



Department of Toxic Substances Control



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March 7, 2008

Mr. James B. Sullivan
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COMMENTS TO THE REVISED DRAFT REMEDIAL INVESTIGATION REPORT FOR INSTALLATION RESTORATION SITES 8, 28, AND 29, FORMER NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA

Dear Mr. Sullivan:

The Department of Toxic Substances Control (DTSC) has received and reviewed the November 19, 2007 *Revised Draft Remedial Investigation Report for Installation Restoration Sites 8, 28, and 29, at the Former Naval Station Treasure Island, San Francisco, California* (Draft RI Report). The Draft RI Report provides the remedial investigation results for Installation Restoration Site 8 (Army Point Sludge Disposal Area), Site 28 (West Side On-Off Ramp), and Site 29 (East Side On-Off Ramp) at the former Naval Station Treasure Island (NSTI). Based on our review, DTSC provides the following comments:

GENERAL COMMENTS:

- The Draft RI Report acknowledges that construction activities for the San Francisco-Oakland Bay Bridge (SFOBB) are currently disturbing / removing soil in portions of Site 8 (Army Point Sludge Disposal Area) and Site 29 (East Side On-Off Ramp). Caltrans is also planning to remove additional soil as SFOBB construction progresses. However, data included in the Draft RI Report are from investigations conducted from 1992 to 2002 for Sites 8 and 29. Additional investigation activities will therefore be necessary once SFOBB construction is complete because significant soil mixing, removal, and/or potential releases may occur after the data was collected in 2002. As a result, DTSC requests that the data and information for Site 28 be submitted in a stand-alone Remedial Investigation Report document. Another document with data collected from 1992 to 2002 for Sites 8 and 29 will then properly serve as a current status report.

- Given that the past land use for Site 8 includes sludge disposal from the wastewater treatment facility on Treasure Island between 1968 and 1976, the contaminants of potential concern for this area should be expanded to include analyses for PCBs as a part of future investigation activities. Additional investigation activities will be necessary once SFOBB construction is complete because significant soil mixing, removal, and/or potential releases may occur after the data was collected in 2002.
- In previous comments on IR Sites 8, 28 and 29, any uncertainty in the Ecological Risk Assessment (ERA) for terrestrial receptors (i.e., small mammals) could be addressed as part of the consideration of remedial alternatives for the adjacent IR Site 11, the Coast Guard Landfill. Transfer of IR Site 8 and 29 to the California Department of Transportation (Caltrans) by the Federal Highway administration (FHWA) for construction of the new SFOBB removes this option.

SPECIFIC COMMENTS:

- Signature page. Hazardous substance characterization and remediation work shall be performed under the direction and supervision of a qualified professional engineer or geologist in the State of California, with expertise in hazardous substance site cleanups in accordance with the California Business and Professions Code sections 6735, 7835, and 7835.1, and other applicable law. Therefore, the final RI Report must be reviewed and approved with signature and stamped by a professional engineer or geologist.
- Executive Summary, Site History subsection, paragraph four. The text should be revised to clarify if Treasure Island Road is included within the boundaries of Site 28 or if the western edge of the roadway serves as the Site 28 boundary.
- Section 1.6.1 – Site 8 Previous Investigations, Site Investigation (Caltrans) subsection, page 1-11. Boring “W2LD” is listed twice. One of the two should be changed to “W2LC”.
- Section 1.6.2 – Site 28 Previous Investigations and Figure 1-5.
 - = Health and Safety Soil Sampling Investigation subsection. The text discusses and references a soil investigation (Blaine 1993) but the Draft RI Report does not present the data. The report must be revised to include the sampling data.
 - = Two large areas, one to the west of sample point 28-SB004 and one to the south of sampling point 28-SB008, have not been sampled to date. An explanation should be provided in the text (e.g. access, steeply sloped, densely vegetated). These uncharacterized areas should be sampled as a part of additional Site 28 characterization.
 - = An explanation should be provided in the text to identify why only metals analyses have been conducted to date in Site 28 soil samples. No analyses

for additional contaminants of potential concern (petroleum hydrocarbons, PAHs) have been conducted to date.

