or health hazards to exposed industrial workers. However, based on the results of this HHRA, this is not the case for residential receptors and may not be the case for recreational or other sensitive receptors. Consequently, unlimited land use at the Tidal Area sites would be unacceptable and some form of land use restriction may need to be put in place to limit future development or land use changes. In addition, Subsections 7.5.1, 7.5.2, 7.5.3 and 7.5.4 should be revised as necessary to incorporate recommended revisions identified in the previous HHRA comments.

p. 7-37 **[Subsection 7.6, Human Health Risk Assessment Conclusions, last paragraph on page]** If the use of EPA Region IX PRGs resulted in significantly overestimating health risks at the Tidal Area sites, then they should only have been used for the initial screening, and a conventional baseline risk assessment should have been completed focusing on the COCs and applying exposure parameters and site-specific land use scenarios that would more accurately reflect current or future human exposure at the four sites. The final conclusion (e.g., "all of the risk estimates are within or at the low end of the target risk range and all hazard indices are less than 1") is incorrect for the residential land use scenario.

Table 7-1 The information presented in this table should be discussed further in the text. The RI indicated in Section 2.0 that SI data would not be used for the HHRA, so why is it presented in this table? The SI data, particularly for soil and groundwater, indicates that the contamination at the four sites is much more extensive than the contamination addressed in the HHRA. Data quality problems and laboratory contaminants or other introduced sample contaminants do not fully explain the difference in the two sets of data. Further clarification would seem appropriate.

Also, why are groundwater results included on this table (column labeled, "Detection in Groundwater Exceeded [sic] Tap Water PRG?")? According to

p. ES-1 of the Executive Summary, the need for groundwater samples would be assessed by this phase (the Phase 1A RI) and any groundwater sampling deemed necessary would be conducted during the Phase 1B RI. Also, p. 3-4 of Section 3.0 indicates no groundwater samples were collected and analyzed during this Phase 1A RI, reportedly because "representative groundwater samples could not be collected from the wells that were screened in the Bay Mud." Why were some groundwater samples collected during the 1993 PRC CS? Please clarify.

Table 7-2 The skin surface area (SA) represents 25 percent of the exposed surface area (exposed head, hands, forearms, and lower legs) usually used for dermal exposure to soils or sediments not due to wading or swimming. For swimming and bathing scenarios it is normally assumed that 75 percent to 100 percent of the skin surface is exposed. The total adult surface area is between 20,000 and 23,000 cm^2, the total surface area for children is somewhere between 7,000 and 9,000 cm^2. Please provide justification for the SA values used in the table. It appears that the exposure frequency (EF) for both adult and child is 1 day/week not 1 day/year as indicated in footnote "e." Please correct.

Table 7-3 Many of the surface water concentrations presented in the table are not consistent with the values presented in Appendix J. Please recheck the arsenic, lead, aldrin, dieldrin, and heptachlor concentrations for Site 2, and the carbon disulfide concentrations for Site 9. Also, please indicate the source of the arsenic concentrations for Site 11 since there are no surface water data presented for this site in Appendix J.

Based on the surface water concentrations, PC, and slope factor values presented in the table and the LADD exposure parameter values presented in Table 7-2, attempts to confirm the accuracy of the risk calculations resulted in slightly lower risk values. It should also be indicated whether risks and hazards are for adult or child receptors. Please recheck the input parameter values and risk calculations to ensure they are accurate. Also, the permeability constant (PC), or K_p, value in the Cal/EPA (1994) reference is 2.4E-02 not 4.2E-03. Please correct and revise the risk and hazard estimates accordingly.

Table 7-4 There is a soil PRG for 1,1-biphenyl (see Appendix I p. 02); it is 3.5E+02 based on soil saturation. It is unclear why aniline was used as a surrogate for 4-nitroaniline instead of 2-nitroaniline. Please clarify.

Table 7-5 It appears that the RME concentrations presented for the residential receptor are based on subsurface, not surface, soil concentrations. The RME surface soil arsenic concentration presented in Table J-1 is 33.8 mg/kg; the subsurface soil concentration is 19.2 mg/kg. The RME surface soil beryllium concentration is 0.51 mg/kg; the subsurface concentration is 0.56 mg/kg. Consequently, the cumulative cancer risk for residents exposed to Site COCs would be 1E-04. The cancer risk due to exposure to arsenic in surface soils would be 9E-05. The HI would be 2.6, and the HQ for arsenic would be 1.5, representing an

unacceptable hazard, segregated or not. Please revise the table accordingly applying surface soil concentrations for the residential receptors.

