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July 25, 2005

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TREASURE ISLAND
SSIC NO. 5090.3.A



Arnold Schwarzenegger
Governor

Ms. La Rae Landers
Lead Remedial Project Manager
Southwest Division, Naval Facilities Engineering Command
BRAC Operations Office
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DRAFT REMEDIAL INVESTIGATION REPORT, INSTALLATION RESTORATION SITE
30, DAY CARE CENTER, DATED MAY 2005, NAVAL STATION TREASURE ISLAND,
SAN FRANCISCO, CALIFORNIA.

Dear Ms. Landers:

The Department of Toxic Substances Control (DTSC) staff completed its review of the Draft Remedial Investigation (RI) Report for Installation Restoration Site 30 (Day Care Center), dated May 2005. The stated purpose of the RI is to 1) collect data to characterize site conditions, 2) determine the nature and extent of contamination, and 3) assess risk to human health and the environment for Site 30 in partial fulfillment of the ongoing activities and responsibilities required under the Navy's Installation Restoration Program. Please find enclosed a comment memorandum from Dr. Brian Davis, a staff toxicologist with DTSC's Human and Ecological Risk Division, dated July 18, 2005. Dr. Davis' memorandum includes all of DTSC's comments on the Site 30 RI at this time.

If you have any questions regarding this letter, please contact me at (510) 540-3763.

Sincerely,

David Rist
Hazardous Substances Scientist
Office of Military Facilities

cc: See next page.

Ms. La Rae Landers

July 25, 2005

Page 2 of 2

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Arnold Schwarzenegger
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TO: David Rist
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FROM: Brian Davis, Ph.D., Staff Toxicologist *Brian K. Davis*
Human and Ecological Risk Division

DATE: July 18, 2005

SUBJECT: Remedial Investigation, Site 30, Daycare Center, Treasure Island.
PCA: 18040 Site: 201210

BACKGROUND

Document Reviewed: Draft Remedial Investigation Report, Installation Restoration Site 30, Daycare Center. Naval Station Treasure Island; San Francisco, California. Prepared for the Base Realignment and Closure. Prepared by SulTech (Sullivan Consulting Group and Tetra Tech EM Inc. San Diego, California. Dated May, 2005.

Meeting Attended: We took part in the BRAC Cleanup Team (BCT) meetings on July 12 and 13, 2005. The discussion of this document included some of the issues from this memorandum.

Nature of the Facility and Site 30 (based on 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 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.

A portion of Parcel T094 (Building 502) was developed as a daycare center in 1985. It operated as a daycare center until 1997 when Naval Station, Treasure Island closed. The property was leased under the Finding of Suitability to Lease (FOSL) Zone 1D to the City of San Francisco on July 29, 1997. The Treasure Island Homeless Development Initiative (TIHDI) renovated the facility and reopened the daycare center on March 17, 2003.

Site 30 was defined as the area around the daycare center after it was found that buried debris was located on the grounds. Site 30 is 1.5 acres. After an investigation of the nature and extent of the debris, a portion of Parcel T094 was designated as Site 30. Exploratory trenching and a time-critical removal action were done in 2003. The possibility of structural damage to the Building 502 foundation prohibited removal of all dioxin contamination in soil. In 2003, following the removal action, a six-inch layer of concrete covered by a two-inch layer of asphalt was placed to prevent exposure to the remaining contamination. This is referred to in the document and in this memorandum as "*the Site 30 cap*".

Scope of Review: The document was reviewed for scientific content related to risk assessment issues. Our review was directed toward human health risk assessment. We have not commented on minor grammatical or typographical errors that do not affect the interpretation. We assume that regional personnel have evaluated the sampling of environmental media, analytical chemistry data, and quality assurance procedures. Any future changes or additions to the document should be clearly identified.

GENERAL COMMENTS

1. **RISK ASSESSMENT METHODS.** The document uses two different risk assessment approaches. Method 1 (Section 6.1.2; Appendix I, Section 7.0) eliminates chemicals of potential concern (COPCs) based on: (a) essentiality as a nutrient, (b) comparison to background concentrations of inorganic chemicals, and (c) comparison to screening concentrations. Method 1 also uses only U.S. EPA toxicity criteria (Section 6.1.4; Appendix I, Section 9.0). Method 2 eliminates chemicals of potential concern (COPCs) based on: (a) essentiality as a nutrient, and (b) comparison to background concentrations of inorganic chemicals. Method 2 uses CalEPA and U.S. EPA toxicity criteria.

