



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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N00236.002403
ALAMEDA POINT
SSIC NO. 5090.3

July 12, 2001

Mr. Richard Weissenborn
Department of the Navy, Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

RE: Draft Focused Remedial Investigation Work Plan, Ordnance and Explosives
Characterization, and Geotechnical and Seismic Evaluation at IR Site 1, Alameda Point

Dear Mr. Weissenborn:

EPA has reviewed the above referenced document, prepared by Foster Wheeler Environmental Corporation and submitted by the Navy to the regulatory agencies on June 1, 2001. The attached comments are a duplicate of those e-mailed by EPA to the Navy on July 3. Please call me at (415) 744-2367 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Anna-Marie Cook".

Anna-Marie Cook
Remedial Project Manager

attachment

cc: Michael McClelland, SWDiv
Andrew Dick, SWDiv
Brad Job, RWQCB
Daniel Murphy, DTSC
Dina Tasini, City of Alameda
Michael John Torrey, RAB Community Co-Chair
Karla Brasaemle, TechLaw Inc.

**EPA REVIEW OF THE
DRAFT FOCUSED REMEDIAL INVESTIGATION WORK PLAN, REVISION 0,
ORDNANCE AND EXPLOSIVES CHARACTERIZATION, AND GEOTECHNICAL
AND SEISMIC EVALUATIONS AT INSTALLATION RESTORATION SITE 1,
ALAMEDA POINT, ALAMEDA, CALIFORNIA**

GENERAL COMMENTS

1. The Draft Focused Remedial Investigation Work Plan, Revision 0, June 1, 2001, Ordnance and Explosives Characterization, and Geotechnical and Seismic Evaluations at Installation Restoration Site 1, Alameda Point, Alameda, California (the work plan) does not clearly state which issues need to be resolved and what Data Quality Objective (DQO) will be used to resolve those issues. The issues are probably the presence of Ordnance and Explosives (OE), which may cause a threat to some future user of the site and the seismic stability of the entire IR Site along the water front. Due to the lack of specified DQOs, there is a risk that:
 - insufficient data to address the remaining issues for Installation Restoration (IR) Site 1 will be collected,
 - some of the data may not have sufficient quality to be of use to address the issues present at the site, and
 - some unnecessary data will be collected.

Please clearly state the issues to be resolved during this investigation and then use the DQO process to select the data to be gathered.

2. A major concern with the work plan is that it appears that the OE characterization of the Site 1 is to be limited to a surface investigation. The presence or absence of ordnance on the surface will not be a reliable indicator of the potential for OE to be found below the surface. Also, the previous investigative work indicated that a potential for subsurface OE in the area existed, and that further characterization of the site would be required. The recommendations from previous work suggested intrusive investigation of selected geophysical anomalies identified during the previous investigative work. This issue is not addressed in the work plan and could ultimately result in a failure to remove hazardous OE from the site that could pose a potential threat. Please consider investigating the geophysical anomalies so that the potential for subsurface OE can be assessed and revise the work plan as necessary.

The work plan does not address the potential for encountering OE during the soil boring and test pit excavation activities, nor does it prescribe the precautions to be taken to reduce or eliminate the potential for an OE related incident during these intrusive activities. This omission could result in an increased potential for injury to the individuals

performing these intrusive activities. Please revise the work plan to specify procedures to clear the test pit and boring locations.

Further, the work plan does not specify what sort of notification procedures and under what sort of time frame will be implemented to inform the regulators, the City of Alameda and members of the community if and when an emergency removal situation arises. In addition, the criteria for establishing that an emergency removal situation exists are not clearly articulated.