Table 7-6 As discussed above for Table 7-5, the risks and hazards for the residential receptor should be based on surface soil concentrations. However, it should be noted that when surface soil concentrations are applied (see Table J-16) the estimated cumulative risk and HI are not substantially different. Nevertheless, surface soil concentrations should be used to estimate risks and hazards from exposure to Site 2 soil COPCs. Please revise the table accordingly.

Table 7-7 The estimated ambient arsenic concentration is based on soil samples, not sediment samples. The fact that an ambient arsenic sediment concentration was not determined should be noted in the table. The analysis for segregating the HI based on effect and mechanism of COPC action was not presented in the HHRA. Without this analysis the noncarcinogenic effects should be considered dose additive. Please revise the table accordingly.

Table 7-8 As discussed above for Tables 7-5 and 7-6, risks and hazards for residential receptors should be based on surface soil concentrations. When surface soil concentrations are applied (see Table J-16) the estimated residential cumulative risk and HI are not substantially different. Nevertheless, surface soil concentrations should be used to estimate risks and hazards from exposure to Site 9 soil COPCs. The maximum arsenic detection in subsurface soil was 26.6, which exceeds the estimated ambient concentration. The basis for assuming ambient benzo(a)pyrene soil concentrations should be presented. The RME surface soil lead concentration identified in Table J-22 is 515 mg/kg not 319. In addition, the IUEBK blood lead model is the accepted model for determining whether or not the RME soil lead concentration poses a health risk to residential children. Please revise the table accordingly.

Table 7-9 As discussed above for Tables 7-5, 7-6, and 7-8, the residential RME soil concentrations are based on subsurface, not surface, concentrations. When surface soil concentrations are applied for the residential receptor, the cumulative risk is 5E-05 with the primary risk driver, benzo(a)pyrene, posing an estimated risk of 2E-05. In addition, arsenic should not have been eliminated as a COPC on the basis of the ambient screening method employed in the HHRA. It is recommended that arsenic be included as a site-related soil COPC even though the RME surface concentration (10.1 mg/kg) appears to be well below the calculated ambient concentration of 24 mg/kg.

Table 7-11 Since there are several COPCs with risks greater than 1E-06 or HQs greater than unity (see Appendix J Tables J-12 through J-32), it is recommended that the following be added to the list of COCs for the residential scenario: benzo(a)pyrene for Site 1 COCs; and OCDD, benzo(a)anthracene, benzo(k)fluoranthene, indendo(1,2,3,-cd)pyrene for Site 11 COCs. Also, recommend adding beryllium and benzo(a)pyrene as soil RMEs to the Site 1 industrial scenario COC list.

p. 9-3 **[Subsection 9.2.1, Chemical Characterization, second paragraph, last sentence]** This sentence states that arsenic, beryllium, and lead were detected at concentrations greater than their residential PRGs and estimated ambient concentrations. However, on p. 9-4, Subsection 9.2.2, Human Health Risk Assessment, second paragraph, the last sentence states that the "...risk is attributable to ambient levels of arsenic and beryllium." Please clarify this apparent contradiction.

p. 9-4 **[Subsection 9.2.2, Human Health Risk Assessment, first paragraph]** As mentioned in the general comments. The risk calculated for the landfill is not representative of the true risk because samples were not obtained from on top of or within the landfill itself. This should be made clear in the text.

p. 9-5 **[Subsection 9.3.1.1, Soil, third paragraph, third sentence]** This sentence states that arsenic (among other metals) was detected at concentrations greater than its residential PRG and estimated ambient concentration. However, on p. 9-7, Subsection 9.3.2, Human Health Risk Assessment, first complete paragraph, the second sentence states that the "...risks can be attributed primarily to ambient levels of arsenic." Please clarify this apparent contradiction.

p. 9-6 **[Subsection 9.3.2, Human Health Risk Assessment, last paragraph, second sentence]** Does this sentence mean that arsenic is the only contaminant above industrial PRGs? Please clarify.

p. 9-7 **[Subsection 9.3.2, Human Health Risk Assessment, first complete paragraph, last sentence]** Please cite a reference for benzo(a)pyrene ambient concentrations in rural and urban soils.

p. 9-9 **[Subsection 9.4.1.1, Soil, first complete paragraph, fourth sentence]** This sentence states that arsenic was detected at concentrations greater than its residential PRG and estimated ambient concentration. However, on p. 9-10, Subsection 9.4.2, Human Health Risk Assessment, second paragraph, the second sentence states that the "...risks can also be attributed primarily to ambient levels of arsenic." Please clarify this apparent contradiction.