An additional evaluation was done to assess the total risks and hazards for all detected chemicals, with the exception of essential nutrients (Section 6.1; Appendix I, Section 3.2). An additional assessment was done for inorganic chemicals which were identified as consistent with background concentrations. These results were summed with the Method 2 results to provide estimates of total risks and hazards.

These methods 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. In this risk assessment, the cancer risk estimates for the daycare center child from Method 1 are three orders of magnitude lower than the cancer risk estimates from Method 2 (Sections 6.2.1.1 and 9.5; Appendix I, Section 11.1). Similarly, the hazard indices from Method 1 are two or three orders of magnitude lower than the hazard indices from Method 2.

2. SITE CONCEPTUAL MODEL.

- A. The Site Conceptual Model is discussed in Section 1.4 and illustrated in Figure I-2 of Appendix I.
- B. The Release Mechanism is shown as "*Spills/Leaks*" (Figure I-2 of Appendix I). The primary source of contamination at Site 30 appears to have been the burial of debris. Please expand the description of Release Mechanisms.

3. SOIL DEPTHS.

- A. Surface soil is defined as zero to two feet below ground surface (Section 6.1.1.1 and Sections 6.1; Appendix I, 8.3.1). Although this goes beyond what is reasonably surface, we accept the definition for this risk assessment.
- B. Two surface soil data sets were evaluated (Section 6.1.1.1; Appendix I; Section 6.1). The data for current exposures excluded soil samples from locations which are currently beneath the Site 30 cap. The data for future exposures included seven additional samples from those locations. This approach is reasonable, though it does add to the complexity (General Comment 1).
- C. Subsurface soil is defined as zero to seven feet below ground surface (Section 6.1.1.1; Appendix I, Sections 6.1 and 8.3.2), with the explanation that "*The Groundwater table is present at approximately 7 feet bgs throughout this area at NAVSTA TI.*" Any soil samples from depths greater than seven feet, but above the ground water, should be included with the subsurface soil samples. However, the document states that the greatest sample depth was 6.5 feet (Sections 6.1; Appendix I, 8.3.2).

4. CHEMICALS OF POTENTIAL CONCERN.

Method 1 has screened chemicals by comparison to U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) in the selection of chemicals of potential concern (Section 6.1.2.1). However, volatile organic compounds were retained in order to evaluate the vapor intrusion pathway into indoor air. We note that PRGs should not be used without consideration of exposure pathways which are not included in their derivation. The indoor air pathway is such a pathway. There are other such pathways (Department of Toxic Substances Control [DTSC], 1994).

5. EXPOSURE AREAS.

- A. The document states (Section 4.0 of Appendix I) that based on the Site 30 area, "*Its small size allowed for reasonable evaluation of exposures across the IR site without further subdividing the IR site into smaller exposure areas.*" This needs further explanation, because the risk assessment does in fact subdivide Site 30.