- Section 1.9 – Site Conceptual Model. While the text states that it “The slope of Site 28 is too steep to allow for residential / commercial construction activities or safe access for a recreational user”, please be aware that if soil contaminant concentrations exceeding residential / unrestricted land use levels remain onsite, a land use covenant prohibiting future residential use will still be required.
- Table 1-1: Summary of Previous Reports or Investigations. Text in the Summary of Investigation Activities column, or a new column should be added that indicates if the reports were approved by regulatory agencies with the approval correspondence date.
- Section 6.1.3 – Exposure Assessment. Paragraphs two and three. The DTSC is not aware of any formal “land use restrictions” for Site 28. Please clarify or remove from the report text.
- Section 6.2.2 – Site 28 Summary of Cancer Risks . . . Site 28 Lead Summary subsection. The text states that the 99th percentile blood-lead concentration is 6.4 $\mu\text{g}/\text{dL}$ for the adult resident and 38.1 $\mu\text{g}/\text{dL}$ for the child resident with a lead EPC of 830 mg/kg. However, it is unclear how these estimates are generated because Table G-10.2.1 indicates that the blood-lead concentrations are 4.2 and 20.6 $\mu\text{g}/\text{dL}$ for adult and child residences respectively. The same comment applies to Appendix G, Section G11.2.1.
- Section 7.0 – Ecological Risk Assessment. The Phase II Screening Level Ecological Risk Assessment (SLERA) for Sites 8, 11, 28 and 29 indicated potential hazard for the deer mouse in addition to the peregrine falcon. Please amend the text to include the SLERA potential hazard for the deer mouse, mainly at IR Site 11 sample locations.
- Section 7.2.1.2 – Site 28 – West Side On-Off Ramps. The boundary of IR site 28 has been amended since the previous ecological risk assessments to transfer a portion along the southern boundary to IR Site 29. When listing results of previous ecological investigations (e.g., ecological stressors, Section 7.2.3.1, page 7-7), please indicate whether the designator of ‘Site 28’ and ‘Site 29’ refer to the original or revised boundaries.
- Table 7-5 through 7-7. The notes on the soil ingestion rate in the ecological exposure parameter tables should be amended to indicate that the soil ingestion rates based on a percentage of food ingestion rates (Table 7-6 and 7-7) are based solely on the upper estimate of the food ingestion rate.
- DTSC does not accept the recruitment from nearby populations as protective for small mammalian (i.e., rodent) populations where Hazard Quotients (HQs) exceed one without more detailed evaluation of population-level measures of

effect (e.g., blood lead levels). DTSC acknowledges, however, that this argument was presented in the SLERA for Sites 8, 11, 28 and 29, and that that majority of sample locations indicating a potential hazard for small mammals were in IR Site 11, which is not the focus of this document. Please amend the text to indicate that this argument was presented in the SLERA, not as an accepted statement.

- DTSC requested the presentation of an Exposure Point Concentration (EPC) used in the SLERA, the Validation Study and an EPC calculation which includes the soil sample results collected since the completion of the Validation Study Report. These EPC values (Table 7-14) indicate that, based on the larger data set which includes the more recent soil sample results, the dose would increase only for lead and Low Molecular Weight (LMW) Polycyclic Aromatic Hydrocarbons (PAHs) at IR Site 8. All other EPCs, and therefore ecological hazard, for Contaminants of Potential Ecological Concern (COPECs) at IR sites 8, 28 and 29 would decrease. Given the current marginal habitat and expected continued disturbance due to continuing SFOBB construction, DTSC considers the marginal increase in lead and LMW PAH concentrations of minimal impact.

Please provide a response to the comments provided above as well as in the enclosed memorandum provided by DTSC's Human and Ecological Risk Division by April 7, 2008. If you have any questions, please contact me at (510) 540-3775.

Sincerely,



Ryan Miya, Ph.D.
Senior Hazardous Substances Scientist
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Enclosure

Copies sent via email transmission.

cc with enclosure:

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Continued on the following page

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Mr. Sullivan
March 7, 2008
Page 6

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TO: Ryan Miya
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FROM: Brian K. Davis, Ph.D. *Brian K. Davis*
Human and Ecological Risk Division

DATE: March 4, 2008

SUBJECT: Remedial Investigation Report Sites 8, 28, 29
PCA: 18040 Site: 201210

BACKGROUND

Documents Reviewed: (1) *Draft Revised Remedial Investigation Report for Installation Restoration Sites 8 (Army Sludge Disposal Area), 28 (West Side On-Off Ramps), and 29 (East Side On-Off Ramps).* (2) *Briefing Paper on the Revised Remedial Investigation Report for Installation Restoration Sites 8, 28, and 29.* Naval Station Treasure Island, San Francisco, California. Prepared for Base Realignment and Closure Program Management Office West, San Diego, CA. Prepared by SulTech, A Joint Venture of Sullivan Consulting Group and Tetra Tech EM Inc. Dated November 19, 2007.