p. 9-10 **[Subsection 9.4.2, Human Health Risk Assessment, first paragraph, second sentence]** Does this sentence mean that arsenic is the only contaminant above industrial PRGs? Please clarify.

p. 9-12 **[Subsection 9.5.1.1, Soil, first complete paragraph, fourth sentence and Subsection 9.5.1.2, Sediment, second complete paragraph, second sentences]** Both of these sentences state that arsenic and beryllium were detected at concentrations greater than their residential PRGs and estimated ambient concentrations. However, on p. 9-13, Subsection 9.5.2, Human Health Risk Assessment, the fourth paragraph, fourth sentence states that, "The COCs identified for sediments are ambient levels of arsenic and beryllium." Please

clarify this apparent contradiction.

p 9-13 **[Subsection 9.5.2, Human Health Risk Assessment, third paragraph, second sentence]** Does this sentence mean that dibenz(a,h)anthracene is the only contaminant above industrial PRGs? Please clarify. Also, please cite a reference for dibenz(a,h)anthracene ambient concentrations in rural and urban soils.

p. 9-15 **[Subsection 9.5.4, Preliminary Recommendations and Conclusions, third paragraph, first sentence]** Is no further action appropriate even though the total hazard index for sediment exceeds the threshold value of 1?

p. 9-15 **[Subsection 9.6, Outstanding Issues, third paragraph, fourth sentence]** As stated in the General Comments, EPA is uncertain whether the conclusion that groundwater is not contaminated and does not need to be investigated further is valid. As discussed in Section 5, pages 5 and 11, filled natural drainage features may act as preferential groundwater pathways which may be contaminated and undiscovered.

Appendix J - Statistical Data Summaries

Table J-1 Note "c" is unclear and should be revised. In addition, minimum and maximum SQLs should be defined, as should the acronym CTE.

Table J-3 The titles for Tables J-3 and J-4 indicate Site 9 instead of Site 2; please correct.

Appendix K - Quality Control Summary Report

p K-2 **[Validation Methodology, fourth paragraph]** This paragraph includes 11 samples from wells; however, no RI well sample results are discussed in any of the other sections. What were these results used for?

pp K-6-end **[Subsections 3.3 through 4.4]** Check all table numbers in these sections as they are incorrect.

p. K-16 **[Subsection 4.2, Analyte Identification]** Please identify the location of TICs reported for the Tidal Area RI samples.

p. K-18 **[Subsection 5.1, second bullet]** Poor LCS recoveries cannot be attributed to matrix interference problems. Please correct this sentence with the appropriate information Were LCS recoveries out of control?

Table K-16 **[Data Evaluation: Reporting Limits]** Please explain the following minimum reporting limits that do not meet the QAPP reporting limits: aromatic volatiles in soil, surface water VOCs, sediment and soil low-level CLP semivolatiles, and soil and sediment TOC.

Appendix L Data Validation Issues

[Semivolatile Organic Compounds, first paragraph] PCP was rejected in 18 Tidal Area samples and none were reportedly expected to be associated with site activities. PCP *was* associated with site activities in the Wood Hogger Site. How many of these rejected data points were associated with the Wood Hogger Site?

[Semivolatile Organic Compounds, second paragraph] Please identify the five samples that were affected by the PAH hits in blanks. Were 5 times the blank concentrations greater than the 1E-5 PRGs ?

[Semivolatile Organic Compounds, third through fifth paragraphs] The quantitation limits for the PAHs in particular are of great concern. Please indicate which locations are affected. Also, are there any PAHs which are greater than the 1E-5 PRG level and have not been incorporated into the risk assessment calculations for the whole site?

[Explosives] Please state either the number of total explosive samples or the percentage of samples affected. Also, ensure that all other sections include the same type of information.

Volume 2 - Ecological Risk Assessment

General Comments

1. The report was well-written and organized The exhibits were particularly helpful and allowed quick review of sampling and risk assessment results.

2. Four of the screening criteria listed on pp. 5-1 and 5-2 state that the criteria must be exceeded in at least 10 percent of the samples. Commonly, ecological risk assessments have a detection frequency criteria of 5 percent rather than 10 percent. In addition, contaminants of Ecological Concern (COECs) were identified based on the entire RI data set. Contaminants associated with one of the four Tidal Area sites could exceed the criteria at greater than a 10 percent frequency, but not exceed the criteria when using the entire data set. A spacial justification for using the 10 percent criteria should be provided as well as providing a method ensuring that hot spots are not ignored.