- B. The descriptions of chemicals of potential concern (Section 6.1.2.1; Appendix I, Section 7.1.3) refer to "each of the four data sets". This was confusing to this reader, based on the previous statement that the site was not subdivided. As shown in Tables I-2.8 through I-2.11 and described in Sections 6.1 and 8.3 of Appendix I, daycare center children were assumed to be exposed only to soil within the fence around Building 502. This soil was evaluated with and without the soil samples under the Site 30 cap.
 - C. Additional receptors (residents {children and adults}, construction workers, commercial/industrial workers) were assumed to be exposed to all soil within the Site 30 boundary ("*Site-wide Data*"). These data were subdivided into two depths (General Comment 3).
 - D. We agree with this approach, but we think that more explanation is needed.
6. HOT SPOT ANALYSIS. The document states (Section 8.3 of Appendix I) that the data do not indicate any hot spots. Please add an explanation of why the elevated concentrations of dioxins under the Site 30 cap (Section 6.2.1.1) do not constitute a hot spot. Also please address the finding of 762 mg/kg of lead (Section 6.2.3) with respect to hot spots.
7. POLYCYCLIC AROMATIC HYDROCARBONS. The document repeatedly (Sections 6.2.1.2, 6.4, and 9.5; Appendix I, Section 12.4.1) refers to the concentration of 0.62 mg/kg as "*the PAH action level*" and an "*acceptable limit criterion*". The fact that this concentration has been agreed to as a remediation goal for another Treasure Island site does not mean that it is a de facto, generic concentration, applicable to all sites. The risk assessment should be limited to reporting the risks and hazards. It is the responsibility of the risk managers to determine acceptable remediation goals for the daycare center.
8. ASSUMPTIONS AND CALCULATIONS. Because of time limitations, we did not review all exposure assumptions and exposure and risk characterization calculations. Instead, we performed spot checks.
9. UNCERTAINTY.
- A. Uncertainty is discussed in the body of the document (Uncertainty Analysis in Section 6.3) and at length in Appendix I (Uncertainty Evaluation in Section 12.0). The discussion of uncertainty in the Uncertainty Analysis is general. The Uncertainty Evaluation addresses uncertainties specific to this risk assessment. It is also balanced in presenting uncertainties that may have underestimated risks and hazards as well as those that may have led to overestimations.
 - B. The source of contamination at Site 30 is buried debris. Site 12 at Treasure Island illustrates the extreme heterogeneity of contamination in buried debris. This is an

important source of uncertainty and should be acknowledged in the Uncertainty Analysis and the Uncertainty Evaluation.

- C. Confirmation samples associated with the removal action at Site 30 were included in the soil data for risk assessment (Section 6.1 of Appendix I). According to the text, there were 38 sidewall samples plus 6 floor samples for a total of 44 soil samples. Sixteen of those will be evaluated as part of Site 31 and therefore were presumably excluded from the Site 30 analysis (Section 6.1 of Appendix I). We assume that 28 confirmation samples were included in the Site 30 risk assessment ($44 - 16 = 28$). This is 16% of the total 171 samples. The Uncertainty Evaluation (Section 12.2.3) discusses the possible impacts of judgmental sampling. It should also address the impact that inclusion of confirmation samples may have had on the exposure point concentrations.
- D. The Uncertainty Evaluation (Section 12.1.1 of Appendix I) states that "*It is entirely likely that daycare center children only frequent a portion of these unpaved areas and that potential risks estimated for this scenario are overestimated, as the EPC is biased towards the inclusion of samples from all unpaved areas.*" We agree that children are likely to use the outside space nonrandomly and may concentrate in a particular area or areas. We fail to see the logic of the conclusion that this overestimates risk. The area or areas selected by children might be less contaminated than the average, in which case risks have been overestimated. The area or areas selected by children might just as well be more contaminated than the average, in which case risks have been underestimated.
- E. The Uncertainty Evaluation should address the great differences in the results for the daycare center child from between Method 1 and Method 2 (General Comment 1).
10. ECOLOGICAL RISK ASSESSMENT. A brief discussion of ecological risk assessment is found in Section 7.0. We concur that terrestrial receptors are currently not relevant at Site 30 because the habitat is of poor quality. Section 7.0 dismisses transport of contaminants to San Francisco Bay as a concern. One argument supporting this conclusion is the distance between Site 30 and the shore. Based on Figure 1-2, we estimate the shortest distance to be about 1200 feet. Please revise the text to report the distance and address the possible transport of contaminants from Site 30 to San Francisco Bay. This discussion should include information about tidal flux.
11. DOCUMENT RECOMMENDATIONS. The document concludes (Section 9.7) that risks and hazards are de minimis under the current use as a daycare center. The document recommends that "*An FS should be conducted to evaluate remedial alternatives that would ensure protection of human health in the event that Building 502 is demolished and the area developed for residential or commercial/industrial use.*" We concur that the risk managers need to consider the risk assessment results that the potential cancer risk for commercial/industrial workers is slightly above 1×10^{-6} and the potential cancer risk for residents is as high as 1×10^{-5} . Furthermore, soil under

Building 502 is uncharacterized and could be contaminated. Finally, the Site 30 cap is only a temporary resolution to elevated concentrations of dioxins (e.g., Section 9.5).

