Department of Toxic Substances Control

Edwin F. Lowry, Director
700 Heinz Avenue, Suite 200
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ALAMEDA POINT
SSIC NO. 5090.3

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

October 21, 2002

Mr. Richard Weissenborn
Department of Navy
Southwest Division
Naval Facilities Engineering Command
1230 Columbia Street, Suite 1100
San Diego, CA 92101

DRAFT FINAL ORDANCE AND EXPLOSIVE WASTE/GEOTECHNICAL CHARACTERIZATION REPORT, SITE 1, OPERABLE UNIT 3, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Dear Mr. Weissenborn:

The Department of Toxic Substances Control (DTSC) has reviewed the above referenced document dated September 20, 2002. Our comments are enclosed. If you have any questions, please contact me at 510-540-3767.

Sincerely,

Marcia Y. Liao

Marcia Liao, Ph.D., CHMM
Hazardous Substances Engineer
Office of Military Facilities

enclosure

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at www.dtsc.ca.gov.

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cc: Michael McClelland, SWDiv
Andrew Dick, SWDiv
Steve Edde, Alameda Point
Anna-Marie Cook, EPA
Judy Huang, RWQCB
Christopher Fong, CIWMB
Elizabeth Johnson, City of Alameda
Peter Russel, Northgate Environmental
Michael John Torrey, RAB Co-Chair
Lea Loizos, Arc Ecology
Abid Loan, Foster wheeler

DTSC COMMENTS
DRAFT FINAL ORDNANCE AND EXPLOSIVES WASTE/GEOTECHNICAL CHARACTERIZATION REPORT
SITE 1, OPERABLE UNIT 3
ALAMEDA POINT, ALAMEDA, CALIFORNIA

PART 1: OVERALL

1. DTSC disagrees that there is no hazardous waste placed at Site 1 (page 1-14). Given the nature of operation at Alameda Naval Air Station, major aircraft and equipment repair activities are known to have occurred on site. The proportion and distribution of industrial (i.e., potentially hazardous) wastes in the landfill should not be overlooked (see USEPA Directive No. 9355.0-67FS, Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills, December 1996). We believe it is prudent to assume that there is hazardous waste placed at Site 1, not the other way around.

2. Since the Navy has not characterized the wastes and industrial wastes likely constitute a significant portion of the wastes deposited at Site 1, the requirements of a hazardous landfill (Title 22) are applicable or relevant and appropriate requirements (ARARs). This applies to the mitigation of all physical, chemical and biological hazards and should not be limited to seismic requirements only (see Page 1 of Response of Comments). Please revise Section 1.5.5.1 accordingly.

3. DTSC requests that both Title 22 and Title 27 be reviewed in the Feasibility Study (FS) and that the requirements be compared in a tabular form to facilitate the remedy selection. If desired, Marine Corps Air Station El Toro, located in Orange County, California, may be used as an example.

PART 2: ORDANCE AND EXPLOSIVE WASTE

Please refer to the memorandum prepared by Mr. James Austreng.

PART 3: GEOTECHNICAL AND SEISMIC EVALUATION

Please refer to the memorandum prepared by Mr. Ram Ramanujam.

Department of Toxic Substances Control

Edwin F. Lowry, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

MEMORANDUM

TO: Marcia Liao
Project Manager
Office of Military Facilities
Department of Toxic Substances Control

VIA: Donn Diebert, P.E.
Chief, Open Base Navy and FUDS Unit
Office of Military Facilities
Department of Toxic Substances Control

FROM: James C. Austreng, P.E.
State Unexploded Ordnance Coordinator
Office of Military Facilities
Department of Toxic Substances Control

DATE: October 16, 2002

SUBJECT: DOCUMENT REVIEW

Per your request, I have reviewed the following documents:

1. DRAFT FINAL TIME-CRITICAL REMOVAL ACTION CLOSURE REPORT, REVISION 0, INSTALLATION RESTORATION SITE 2, ALAMEDA POINT, ALAMEDA CALIFORNIA, September 25, 2002

2. ACTION MEMORANDUM, CERCLA TIME-CRITICAL REMOVAL ACTION INSTALLATION RESTORATION SITE 2, ALAMEDA POINT, ALAMEDA, CALIFORNIA, September 25, 2002

3. DRAFT FINAL ORDNANCE AND EXPLOSIVES WASTE/GEOTECHNICAL CHARACTERIZATION REPORT, REVISION 0, September 20, 2002

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Background

Subject documents are follow up submittals. The initial versions of the documents were reviewed for ordnance and explosive (OE) concerns. Comments were provided in a memorandum dated June 25, 2002 (draft of document # 3) and July 19, 2002 (draft of document #1). Comments on the initial draft of the Action Memorandum (document #2) were provided May 7, 2002.