3. The brief discussion of bioavailability in Subsection 12.1.3.2 provides a poor summary of the topic. It appears that a lot of effort was used to evaluate bioavailability using the WET analysis, however the issue is not clearly explained anywhere. We suggest using figures 6-20 through 6-30 to provide a separate discussion of bioavailability in section 12.

4. Section 5.1.3 describes bioaccumulation potential as an important factor for selecting COECs. However, no clear criteria were presented for identifying bioaccumulative chemicals.

Please provide an explanation of this procedure.

5. Some of the water bodies in the Tidal Area have high habitat quality (ie, Otter Sluice) while others have low habitat quality. We suggest that ecological risks in Otter Sluice and other surface water bodies with high habitat quality be evaluated separately where appropriate.

6. No clear criteria is presented for evaluating the results of either the Microtox test or the P450 toxicity test. Table 8-1 shows the Microtox test had a mean EC50 at about a 1 percent extract solutions while the P450 test showed a fold induction response ranging from 9 to 169. Do these results indicate that the soil samples are toxic? At what level is the toxicity of significance?

7. As mentioned with regard to human health risk associated with the landfill, an evaluation of ecological risk associated with the landfill is not representative of true risk because no sampling was done on the landfill. This should be clarified.

8. In section 13, Summary and Recommendations, it is stated that if the diked wetland in the R Area is restored to its former status as a tidal wetland, potential links between the existing diked wetland with known contamination and the Suisan Bay must be evaluated. What is the likelihood that the R area will be returned to its original tidal wetland status?

Specific Comments

p. 2-18 **[Subsection 2.6.1.2, Site Investigation, paragraph 3]** This paragraph mentions filtered surface water samples being collected as part of the SI. Similarly, the descriptions of results of the SI for the other Tidal Area sites contain discussions of surface water sample results (e.g., p. 2-20, paragraph 1) and discuss results for filtered samples. It is unclear if all surface water samples were filtered and if samples for organic chemical analysis were also filtered. Please clarify the text referring to surface water analyses conducted during the RI throughout Subsection 2.6.

p. 2-21 **[Subsection 2.6.2.2, Confirmation Sampling, paragraph 4]** For this and the other Tidal Area site descriptions in Subsection 2.6, state the rationale for conducting the confirmation sampling.

p 2-29 **[Subsection 2.6.4.2, Confirmation Sampling, paragraph 4]** To be consistent with the other Tidal Area site descriptions contained in Subsection 2.6, please state the number of confirmation samples that were collected.

p. 4-1 **[Subsection 4.1.1, Soil Investigation, paragraph 3]** State the maximum depth of soil samples used in the assessment.

p. 4-5 **[Subsection 4.2.1, Soil/Sediment Parameters, paragraph 1]** Provide the rationale for selecting waste extraction tests at the locations shown in Exhibit 3.

p. 4-5 **[Subsection 4.2.1, Soil/Sediment Parameters, paragraph 2]** This paragraph refers to Figure 4-2 for the location of Microtox and Cytochrome P450 sample locations. Figure 4-2 was not included in the document. Exhibit 3 shows the toxicity test locations. Please correct this inconsistency.

p. 5-1 **[Section 5.0]** This section could benefit from a figure that depicts the steps in the primary and secondary screening process.

p. 5-1 **[Section 5.0, paragraph 2]** As stated in the General Comments, selection of COECs using the entire RI data set may have resulted in the omission of chemicals as COECs that may be significant contaminants in an individual site. Since Section 2.0 clearly suggests that different sets of contaminants may be associated with the four sites within the Tidal Area, it would be more appropriate to select COECs within each site. The evaluation of risks to receptors that forage over the entire Tidal Area would include COECs listed for all the sites

p. 5-1 **[Subsection 5.1, Primary Screening]** As stated in the General Comments, the use of the "at least 10 percent of the samples" factor in the COEC selection criteria requires justification.

p 5-2 **[Subsection 5.1.2.1, Regional Water Quality Control Board Wetland Cover Criteria, paragraph 4]** This section states that the RWQCB wetland cover values will be used to screen contaminants in the wetland soil. However, cover values exist for relatively few chemicals, and as stated in Subsection 6.1.1 and 6.2.1, ER-L and ER-M values are used to select COECs when cover values are unavailable Either modify the text in Subsection 5.1.2.1 to state that soil screening values will be either the cover values or ER-Ls (with preference for the cover values) or modify Subsections 6.1.1 and 6.2.1.