Nature of the Facility and Sites 8, 28 and 29 (based on this and other Navy documents): Naval Station Treasure Island is a closed base located in San Francisco Bay. The facility includes Yerba Buena Island, a natural island of about 147 acres, and Treasure Island, constructed of materials dredged from San Francisco Bay, and encompassing about 403 acres. The U.S. Coast Guard owns 30 acres on Yerba Buena Island. Military activities at Naval Station Treasure Island date from 1866. Naval Station Treasure Island was designated for closure in 1993 and closed on September 30, 1997.

Sites 8, 28 and 29 are all located on Yerba Buena Island. Site 8, the Army Sludge Disposal Area, is at the east end of the island. In the past, this area was the site of personnel quarters, the structures are no longer present. From 1968 to 1976, waste sludge from the waste water treatment facility was spread on the ground at Site 8 to "dewater" the sludge. The fate of the dried sludge is unknown. Site 8 is covered by loose soil, small trees and shrubs. Because of San Francisco-Oakland Bay Bridge

construction activities, one half to two thirds of surface soils have been disturbed. Construction activities by Caltrans are ongoing. The Federal Highway Administration transferred the title to Site 8 from the Navy to Caltrans in 2001.

Site 28 ("West Side On-Off Ramps") is on the southwest part of Yerba Buena Island, between San Francisco Bay and Treasure Island Road. It is bounded by Site 29 at the western portion of the Bay Bridge. Site 28 includes the West Side On-Off Ramps. The Navy owned the property comprising the ramps and the area under the bridge until 2001, when the Federal Highway Administration transferred the bridge right-of-way and ramps from the Navy to Caltrans. Caltrans was identified as a potentially responsible party in the transfer deed. A boundary adjustment was made in 2005 to place all lands deeded to Caltrans into Site 29 (Section 1.8 of this document). This document doesn't identify any sources of contamination resulting from Navy activities at Site 28.

Site 29 ("East Side On-Off Ramps") consists of two parts, the land below and parallel to the Bay Bridge from the northeastern edge of Yerba Buena Island westward to the eastern tunnel opening and the land below the Bay Bridge from the western tunnel opening to the southwestern edge of the island. The soil beneath and surrounding the ramps and the bridge are subject to contamination by lead and other metals from vehicle emissions and from bridge painting and maintenance. This document doesn't identify any sources of contamination resulting from Navy activities at Site 29.

Scope of Review: The document was reviewed for scientific content related to human health risk assessment issues. Ecological risk assessment issues are addressed in a separate memorandum by Dr. James Polisini (DTSC, 2008).

GENERAL COMMENTS

1. OVERVIEW OF HUMAN HEALTH RISK ASSESSMENT.

- A. Sites 8 and 29 were transferred from Navy property to Caltrans property by the Federal Highway Administration in 2001 (Section 1.5 of the Remedial Investigation Report). This has several consequences. The purpose of this comment is to provide background information and the Navy need not respond.
 - i. Caltrans is a potential responsible party (e.g., Executive Summary).
 - ii. The Naval Station Treasure Island Reuse Plan is irrelevant for Sites 8 and 29.
 - iii. Construction work on the Bay Bridge has substantially changed the soils at both sites, meaning that sample data do not represent current conditions.