General Comment

In general, revisions to the documents have addressed the majority of comments presented. However, the Navy's response regarding regulatory authority and applicability of California Code of Regulations, Section 66264.600 is considered inappropriate. Consequently, full concurrence with the Navy's revisions (or lack of) cannot be made at this time.

Specific Comments

1. Response to Comment #2 (See September 20, 2002 transmittal letter for Document #3).

   The Navy states- "....there is no information available that specifically discusses the actions that were taken to ensure the detonation [of the live 20 millimeter high-explosive rounds] was complete and no unexploded items were thrown or kicked out."

   The Navy further states- "It is believed that these procedures [post detonation visual inspection] were followed and no unexploded items were found."

   Comment: Based on the potential for kick outs as demonstrated at the majority of open detonation facilities, the Navy's reliance on "...no information..." and "...assumption..." is considered inappropriate. Actions should be taken to fully document the condition of the area. This includes a full sweep of the potential kick out area. According to data presented on page 1-4, the radial distance would be 320 feet.

2. Response to Comment #5 (See September 20, 2002 transmittal letter for Document #3).

NOTE: The Navy has incorporated appropriate modifications and states that four feet of fill will be placed on top of IR-Site 1 prior to the construction of the golf course.

Comment: Text should be modified to indicate that a minimum of four feet of fill would be maintained between the current soil surface and final grading of the golf course.

Also, text should clearly state what measures would be taken to ensure the fill is free of ordnance and explosives (as well as other hazardous, toxic and/or radiological waste).

Conclusion

Based on the information provided, and as previously commented in my July 19, 2002 memorandum, the physical removal and sifting of soil conducted as part of the Site 2 Time Critical Removal Action is an appropriate action. In addition, the placement of four feet of clean fill and application of institutional controls, including monitoring and reporting for Site 1, can achieve an effective level of protection from any remaining ordnance. However, while such actions and proposals are appropriate, the Navy's continued stand against recognizing state authority and applicability of the California Code of Regulations, along with the above comments, render the documents unacceptable. Therefore, it is my opinion that the documents remain in draft until all matters have been fully resolved.

If you have any questions, please contact me at (916) 255-3702.

MEMORANDUM

TO: Marcia Liao
Office of Military Facilities
Northern California Region
Berkeley

VIA: John Hart, P.E. (Signed by)
Chief, Engineering Services Unit

FROM: Ram Ramanujam, P.E. (Signed by)
Hazardous Substances Engineer
Engineering Services Unit

DATE: October 18, 2002

SUBJECT: Draft Final - Ordnance and Explosive Waste/Geotechnical Characterization Report - IR Site 1 - Alameda Point, Alameda, CA

Per your request, I have reviewed the following Report:

Draft Final - Ordnance and Explosives Waste/Geotechnical Characterization Report - Installation Restoration Site 1, Alameda Point, Alameda, CA (Prepared by Foster Wheeler Environmental Corporation, dated September 20, 2002).

Based on the review, my comments are as follows:

COMMENTS:

1. The northern (Oakland Bay) and western (San Francisco Bay) boundary of the site shoreline slopes are covered by large riprap (boulders). The purpose of the large riprap is to stabilize the slopes and energy dissipation of the waves. The Report presents the slope stability analyses without considering the effect of the existing riprap. If the stability analysis includes the riprap, the computed factor of safety for static conditions will be increased, the yield acceleration for the slopes

will be improved and in turn the deformation of the slopes will be reduced.

2. Table 4-6a, Summary of Material Design Parameters: For the fill and the Young Bay Mud materials the Post-earthquake shear strength values were assigned. It is not clear how these post-earthquake undrained shear strength values were obtained from the laboratory tests. In this regard, please refer the following publication:

> **N. Ramanujam, L.L. Holish and W.H. Chen**., Post-Earthquake Stability Analysis of Earth Dams (Earthquake Engineering and Soil Dynamics, Proceedings of the ASCE Geotechnical Engineering Division, Speciality Conference, June 19-21, 1978, Pasadena).

3. Section 4.6.5, Ground Response Analysis: The Peak Horizontal Ground Acceleration (PHGA) was estimated based on the attenuation relationships (averaging four selected relationships). The Report should include the four selected attenuation relationships to arrive at PHGA.

4. Section 4.6.5.2, One-Dimensional Site Response Analysis: The Report should include a figure identifying the layered soil system used in the seismic response analysis.