p. 5-3 **[Subsection 5.1.2.2, Effects Range-Low and Effects Range-Median Values, paragraph 2]** This paragraph does not clearly state whether the ER-L or ER-M will be used to select COECs. The ER-Ls would be most appropriate to use as screening values.

p. 5-4 **[Subsection 5.1.2.3, U.S. Environmental Protection Agency Ambient Water Quality Criteria, paragraph 1]** Although aluminum does have a freshwater chronic AWQC of 87 ug/L, that value is not presented in Table 5-2. DDT also has a chronic marine and freshwater AWQC of 0.001. Several chemicals lacked chronic AWQC, but do have acute AWQC (i.e., aldrin and BHC). It is recommended that these acute AWQC be used as is or modified to a chronic value using an appropriate factor.

p. 5-4 **[Subsection 5.1.3, Bioaccumulating Chemicals]** Although this section states that bioaccumulation potential will also be used to select COECs, no specific criteria for determining if a chemical is considered to be bioaccumulative are presented. An appropriate criterion could be a log K_{ow} of 4.0, which has been

used to identify bioaccumulative chemicals in the Great Lakes (*EPA. 1994. Great Lakes Water Quality Initiative Technical Support Document for the Procedure to Determine Bioaccumulation Factors. July 1994. EPA-822-R-94-002*).

Table 5-2 — The meaning of NA as stated at the bottom of the table is "screening value not available." This suggests that NA should be used in the AWQC columns for chemicals not having AWQC. Instead, chemicals without AWQC have blanks in the AWQC columns while NA is used in the maximum detected column for Chromium III and VI. Please edit the table.

p. 6-4 — **[Subsection 6.1.1.1, Aluminum, paragraph 2]** This paragraph states that aluminum was not selected as a COEC because the soil pH was relatively high. Application of such criteria should be clearly defined in Section 5.0

p. 6-5 — **[Subsection 6.2]** It would be helpful if a table, such as Table 6-1, was presented for the pesticides and PCBs that summarized the screening results.

Tables 6-3 and 6-4 — It is recommended that these tables be modified to include all of the inorganic chemicals shown in Tables M-10, M-11, and M-12 in Appendix M. It would match the text more closely.

p. 6-25 — **[Subsection 6.1.2.20, Summary of Inorganic Constituents in WET-acid and WET-DI Extractions]** The list of COECs provided at the bottom of the page appear to be incomplete. For example, Table 6-3 shows that arsenic, nickel, and silver exceeds the AWQC in greater than 10 percent of the samples. While barium does not have an AWQC, it was detected in all samples and should have been selected as a COEC. Provide justification for not selecting these chemicals as COECs or include them on the COEC list.

p. 6-29 — **[Subsection 6.1.3.14, Nickel, paragraph 4]** The concept of a regional background concentration for nickel in San Francisco Bay is introduced in this section. This criterion was not described in Section 5.0. Either retain nickel as a COEC and discuss the San Francisco Bay background issue in the uncertainty analysis (Section 12.0) or provide a clear criterion in Section 5.0.

p. 6-31 — **[Subsection 6.1.3.20, Summary of Inorganic Constituents in Surface Water, paragraph 2]** Nickel was found to exceed the AWQC in greater than 10 percent of the samples, but was not selected as a COEC because of the relatively high background concentration in San Francisco Bay. This selection criterion was not defined in Section 5.0. Either retain nickel as a COEC and discuss the San Francisco Bay background issue in the uncertainty analysis (Section 12.0) or provide a clear criterion in Section 5.0.

p. 6-34 — **[Subsection 6.2.1.1, Dioxins and Furans, paragraph 4]** This paragraph states

that dioxins were retained because of their high bioaccumulative potential. How was the bioaccumulative potential determined?

p. 6-41 **[Subsection 6.2.1.2, Summary of Pesticide Detections, paragraph 3]** Endrin ketone, gamma-chlordane, and mirex were not selected as COECs based upon their frequency of detection despite the fact that these chemicals are considered to be bioaccumulative. This is inconsistent with the criteria presented in Section 5.0.

p. 6-42 **[Subsection 6.2.1.4, Semivolatile Organic Chemicals]** This section and Table 6-8 shows that PAHs exceeding screening concentrations at a frequency of less than 10 percent were selected as COECs. This is inconsistent with the criteria presented in Section 5.0. Either revise the criteria presented in Section 5.0 or make the screening presented in Subsection 6.2.1.4 consistent with the Section 5.0 criteria.

p. 6-46 **[Subsection 6..2.1.6, Volatile Organic Compounds]** Please clarify why carbon disulfide was not selected as a COEC when it was detected in 19 percent of the samples and did not have a screening value.