- iv. The Navy has stated (Section 8.7) that it cannot access Sites 8 and 29 and therefore the Navy could not take current samples or perform remediation.
 - v. The risk assessment therefore reflects conditions that existed at some time in the past.
- B. Site 28 remains under Navy control. The only analytes at Site 28 were inorganic chemicals. Presumably, the sample data reflect current conditions. Please respond to the accuracy of this assumption.
- C. The human health risk assessment includes problems that have been identified in our previous memoranda (see General Comments 2, 5, and 7). This practice of reproducing the same methods and results will generate the same regulatory comments, which only serves to delay the process. If the Navy consultant feels that there are mitigating circumstances that address our previous comments for specific sites, the issues should be resolved before any future risk assessment is prepared.
2. DATA QUALITY OBJECTIVES (DQOS). Although DQOs are mentioned in passing (Sections 1.3 and 6.1.1; Section G5.0 of Appendix G) as being part of the remedial investigation process, it appears that none has been developed for these sites. The report should acknowledge that fact and should address the question of how the adequacy of site characterization has been evaluated in the absence of DQOs. See also General Comment 10.
3. SOURCES OF CONTAMINATION.
- A. The report ("*Conceptual Site Model*", Section 1.9) lists the components of a Conceptual Site Model, beginning with "*The suspected sources and types of contaminants present*" and "*Contaminant release and transport mechanisms*". However, the text in Section 1.9 considers only the possible receptors, with no discussion of sources and contaminants. Similarly, the risk assessment (Appendix G) takes a very narrow view and limits the Conceptual Site Model to aspects of exposure (Sections G8.0 and G12.2.2 of Appendix G). Please expand the discussion in the text to include all aspects of the Conceptual Site Model.
 - B. The illustration of the Conceptual Site Model (Figure G-2 of Appendix G) does have the following text under "*Primary Source*": "*Sites 8, 28, and 29: Bay Bridge Maintenance and Vehicle Emissions, Sludge Drying (Site 8), Underground Storage Tanks and Fuel Pipelines (Site 29)*". The report should explicitly address all potential sources of contamination. If sources from Navy use of these sites

were looked for and none were found, this should be stated. If Navy sources are known, they should be identified and described.

- C. The report (Section 6.1.1.1) states that "*Site 28 soil samples were not analyzed for volatile compounds. Historical use of this site indicates no use of solvents or other activities to suggest the presence of volatile chemicals.*" This information should be discussed in context of Site 28 background. What was the historical use of Site 28?
- D. The report (Section 2.2) does state that 15 soil samples were taken "...*from the 0- to 1-inch horizon*" during an investigation in 2002, but these are not mentioned in Section 6.1.1.1. Please add a discussion of how these soil samples were applied in the risk assessment.

4. PROPOSED REUSE.

- A. Both the Briefing Paper (Section 4.0) and the Remedial Investigation Report (Sections 1.5.4 and 8.2) refer to the Naval Station Treasure Island Reuse Plan. The purpose of this comment is to provide background information and the Navy need not respond.
 - i. The proposed reuse for Site 8 is "*residential and publicly oriented space*". The "*publicly oriented space*" use is explained as "...*may be defined as hotels, theme park attractions, film production, destination entertainment activities, and active and spectator recreations areas*". This reuse category use appears to be a place-holder to allow for any option. As such, it provides no useful direction with respect to risk assessment or risk management.
 - ii. The proposed reuse for Site 29 is "*residential, publicly oriented, and institutional*". The preceding comments about "*publicly oriented space*" apply as well to Site 29 as to Site 8. The vague "*institutional*" use is said to refer to the Bay Bridge and associated on-ramps and off-ramps.
 - iii. Since Site 8 and Site 29 are no longer Navy property (General Comment 1), the Naval Station Treasure Island Reuse Plan is not relevant to either site.
 - iv. Finally, given the location of these sites and the current activities, these proposed reuses seem implausible.
- B. The proposed reuse for Site 28 is said (Section 1.5.4) to be shoreline open space. The report also states that "*The future use of Site 28 may be further limited if it is included in the Tidelands Trust.*"

- C. Given the location and nature of these three sites, any residential use seems unlikely. However, the report (Sections 1.5.4 and 8.2) also states that "...*the Reuse Plan leaves open the possibility of employee housing*" for Site 8. The report doesn't specify whether this applies to Site 29 as well. The inclusion of the residential scenario in the risk assessment can provide some information about the most stringent land use.