SPECIFIC COMMENTS

1. Page ES-4. The text states that "*Aroclor-1260 was the only PCB detected at Site 30.*" Aroclor 1260 is not a PCB. It is a mixture of PCB congeners.
2. Page ES-6, paragraph 3. The text states that sample location T094-29-1 is "...*beneath the Site 30 cap*". Since this is the Executive Summary, a brief explanation is needed to say that "*the Site 30 cap*" is the concrete cap described in the previous paragraph.
3. Page ES-9. We have pointed out in previous reviews that references to the "*target cancer risk management range*" and the "*target noncancer HI threshold of 1*" seem to suggest that there are targets or goals for cancer risk levels and noncancer hazard indices, and that it might be desirable to add more contamination to achieve these levels.
4. Page ES-9, paragraph 2. The text makes two references to "*the Site 30 cap.*" The cap is discussed within the document, but the reader of needs some explanation in the Executive Summary.
5. Sections 1.2.3 and 6.1.3; Appendix I, Section 4.0. Section 1.2.3 states that Site 30 is "*approximately 63,641 square feet (1.5 acres)*" while Section 6.1.3 and Section 4.0 of Appendix I report the size as "*approximately 65,535 square feet (1.5 acres)*". It seems odd to describe a number with five significant figures as "*approximate*", but since the two numbers differ by almost 2000 square feet, evidently they are approximate.
6. Section 6.1.2.2, paragraph 2. The reference "*Navy, 2002*" is not listed in References (Pages R-1 to R-10).
7. Section 6.1.3. Since the reuse designation for Site 30 is reported as "*Residential/Open Space/Publicly Oriented Uses*", we do not understand why homes and commercial buildings are characterized as an "*unlikely possibility*".
8. References (Pages R-1 to R-10). Names of California government agencies are unnecessarily confusing in the reference list. Most Department of Toxic Substances Control references are listed as "*DTSC*", but two are listed under "*Cal/EPA*". Similarly, two Office of Environmental Health Hazard Assessment references are listed as "*OEHHA*" and two are listed under "*Cal/EPA*".
9. Section 3.1 of Appendix I. The document states that "*All agencies (EPA 1989; DTSC 1992; Navy 2004a) do recommend using an ambient screening approach to select COPCs that compares site concentrations of inorganic chemicals against ambient concentrations.*" This is incorrect. It is true that the in 1989, U.S. EPA Risk

Assessment Guidance for Superfund recommended eliminating inorganic chemicals as chemicals of potential concern (COPCs) based on comparisons to background concentrations. However, current guidance (U.S. EPA, 2002) recommends inclusion of all inorganic chemicals to provide an estimate of total risks and hazards.

10. Figure I-2 of Appendix I. Footnote b references Section 8.5. There is no Section 8.5 in the main body of the document. The correct reference is Section 8.5 of Appendix I. This illustrates a general source of confusion in the numbering system.
11. Section 12.2.4 document suggests that 200 mg/day is the incidental soil ingestion rate for the pica child, and references the DTSC LeadSpread model. This is incorrect. For most exposure parameters, LeadSpread applies average, rather than upper bound, values. LeadSpread achieves Reasonable Maximum Exposure estimations by targeting blood lead levels at the 99th percentile. Pica children may ingest gram quantities of soil.
12. Figure I-1 of Appendix I. The footnote references Section 4.3.2 for toxicity values. This appears to be an incorrect reference.

CONCLUSIONS

This Remedial Investigation Report is thorough and well-written. We appreciate the efforts of the Navy and its contractors to resolve issues informally before producing this document. We believe that this effort has been successful, resulting in only a few residual questions.

REFERENCES

DTSC, 1994. Recommended Outline for Using U.S. Environmental Protection Agency Region IX Preliminary Remedial Goals in Screening Risk Assessments at Military Facilities. Memorandum from Michael J. Wade, Laura Valoppi and John Christopher to Kenneth Smith, dated October 28, 1994.

U.S. EPA, 2002. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. Office of Emergency and Remedial Response 9285.7-41. September, 2002.

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