5. Section 4.6.5.2, page 4-29, 2nd para: "Five generalized soil type layers overlying the foundation Franciscan Formation bedrock were used to model ..." The Report should include a typical cross sectional profile of the generalized soil type layers used for the analysis.

6. Figure 4-14: Please add explanation for the SET 1, SET 2, and SET 3 acceleration time history.

7. Section 4.6.6.1: A Magnitude Scaling Factor (MSF) should be used in the liquefaction analysis.

8. Table 4-14: See Comment No: 1.

9. Section 4.6.9, Summary of Seismic Hazards: See Comment No:1

APPENDIX L, One-Dimensional Site Response and Liquefaction-Induced Deformation Analysis

L1. Section L.1: The Report should include the shear modulus ratio (G/G_{max}) and the increase of damping ratio versus shear strain curves for the five generalized

soil type layers at the site.

L2. Section L.3: The Report utilizes the maximum peak ground acceleration of 0.45g for a magnitude of 7.9 seismic event to derive the weighted peak ground acceleration (0.5g for a magnitude of 7.5). It is not clear how the weighted peak ground acceleration was obtained for the site. Also, it is not clear how the weighted peak ground acceleration is used in the seismic analysis. These issues need clarification.

L3. Section L.3, page L-4, 2nd para: Figures L-15 and L-16 present the comparison of Cyclic Resistance Ratio (CRR) and Cyclic Stress Ratio (CSR) values verses depth. The Report should provide the approach used to calculate the CRR values from the standard penetration tests (SPT).

L4. Section L.4: The Report employs Ishihara and Yoshimine (1992) approach to estimate the liquefaction-induced deformations. It should be noted that the Ishihara and Yoshimine approach is applicable to Japanese equipment and procedures, and are thus representative of an SPT energy ratio of about 55% (or should be represented as $(N_1)_{55}$ - values). Accordingly, the liquefaction-induced deformation should be increased by 10%.

> It is the current acceptable approach to use the Proceedings of the 1996 National Center of Earthquake Engineering Research (NCEER) workshop to evaluate the liquefaction-induced deformations. The Department of Toxic Substances Control (DTSC) expects that the Report should follow the current industry standard for the liquefaction-induced deformations.

L5. Section L.4, page L-5, 2nd para: "The integrated CPT-based method was numerically modeled using an in-house proprietary computer program based ... calculation sheets." The DTSC can approve only computer programs in the public domain. It is very difficult to verify the proprietary computer programs (not being tested and validated in the public domain).

L6. Section L.4, Lateral Spread Displacements:

> . The Report uses the paper accepted for publication in the Journal of Geoenvironmental Engineering, 2002. The DTSC would like to receive a copy of this publication, for review.
>
> . The Report should include a Figure identifying various site parameters such as distance from toe of free face to site (L), height of free face (H), free face ratio (W) and natural slope (S). Without a figure it is very difficult

to examine the lateral spread displacements for the site.

L7. The Report should include output acceleration time history for the SET 3 Record input used for the SHAKE91 analysis.

L8. SHAKE91 analysis uses 15 soil layers. However, soil layer No:7 is missing from the input. This issue needs clarification.

L9. In the SHAKE91 analysis, the number of soil layers were grouped into 4. The shear wave velocity values, however, are different for the same type of soil layer (example: for layer No: 4, shear wave velocity varies from 623 ft/sec to 959 ft/sec) . This issue needs clarification.

L10. Integrated CPT and SPT Liquefaction Potential Evaluation Plots:

. It appears that the CPT and SPT liquefaction potential evaluation plots (Plots) are for the existing site conditions. With the Installation of cover system for the Site 1, the overburden pressure (cover thickness) will be increased and in turn the resistance for liquefaction will increase. The Report should consider the liquefaction potential after the installation of cover system.

. Please verify the definition for the factor safety in the Plots.

. Please identify the $CRR_{7.5}$ and CSR for the Plots.

. It is not clear how the liquefaction-induced settlement values were calculated with respect to depth. This issue needs clarification.

APPENDIX M, Slope Stability Analysis Results

M1. The Report assumes the shear strength properties for the landfill cover (compacted soil) for the slope stability analysis. The Report should provide the reference for the properties of the compacted cover soils.

M2. See Comment No: 1.

SUMMARY:

The seismic deformation for the site is greater than 20 feet, which is unusual. A meeting with the consultants should be arranged to discuss details of the seismic analysis.

I will be available to attend any project meeting to resolve the technical issues identified in this memorandum. In the meantime, if you need any clarification on this memorandum, please contact me at (916) 255-6662.