5. SURFACE SOIL.

- A. We have repeatedly and consistently pointed out (DTSC, 2005a, 2005b) that zero to **two feet below ground surface** is not surface soil. We accepted that questionable definition of surface soil for risk assessments for Sites 30 and 31 because the issue had not been discussed prior to the development of the data tables, selection of chemicals of potential concern, and determination of exposure point concentrations. Our reviews for Sites 32 and 11, (DTSC, 2007a, b) stated that current risk assessments should apply a defensible definition of surface soil.
- B. The present report is dated November, 2007. It is therefore disappointing that it. (Section 6.1.1.1) simply asserts without comment that for Sites 8 and 29, surface soil is zero to two feet and subsurface soil is two to ten feet. Our recommendations are given below in part G.
- C. The presentation of soil data for Site 28 also consistently refers to surface soil as zero to two feet below ground surface (e.g., Section 6.1.2; Sections G7.1.2, G7.1.3 and G7.1.3.1 of Appendix G). As discussed above, zero to two feet is not surface soil. It is also ironic, because this misrepresents the soil data for Site 28. The report states elsewhere (Section 6.1.1.1) that "*At Site 28, soil samples were only collected to a depth of 1.75 feet bgs...*" The list of samples taken at Site 28 (Table 1-4) shows that only total 23 samples were taken. Of those, ten were taken at zero to 0.5 feet. Thus, there are actual surface sample data for Site 28.
- D. The report (Section 2.2) also states that 15 soil samples were taken at Site 29 "...*from the 0- to 1-inch horizon*" during an investigation in 2002, but these are not mentioned in Section 6.1.1.1 and they do not appear in Table 1-5.
- E. Surface soil (zero to 0.5 feet) samples are also available for Site 8 (Table 1-3) and for Site 29 (Table 1-5).
- F. The issue of soil depth is particularly significant for immobile contaminants, such as the inorganic chemicals and polycyclic aromatic hydrocarbons found at these

sites. Immobile contaminants are likely to be at higher concentrations in actual surface soil. Since the risk assessment is based on soil depths considerably below surface for each of the three sites, exposure point concentrations may have been underestimated, resulting in underestimates of risks and hazards.

- G. Please revise the report for accuracy.
- i. Please describe the soil data for Site 28 accurately and provide risk assessment based on surface soil samples. If the Navy wishes to pool all of the data, then a statistical evaluation of homogeneity is needed to justify doing so.
 - ii. Please provide an evaluation of soil data by depth for Sites 8 and 29. We are aware that the analytes differed for different samples (Tables 1-3 and 1-5).
 - iii. If the data are adequate, risk assessment for Sites 8 and 29 should be based on surface soil data, as well as subsurface (zero to 10 feet) data. If the data are not adequate, this should be demonstrated and there should be a discussion of whether this constitutes a significant data gap.
6. RISK ASSESSMENT METHODS. The Navy need not respond to this description of the risk assessment methods, with the exception of changing Section 6.2 to include total risk and hazards (part C).
- A. The document uses two different human health risk assessment approaches. Method 1 (Section 6.1.2; Appendix G, Section G7.0) eliminates COPCs based on: (a) comparison to ambient concentrations of inorganic chemicals, (b) comparison to screening concentrations (Preliminary Remediation Goals or PRGs), (c) infrequent detection, and (d) essential nutrients (calcium, magnesium, sodium and potassium). Method 1 also uses only U.S. EPA toxicity criteria (Section 6.1.4; Appendix G, Section G9.0). Method 2 eliminates chemicals of potential concern (COPCs) based on: (a) comparison to ambient concentrations of inorganic chemicals, and (b) essential nutrients (calcium, magnesium, sodium and potassium). Method 2 uses Cal/EPA and U.S. EPA toxicity criteria.
 - B. We have stated previously that DTSC accepts the elimination of infrequently detected chemicals as COPCs, provided that other factors (toxicity, potential for bioaccumulation, records of historical use, magnitude of the concentrations, persistence in the environment, spatial distribution, and known sources of contamination) are considered. Nonetheless, the Navy has again chosen to apply this criterion only for Method 1, but not for Method 2.

- C. An additional evaluation was done to assess the total risks and hazards for all detected chemicals (Section 6.2.4; Section G3.2 of Appendix G). Risk and hazard indices were evaluated for inorganic chemicals which were identified as consistent with ambient concentrations. These results were summed with the Method 2 results to provide estimates of total risks and hazards.

The estimates of total risks and hazards have been relegated to Appendix G, with summaries appearing in Sections G11.1.4, G11.2.2 and G11.3.4 and the details in Attachment G5 to Appendix G. Please report these results along with the results from Method 1 and Method 2 in Section 6.2.