Table 6-11 This table is somewhat contradictory and confusing. For example, aluminum was detected in soil at concentrations exceeding the ambient limit, did not have a screening value and was not selected as a COEC. However, beryllium had the same information and was selected as a COEC. This table should be modified to show the ambient screen, the risk-based screen (preferably a single risk-based screen for each matrix - i.e., the lower of the cover value or ER-L for soil and the lower of the marine or freshwater value for surface water), and a column of additional criteria so that the logic for selection of the COECs can be easily followed.

p. 6-54 **[Subsection 6.3, Summary of COECs Identified for the Tidal Area Sites, paragraph 2]** This paragraph states that COECs for use in food chain modeling were selected from the comprehensive COEC lists based upon availability of toxicity data. Where is the evaluation of the availability of toxicity information presented?

Figures
6-20 to 6-30 Figures showing antimony and beryllium concentrations for the Froid and Taylor Road site are not provided. Are they missing or were antimony and beryllium not detected at this site?

p. 7-3 **[Subsection 7.1.2, Measurement Endpoints, paragraph 5]** One of the measurement endpoints described at the bottom of the page, as well as in Table 7-1, is the comparison of soil concentrations to benchmarks for invertebrates and plants. This seems incongruous with the COEC selection process that used sediment quality values as the risk-based benchmark. Is it possible that

chemicals which are toxic to plants or soil invertebrates could be eliminated from the COEC list based upon a comparison to sediment quality values? If this is true, the evaluation of phytotoxic effects and adverse impacts to soil-dwelling invertebrates is possibly incomplete.

p. 7-4 **[Subsection 7.2, Conceptual Site Model for the Tidal Area Sites]** Neither the text of this section nor Figure 7-1 provides a complete CSM for the site. The CSM must describe a source term, migration pathways, receptors, and exposure routes. The CSM must provide justification why migration pathways and exposure routes are incomplete or insignificant. Much of this information can be found in various other parts of the assessment, but they need to be brought together in the CSM so the rationale for excluding specific migration pathways and exposure routes is clear. It would be appropriate to provide justification of why site-specific impacts to Suisun Bay were not evaluated in this assessment in the CSM.

p. 7-6 **[Subsection 7.2.2, Critical Receptors or Indicator Species (Terrestrial Vertebrates)]** This section identifies six vertebrate species as critical receptors that will be evaluated using food-chain models. Please provide justification for these selections.

p. 8-1 **[Section 8.0, Exposure and Effects Assessment, paragraph 3]** This section states that HIs will be calculated for inorganic and organic chemical groups separately. Please provide justification for this grouping.

p. 8-1 **[Section 8.0, Exposure and Effects Assessment, paragraph 4]** The paragraph states that the soluble fraction of the COEC provided by WET extraction analysis is appropriate for assessing risks from the bioavailable fraction in a screening-level assessment. We suggest that the screening-level risks be estimated only on the total concentrations of chemicals and that the results of WET analysis be presented in the uncertainty analysis. This is particularly true since it is difficult to compare soil/sediment screening values expressed in mg/kg with ambient water quality criteria expressed in mg/L.

p. 8-2 **[Subsection 8.2, Spatial Distribution of Exposure Concentrations, paragraph 1]** It is unclear if HQs and HIs are calculated for just COECs or for all detected chemicals. Review of Tables Q-1 and Q-2 in Appendix Q suggests that HQs and HIs were calculated for all detected chemicals (e.g., Subsection 6.1.1.3 states that arsenic is not a COEC while Table Q-1 shows an HQ for arsenic). Chemicals not identified as COECs should be eliminated from the HQ and HI tables.

p. 8-4 **[Subsection 8.2.1, Hazard Indices for Soil and Sediment, paragraph 3]** The last sentence of this paragraph needs to be modified.

p. 8-8 **[Subsection 8.2.3, Surface Water Hazard Indices]** This section presents HQs and HIs for chemicals that were not identified as COECs in Section 6.0 (e.g.,

iron). HQs and HIs should not be calculated for chemicals that are not identified as COECs.

p 8-12 **[Subsection 8.3.1, Microtox]** As stated in one of the general comments, it is unclear how results of the Microtox test are to be evaluated. Specific criteria must be provided so that the reader can easily interpret the test results.

p. 8-12 **[Subsection 8.3.1, Microtox, paragraph 2]** This paragraph describes significant correlations between Microtox and lead, nickel, arsenic, and chromium. These correlations do not appear in Tables 8-3 or 8-4. Please provide a table showing all correlations.

p 8-13 **[Subsection 8.3.2, Cytochrome P450 Analysis: Background and Results]** As stated in one of the general comments, it is unclear how results of the P450 test are to be evaluated. Specific criteria must be provided so that the reader can easily interpret the test results.