3. The work plan proposes assessing the shear strength of two samples using unconsolidated, undrained (UU) triaxial shear tests and collecting blow counts from split spoon sample collection. It is not clear how the UU triaxial shear strength results will be used or what these values will represent. Shear strengths of saturated cohesive soils should be determined using consolidated-undrained triaxial testing (usually with pore pressure monitoring) rather than unconsolidated-undrained triaxial testing. (Reference United States Army Corps of Engineers (USACE) guidance for conducting seismic slope stability analyses (Hynes, M.E. and Franklin, A.G., 1984, Rationalizing the seismic coefficient method: U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi, Miscellaneous Paper GL-84-13, July 1984.)

Collection of data from a set of three borings laid on a line perpendicular to, and intersecting, the western shoreline of IR Site 1 was proposed in the focused work plan. However, it is not clear why these three borings were placed on a line (potential failure surface?). Further, the work plan does not explain why this particular section was selected. Please revise the work plan to address what the most likely critical failure surfaces will be at IR Site 1 and discuss how sufficient shear strength data to assess the stability of these sections under the design earthquake event will be collected.

4. The work plan indicates that one purpose of the focused remedial investigation is, "The soil/sediment conditions in areas of the steepest slopes will be evaluated relative to liquefaction potential and recorded deformations in historic earthquakes." The steepness of the slopes is only marginally correlatable with the likelihood of slope failure due to liquefaction as any slope will fail if its foundation layer liquefies. Please clarify how the correlation will be done.
5. Table 4-1, Laboratory Testing and Test Methods, contains tests (Modified Proctor Compaction Testing, Saturated Hydraulic Conductivity, Atterberg Limits) that are specified for grab samples that will presumably be collected from the existing landfill cover. The purpose of the Modified Proctor Compaction Test is to determine the compaction properties of the material. Please note that conducting two compaction tests on the heterogeneous materials currently present on the landfill is unlikely to yield useful information as the material properties of a non-engineered cover can be expected to vary widely across the landfill. Please explain how the information from the Modified Proctor

Compaction Test will be used and why it is appropriate to conduct this test on soil collected from soil borings.. Also, conducting hydraulic conductivity analyses on remolded grab samples of the existing cover will not be representative of the existing cover materials at any location as the existing cover was not engineered and thus is likely to be extremely heterogeneous. Please revise the work plan to take into account the heterogeneous nature of the cover and how the test can accommodate this situation. Note that use of the DQO process would facilitate selection of appropriate tests and would also facilitate elimination of unnecessary tests.

6. Please take into consideration that, since it is not known what contaminants are in the existing cover material, how much waste there is, when waste will be encountered beneath the existing cover, or if OE will be encountered in the existing cover, it may be dangerous to dig up the existing cover materials.
7. It is possible that collecting soil samples from a known IR site with potentially high levels of contamination present, and sending these samples without characterization of the contamination to a soils laboratory for geotechnical analyses, may result in unnecessary risk to the health of geotechnical laboratory staff. Geotechnical analyses require considerable manipulation of the soil samples with possibilities of volatilization of contaminants and skin contact with contaminants. Also, if the geotechnical laboratory is unaware of the source and characterization of these samples it is possible that hazardous materials may be handled and disposed of improperly.
8. Please revise the work plan to include a figure showing the extent of the area under investigation, including the extent of the bathymetric survey.

Specific Comments

1. **Executive Summary, Page i:** Please specify the purpose of the visual scan of the surface of IR Site 1 for OE and explain why a visual inspection of the site surface is all that is required to clear this site of OE. EPA is concerned about how the potential for OE below the surface will be addressed. Also, please discuss how and when the anomalies detected during previous OE work will be addressed. In addition, please specify in the last sentence of the first paragraph on this page, that it is anticipated that no further action *for UXO* will be required at this site after completing the investigation, characterization and implementing any required removal action.
2. **Section 1.2.1, OE Characterization, Page 1-4:** It is important the OE reconnaissance/ surface sweep be conducted before any intrusive method of vegetation removal is done. If it is necessary to furrow or grub, OE should first be cleared to a depth 1 foot deeper than the depth of furrowing or grubbing to ensure that furrowing or grubbing do not cause OE to detonate. Please revise the work plan to require the OE reconnaissance/ sweep be completed before vegetation is removed by intrusive methods.