- D. The application of Method 1, Method 2, and total risk and hazard have been discussed at length in meetings and through document reviews. We have accepted these approaches. However, we have pointed out that screening chemicals with generic risk-based numbers can result in apparent inconsistencies between the different methods. We have also stated that neither Navy risk assessment guidance nor U.S. EPA guidance requires that the selection of COPCs include screening criteria comparisons.
- E. This report has made an important modification to Method 1, which addresses a major flaw in Method 1. This modification is to include volatile chemicals detected in soils in the Method 1 risk assessment (Section 6.1.2). The screening values used to eliminate COPCs in Method 1 are the PRGs. U.S. EPA (2004) explains that PRGs are based on a subset of exposure pathways and that the user must not use them inappropriately when additional exposure pathways may be significant. Past risk assessments for Treasure Island have excluded volatile chemicals based on PRGs, thereby ignoring the potential for vapor intrusion into indoor air. We thank the Navy for appropriately addressing this issue.

7. VAPOR INTRUSION INTO INDOOR AIR.

- A. For the reasons discussed below, we do not think that the evaluation of the potential for vapor intrusion into indoor air at Sites 8 and 29 (Attachment G2 of Appendix G) provides useful information. However, we do not recommend revising it.
- B. We did not do a detailed review of Attachment G2 because of the great uncertainties for these two sites.
- C. The evaluation of indoor air is based on bulk soil data, rather than soil gas data, for both Site 8 and Site 29. No evaluation was done for Site 28. Bulk soil data

are known to be unreliable for this purpose. Furthermore, only five soil samples were analyzed for volatile organic chemicals (VOCs) at Site 8 (Table 1-3).

- D. The Uncertainty Analysis (Section 6.3; Section G12.2.2 in Appendix G) in the report does discuss the fact that the use of bulk soil data is not recommended for modeling vapor intrusion into indoor air. Unfortunately, the report draws an incorrect conclusion, "*It is possible that the potential risks estimated for this pathway may have been slightly over- or underestimated given the uncertainties in modeling vapor intrusion from subsurface soil as cited by EPA (2002a).*" It is well established that older methods of collecting and analyzing VOCs from bulk soil greatly underestimated contaminant concentrations and that current methods remain unreliable. It misrepresents the EPA reference to suggest that vapor intrusion model based on bulk soil data can overestimate risks or hazards.
- E. We have previously noted that the current Johnson and Ettinger model should be used rather than an out-of-date version of the advanced model (e.g., DTSC, 2007a).
- F. The considerable uncertainty of the evaluation of this particular exposure pathway is compounded by the activities of Caltrans at Sites 8 and 29.

8. LEAD.

- A. Maximum concentrations of lead in soil were 288 mg/kg at Site 8 (Table G-2.1.1 in Appendix G), 1,120 mg/kg at Site 28 (Table G-2.2.1 in Appendix G), and 4,410 mg/kg at Site 29 (Table G-2.3.1 in Appendix G).
- B. The Method 1 screening applied the U.S. EPA Region 9 PRG of 400 mg/kg for residential use in the selection of COPCs. Therefore, lead was not selected as a COPC for Site 8, but was selected for Sites 28 and 29. Had the Cal-modified PRG been applied, lead would have been selected as a COPC for Site 8 as well. In any case, lead was selected as a COPC for all three sites in the Method 2 risk assessment.
- C. Lead is clearly a potential concern at both Sites 28 and 29, based on considerations of children for the residential scenario and considerations of reproductive aged female workers for the industrial worker scenario.

- 9. EXPOSURE POINT CONCENTRATIONS. Statistical methods for the evaluation of soil data are presented in Appendix F. The calculation of exposure point concentrations (Section F2.0 of Appendix F) should be done with U.S. EPA's ProUCL version 4. The report references the older version 3.

10. CONCLUSIONS AND RECOMMENDATIONS (SECTION 8.7).

- A. This section begins with the statement that *"The nature and extent of contaminants at Sites 8, 28, and 29 and the sites geologic and hydrogeologic conditions have been adequately characterized."* We find no discussion in the rest of Section 8.0 (*"Conclusions and Recommendations"*) to substantiate this assertion. As we noted in General Comment 2, the report lacks Data Quality Objectives and fails to address the adequacy of site characterization. The report must provide criteria for determining whether contamination has been adequately evaluated, and determine whether each of these three sites is adequately characterized.
- B. This section ends with the sentence, *"Based on these conclusions, NFA is recommended for Sites 8, 28, and 29."* Taken literally, the Navy has no alternative to NFA, since *"Legal title for Site 8 (and for Site 29) has been given to Caltrans by the FHA, and the Navy has no authority to direct sampling or enact remediation strategies for this site."* Therefore, if further sampling is needed or if remediation is needed, there appears to be no mechanism to do so.