Table 9-1 There may be an error in the units for some of the values. For example, for aluminum the range of total concentration is 0.5 - 10 percent, whereas the high or toxic value is 1 - 5 ug/g. Please check the units.

Table 9-3 This table should list all the COECs, including the organic chemicals, whether they have a benchmark value or not. Why does nickel appear in the table when it was not identified as a COEC? Please provide a footnote for DL.

p. 9-5 **[Subsection 9.3, Comparison with Benchmark Values, paragraph 2]** Table 9-3 shows that the maximum detected concentrations of antimony, barium, nickel, silver and thallium exceeded the benchmark values, but they were not identified as posing a potential adverse effect. Presumably this conclusion was reached because these chemicals were not identified as COECs. Please clarify.

p. 9-5 **[Subsection 9.4, Risk Characterization Summary for Plants, paragraph 4]** The last sentence states that organic chemicals do not appear to be clearly linked to adverse plant effects. On what is this conclusion based? Please provide justification for this conclusion.

p. 10-2 **[Subsection 10.1.3, Solid-Phase and Organic-Extraction Microtox, paragraph 3]** The last sentence of this paragraph states that few, if any, risks appear to be likely, based upon Microtox results. The rationale for this conclusion is unclear. As stated in several other comments, no clear criteria are presented to evaluate the results of the Microtox test. Those criteria should be presented in Subsection 8.3.1 or some other appropriate section.

p. 10-3 **[Subsection 10.1.14, Cytochrome P450, paragraph 1]** This paragraph presents the results of the P450 tests, but does not make a clear statement about whether these results suggest that there is a risk to soil-dwelling organisms. As stated in several other comments, no clear criteria are presented to evaluate the results of

the P450 test. Those criteria should be presented in Subsection 8.3.2 or some other appropriate section.

p. 11-5 **[Subsection 11.1.1, Deterministic Food-Chain Model]** This page provides an interpretational framework for the HQs calculated using High and Low TRVs. Please clarify if this interpretation was also a product of the BTAG review process. If not, additional justification for the framework is required.

p. 11-12 **[Subsection 11.2, Exposure Assessment]** Much of the discussion on complete or significant exposure routes presented in this section would more appropriately belong in the CSM presented in Subsection 7.2.

p. 11-16 **[Subsection 11.2.1.1, Exposure Point Concentrations in Environmental Media, paragraph 1]** Instead of providing an argument for why the TEF evaluation was not done, it would be more appropriate to simply do the evaluation using the TRV for dioxin to demonstrate that risks are below a level of concern.

p. 11-19 **[Subsection 11.2.1.4, Exposure Point Concentrations in Vertebrates (Mouse, Vole, and Meadowlark, paragraph 2]** This paragraph states that body burdens in prey receptors were assumed to be equivalent to the daily dose estimates calculated for the prey species. Is this a conservative approach? A technical justification for this approach is required. Also, non-site-specific bioaccumulation factors can be obtained for most of the COEC for at least mammals from the published literature. Since site-specific information is lacking, it would be preferable to use the highest published soil-to-receptor bioaccumulation factor whenever possible.

p 11-19 **[Subsection 11.2.2, Trophic-Transfer Coefficients, paragraph 4]** A technical justification (e.g., appropriate literature citation) for using the generic 10 percent TTC is needed before this approach can be deemed acceptable.

p. 13-9 **[Subsection 13.5.1, Tidal Area Landfill]** It is difficult to draw any conclusions about the landfill since no samples were collected from directly beneath or within the landfill.

Table 13-1 This table would be more useful if it was organized by site.