3. **Section 1.2.2, Geotechnical Evaluation, Page 1-4:** On page 1-4 the text in the first bullet indicates that bearing capacity of the existing cover materials at the site are of interest. Please explain why it is of interest and what tests will be performed to determine the bearing capacity.
4. **Section 1.2.4, Document Preparation, Page 1-6:** Please update the fifth bullet to reflect that information yielded from this investigative effort will be included as part of the Draft FS for Site 1.
5. **Figure 2-1, Page 2-2:** This figure depicts an area at the western-most edge of the landfill that is labeled "explosive demolition site". EPA is unable to determine the source of this figure or the information that led to placing a demolition site within the hazardous waste landfill. It seems to contradict the information contained in Figure 3 on page WP-6 in the report "Draft Unexploded Ordnance Investigation Construction Work Plan" submitted by Roy F Weston on May 31, 2000 and within the report "Unexploded Ordnance, Emergency Removal Action, Site 1" submitted by SSPORTS Environmental Detachment, Vallejo on December 4, 1998. If the demolition site was in fact within the landfill, a detailed explanation of how the removal action was performed is necessary in order to ensure that debris from the landfill was not scattered in the process and that other safety factors were considered.
6. **Section 2.3, Pistol Range, Pages 2-1 and 2-3:** The paragraph that discusses the activities performed at the Pistol Range states that "20 mm aircraft guns were also test fired on the range." Former workers at the site have stated that aircraft guns were test fired into large tanks of liquid as part of aircraft rework operations and these tanks were subsequently buried in the landfill. Please resolve and explain the apparent discrepancy in the origin of the 20 mm projectiles in the landfill.
7. **Section 4.2, Surveying and Site Control, or Section 4.3, OE Characterization/Removal Action:** The procedures to be followed for the geophysical survey are missing. Please specify the instruments to be used, how data will be recorded, frequency of measurements and procedures to be followed (including data processing) for the geophysical survey in one of these two sections.
8. **Section 4.2.1, Exclusion Zone, Page 4-3:** The Navy indicates that a 4,000-foot exclusion zone would be required if ammunition of 5-inch or greater caliber was detected. A 4,000-foot exclusion zone may encompass a portion of the Port of Oakland, especially if the OE were found in the northern portion of IR Site 1 and had to be blown in place. How would the evacuation of the Port of Oakland be accomplished?
9. **Section 4.2.4, Bathymetric Survey, Pages 4-6 and 4-7:** In the last bullet on page 4-6 and in the first paragraph on page 4-7, it is unclear whether the elevation of the recording

tide gauge and tide staff will be surveyed. The elevation of the measuring reference point for each piece of equipment must be surveyed to Mean Sea Level, North American Datum, 1988 to coincide with the datum selected for the survey.

10. **Page 4-7:** In the second bullet on page 4-7, it is unclear how much data will be collected during the survey. Please specify the distance between survey points, or specify that survey data will be recorded continuously.
11. **Section 4.3, OE Characterization/Removal Action, Page 4-8:** It is important the UXO reconnaissance/surface sweep be conducted before any intrusive method of vegetation removal is done. If it is necessary to furrow or grub, OE should be cleared to a depth 1 foot deeper than the depth of furrowing or grubbing. Please revise the work plan to require that the OE reconnaissance/ sweep be completed before vegetation is removed by intrusive methods.

It is unclear whether all of Site 1, including the runway and the area east of the runway will be included in the OE characterization. Please discuss the extent of the OE characterization, including whether the runway and the area east of the runway will be included.