However, concentrations of lead as high as 1,120 mg/kg or 4,410 mg/kg should not be ignored. The risk managers will need to determine the Navy's long-term responsibilities and options for fulfilling those responsibilities.

11. BRIEFING PAPER SITE CLOSEOUT STRATEGY.

- A. The Briefing Paper supports the recommendation for no further action (NFA) with several lines of argument. First, *"Chemicals at these sites are the type one would expect in soils adjacent to a long-active roadway and bridge (primarily polycyclic aromatic hydrocarbons [PAH] and lead)." While this statement may be correct, it doesn't necessarily support the recommendation.*
- i. The report needs to make the case that site characterization was adequate to detect any contaminants from Navy sources (General Comments 2 and 10).
 - ii. From the standpoint of protecting human health and the environment, these chemicals have the same potential for harm, whether the sources were the roadway and bridge or the Navy activities:
- B. Second, *"The concentration levels and types of chemicals detected at Sites 8 and 29 are low, and risks are well within the U.S. Environmental Protection Agency (EPA) and CERCLA risk management range."*

- i. Cancer risk estimates for Site 29 exceed the risk management range, by Method 2 (Section 6.2.3).
 - ii. Cancer risk estimates have likely been underestimated, based on our preceding comments.
 - iii. Neither U.S. EPA nor DTSC considers 1,120 mg/kg or 4,410 mg/kg of lead as "low".
- C. Third, "*Hazard indices (HI) exceed 1 only for the hypothetical future child resident scenario at Sites 8 and 29.*" The fact is that the hazard indices are about an order of magnitude above one for Site 29, by both Method 1 and Method 2. We agree that a residential scenario is highly unlikely at any of these three sites. On the other hand, if there is a purpose in performing the risk assessment, then the results cannot simply be dismissed. The risk managers will need to consider whether land use restrictions are needed and how they can be implemented.
- D. Finally, this section of the Briefing Paper states that "*A Feasibility Study (FS) is recommended only if restrictions and conditions change enabling residential development at Sites 8 and 29.*" This recommendation may be impractical if the Navy has no control over these two sites. The risk managers will need to determine any ongoing Navy responsibilities and how these can be carried out.

SPECIFIC COMMENTS

1. Figures 1-3, 1-4 and 1-5. Please clarify the column heading "TMETAL".
2. Section 9.0. In our copy of the document, the tab is incorrectly labeled "Appendix C", rather than "Section 9.0".
3. Figure G-2 of Appendix G. We recommend that this flow chart for the selection of COPCs be modified to show that Method 1 now retains VOCs for consideration of vapor intrusion into indoor air.

CONCLUSIONS

1. The practical utility of this report, with respect to Sites 8 and 29, is uncertain. Since the deed to both sites has been transferred to Caltrans, the Navy states that it cannot do further sampling and cannot do remediation.
2. The report should provide an explicit description of historical activities by the Navy at the three sites.
3. The report should provide criteria and an evaluation to support the statements that site characterization is complete and adequate.
4. Site 28 remains under Navy control. The only analytes at Site 28 were inorganic chemicals. Presumably, the sample data reflect current conditions and therefore, the risk assessments also reflect current conditions.
5. Because of ongoing Caltrans activities at Sites 8 and 29, the sample data do not reflect current conditions and therefore, the risk assessments do not reflect current conditions.
6. The human health risk assessment includes problems that have been identified in previous reviews. This practice of reproducing the same methods and results and thus generating the same regulatory comments, only serves to delay the process.
7. Zero to two feet below ground surface does not constitute surface soil. The interval of zero to six inches below ground surface is considered surface soil.
8. The evaluation of vapor intrusion into indoor air is flawed.
9. Lead is clearly a potential concern at both Sites 28 and 29.
10. Exposure point concentrations should be determined using the latest U.S. EPA ProUCL version 4.
11. It is our opinion that the report's recommendation of no further action for these three sites is untenable.

REFERENCES

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DTSC, 2008. Memorandum from J. Polisini to R. Miya reviewing the Draft Revised Remedial Investigation Report for Installation Restoration Sites 8 (Army Sludge Disposal Area), 28 (West Side On-Off Ramps), and 29 (East Side On-Off Ramps). February 26, 2008.

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