NAVAL WEAPONS STATION CONCORD RESTORATION ADVISORY BOARD MEMBERSHIP AND ASSOCIATED PERSONNEL ACCESS LIST FOR IA-2

Sheet1	A	B	C	D	E	F	G	H	I	J	K	L	M
1	LAST NAME	FIRST NAME	ST. #	ST. NAME	APT/SUITE	COMMUNITY	ST	ZIP CODE	COMMENTS		WORK	FAX	HOME
1	LAST NAME	FIRST NAME	ST. #	ST. NAME	APT/SUITE	COMMUNITY	ST	ZIP CODE	COMMENTS		WORK	FAX	HOME
2	Bachofer	Steven	20	Valley Court		Pleasant Hill	CA	94523		bachofer@stmarys-ca.edu	5108314694	5103764027	5108471453
3	Bosche	John	135	Main Street	1800	San Francisc	CA	94105	PRC Environmental Management Inc.	boschej@prcemi.com	4155434880	4155435480	4152226295
4	Buford	Shirley	700	Heinz Ave	Suite 200	Berkeley	CA	4710-273	Community Relations Specialist For Ca. EPA, DTSC, Region 2. An associated person.				
5	Etzel	Scott	*****	Encima Drive		Concord	CA	94519					5108279576
6	Gallo	Steve	925	Meadowvale Court		Martinez	CA	94553		sag9@can02.pge.com	5104273450	5104273597	5103707969
7	Gardner	Edward	128	Norman Avenue		Clyde	CA	4520-1105			5108358550	5109324508	5106861837
8	Gladstone	Susan	*****	Webster St	Suite 500	Oakland	CA	94612	Environmental Specialist for Ca. EPA, Regional Water Quality Control Board. Address shown is work address	105144.714@compuserve.com	5102860840	5102861380	
9	Haas	Jim	*****	Cottage Way	E-1803	Sacramento	CA	95825	US Fish and Wildlife Service		9189785605	9169784618	
10	Klimas	Denise	75	Hawthorne Stre	H-1-2	San Francisc	CA	94105	National Oceanic and Atmospheric Administration		4157443126	4157443123	
11	Kotecki	Sylvia	*****	Granzotto Drive		Concord	CA	94519			5106855762	5106856741	5106861964
12	Martin	Michael	20	Lower Ragsdale	100	Monterey	CA	93940	CA Department of Fish and Game		4086497178	4086492894	
13	McNaughto	Eugenia	75	Hawthorne St.		San Francisc	CA	94105	U.S. EPA previous interim RPM, continuing advisor.	Mcnaughton.Eugenia@epamail.e	4157441836		
14	Monahan	Colleen	*****	Juniper Drive		Concord	CA	94519			7077451099	7077451598	5106892195
15	Moutoux	Nicole	75	Hawthorne St.		San Francisc	CA	94105	Remedial Project Manager (SFD8-2), U.S. EPA	Moutoux.Nicole@epamail.epa.go	4157442368	4157441916	
16	Pieper	Richard	10	Delta St		Concord	CA	4520-510	WPNSTA Concord employee, Code C92. Navy Co-Chair on RAB.	Rich_P@fs.nwscon.sea06.navy.	5102465650	5102462003	
17	Pinasco	James	*****	Croyden Way	Suite 3	Sacramento	CA	95827	Remedial Project Manager for Ca. EPA, Dept. Of Toxic Substance Control. Add Region 1, Site Mitigation Branch to work address at left.		9162553719		
18	Purdue	Richard	30	Kirkwood Court		Concord	CA	94521	RAB member since Feb. 96.		5108250547		5108250547
19	Rosengard	John	525	Hampton Road		Piedmont	CA	94611	Community Co-chair	rosengard@earthlink.net	5106018740	5106552015	5106550715
20	Roy	Catie	*****	Fallbrook Road		Concord	CA	94521					5107984178
21	Santana	Roy	900	Commodore Dr	Bldg. 208	San Bruno	CA	4066-240	Remedial Project Manager for Navy's Engineering Field Activity West	resantana@efawest.navfac.navy.	4152442523	4152442774	
22	Shirley	Thomas		P. O. Box 114		Concord	CA	94519					5106717693
23	Sylls	Gene	1814	Wildbrook Court		Concord	CA	94521			4155613563		5106917503
24	Steinwandt	Larry	*****	Lillian Drive		Concord	CA	94521		larry.steinwandt@csb.varian.com	5109392400	5109452102	5106859350
25	Vig	Anju	135	Main Street	1800	San Francisc	CA	94105	PRC Environmental Management Inc.	viga@prcemi.com	4152226224	4155435480	
26	Walsh	Kathy	135	Main Street	1800	San Francisc	CA	94105	PRC Environmental Management Inc.	walshk@prcemi.com	4152226254	4155435480	
27	Brown	Darlene	*****	Mariner Square	Suite 250	Alameda	CA	94501	Guiterrez-Palmenberg	darlene.b@gpimail.com	5107498277	5107498278	