12. **Section 4.5, Geotechnical Investigation, Pages 4-9 and 4-10 and Section 4.5.2, Test Pit Activities, Pages 4-12 and 4-13:** It is unclear whether buried OE is likely to be present in areas where the test pits and borings will be completed. If OE could be present in these areas, it would be advisable to have OE specialists and geophysicists check each area before drilling or excavation begins. In addition, as soil is removed from a test pit, the pit should be rechecked after 1 or 2 foot lifts. Please discuss the potential for buried OE and revised the focused work plan as necessary.
13. **Section 4.5, Geotechnical Investigation, Page 4-10:** The work plan indicates that borings will be advanced to 20 feet below the ground surface or sediment water interface. Please revise the work plan to provide the justification for this depth. Please note that the justification needs to address the depth of the critical slope stability surface and the depth to which liquefaction is known to be a problem (50 feet below the ground surface).
14. **Section 4.5.1, Soil Boring Activities, Page 4-10:** Please provide more detailed instructions for abandoning bore holes than the seventh bullet on page 4-10. Please include detailed instructions for using a tremie pipe to inject cement grout under pressure from the bottom of the borehole.
15. **Section 4.5.1, Soil Boring Activities, Page 4-11:** The text in the fifth bullet on page 4-11 indicates that odors, if any, will be identified and noted on the boring logs. Encouraging site workers to use their senses of smell for investigative purposes should be discouraged as many volatile chemicals are hazardous at levels below the odor threshold

and some volatile chemicals (e.g., hydrogen sulfide) are both rapidly desensitizing and lethal at low concentrations. A monitoring instrument like an OVM should be used. Please revise the work plan to indicate that if any odors are detected, site personnel will take appropriate precautionary measures. Also, please discuss how the presence of methane and other landfill gases will be monitored and if this information will be recorded on boring logs.

16. **Section 4.5.1, Soil Boring Activities, Page 4-11:** The text of the sixth bullet on page 4-11 indicates that an organic vapor analyzer (OVA) will be used to screen soil samples collected from borings and trenches. The Quality Control Plan in Appendix A of the work plan does not discuss how this OVA will be calibrated. Please revise the work plan to provide specific, detailed, instructions for use and calibration of any site monitoring equipment used during the field work.
17. **Section 4.5.2, Test Pit Activities, Page 4-12, first paragraph:** Please clarify the second sentence to indicate whether test pits in landfill cells will only be excavated to a depth of two feet instead of four feet or if the intent is only to provide information about the thickness of the cover or landfill.

Useful information can often be conveyed using photographs of test pit side walls, but photographing the test pit walls is not specified. A camera will be on site to record pre- and post- excavation conditions, so the test pit walls could easily be photographed.

Neither this section nor Section 4.5.4 (Sampling Procedures) specify how samples will be collected. This information is not included in Appendix B. For example, it is unclear whether samples will be collected from the backhoe bucket or from the sides or bottom of the trench using a hand auger or slam bar. Please discuss how samples will be collected and specify the equipment required for sampling. Also please note that the plan specifies that a grain size distribution for each layer will be recorded in the field notes; this will require the logger to physically examine discreet samples from each layer. Please discuss how the samples for the grain size distribution will be collected, and how the sample collection will be done to ensure that each sample only represents one layer.

18. **Section 4.5.3, Exploration Termination before Reaching Planned Depth, Page 4-13:** The text states that boreholes and test pits will be backfilled with soil cuttings if an obstruction prevents advancement. Boreholes should be abandoned with cement bentonite grout as specified in Section 4.5.1.
19. **Section 4.5.4, Sampling Procedures, Page 4-14:** Section 4.5.4 indicates that drive sampling will be conducted in accordance with ASTM D-3550-84 (Standard Practice for Ring-Lined Barrel Sampling of Soils), whereas Appendix B, SOP 2 indicates drive sampling will be conducted in accordance with ASTM D1586 (Penetration Test and Split-Barrel Sampling of Soils). The former is suitable for collecting undisturbed soil

samples for shear strength testing and the latter is suitable for assessing liquefaction potential, so both types of tests are probably needed. However, the samples for analysis for shear strength should be collected in accordance with ASTM D 1587-94 (Standard Practice for Thin-Walled Tube Geotechnical Sampling of Soils).

20. **Section 7.4.1, Waste Characterization, Page 7-3:** The work plan indicates that borings will be installed through the landfill and that soil cuttings will be generated from these borings. The work plan also indicates that these materials will not be characterized, and is vague regarding disposal of these drill cuttings. Please revise the work plan to provide justification for not characterizing the boring soil cuttings and state explicitly how these cuttings will be disposed.
21. **Appendix A:** The quality control plan appears to be a boilerplate from some previous project (one that required shop drawings, construction drawings, material samples, mix designs, as-built drawings, liner devices, paint, O&M manuals, on-site mobile laboratories, specifications, spare parts, et cetera) and does not pertain specifically to the work at Site 1. Please delete the unnecessary drawings, mixes, material samples, paint, spare parts, on-site mobile laboratories, etc.

Also included in Section 2.4 (UXO QC Engineer), is a requirement for conducting a three-phase control process for geophysical teams, although no OE related geophysical activities are prescribed by the work plan. Please explain this discrepancy and also revise the quality control plan to include quality control procedures for assuring that the bathymetric survey and OE visual sweep are conducted in accordance with the work plan. Please revise the work plan to include detailed quality control procedures to assess the quality of the standard penetration test (SPT) blow counts. These blow counts, which are the only data to be collected in accordance with the work plan for the assessment of liquefaction potential, require very careful quality control as SPT blow counts are sensitive to the procedures used to conduct the test.

22. **SOP-1, Section 2.0, Scope, Page 2-1:** Please expand this section to better describe the scope of the Ordnance and Explosives/Unexploded Ordnance Disposal activities to be performed in support of the basic plan.

MINOR COMMENTS

1. Section 1.2.2 indicates there will be six borings, Section 4.5 and Figure 4-1 indicate there will be 8 borings, although Section 4.5 also indicates there will be two transects consisting of three borings each. Please resolve this discrepancy.
2. Section 1.2.3, Seismic Evaluation, Page 1-5, paragraph 2, sentence 4: Please substitute the word "existing" for "exiting" in the phrase "if exiting CPT tests..."

3. In Section 3.1.1.4 (Page 3-3) two different acronyms, SHSS and SHSO, are used to describe the same position. Please use one acronym or clarify the difference between the two acronyms/positions.
4. Section 4.3 (Page 4-8) indicates that all vegetation will be completely removed while Section 1.2.1 (Page 1-4) indicates it will be mowed to a height of no more than 4 inches. Please resolve this discrepancy.
5. Section 4.5 (Page 4-10) references Section 8 for the disposal of investigation-derived waste when it should refer to Section 7. Please correct this citation.
6. Section 4.5.4 (Page 4-14) indicates the trench grab samples will consist of 20 pounds of soil, Section 4.5.5.2 (Page 4-16) indicates the grab samples will consist 35 pounds of soil. Please resolve this discrepancy.
7. In Section 4.5.6 (Page 4-14) the first sentence is incomplete.
8. Section 9.0, References (Page 9-1): The correct title for the DDESB is "Department of Defense Explosives Safety Board."
9. Grain-size distribution is specified under both soil boring logs and test pit logs. Unless site personnel are using sieves, please change "grain size distribution" to "observed soil type".
10. BIP is defined as below-in-place in the abbreviations and acronyms list. Please provide the correct definition.
11. Abbreviations and Acronyms list, Page x: The correct title for the DDESB is "Department of Defense Explosives Safety Board."
12. SOP-1, Abbreviations and Acronyms, Page iii: The correct title for the DDESB is "Department of Defense Explosives Safety Board."
13. SOP-1, Section 4.4, Page 4-3: On page 4-3, in the third bullet, the correct title for the DDESB is "Department of Defense Explosives Safety Board."