



Department of Toxic Substances Control



Winston H. Hickox
Agency Secretary
California Environmental
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Edwin F. Lowry, Director
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ALAMEDA POINT
SSIC NO. 5090.3

Gray Davis
Governor

March 21, 2003

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

REVISED DRAFT FEASIBILITY REPORT, OPERABLE UNIT 3, SITE 1, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Dear Mr. Weissenborn:

The Department of Toxic Substances Control (DTSC) has reviewed the above referenced document dated December 12, 2002 and concluded that the 1943-1956 waste disposal area at the subject site does not qualify for the presumptive remedy as described in the USEPA guidance *Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills*, dated December 1996. Our rationale is as follows:

- Significant amounts of hazardous wastes, military munitions, and radioactive wastes are known, or believed, to have been buried at the site;
- The site abuts San Francisco Bay;
- Groundwater at the site averages only 3 to 5 feet below ground surface and waste is likely in direct contact with groundwater.

DTSC recognizes that the subject waste disposal area may not be a good candidate for source removal (i.e. excavation) and that containment may be the most viable alternative. However, we believe such a determination can only be made after complete site characterization, risk evaluation and feasibility studies, i.e., not streamlined RI/FS as allowed in the presumptive remedy and presented for the subject site by the Navy. Also, we believe the source containment must

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Mr. Richard Weissenborn
Page 2
March 21, 2003

be fully effective and meet the state requirements found in California Code of Regulation (CCR) Title 22 and Title 27 in the following aspects:

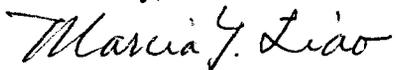
- Landfill capping and monitoring
- Gas control and monitoring
- Leachate/Groundwater control and monitoring.

It is important to note that the 1943-1956 waste disposal area (14.7 acres) accounts for less than one-fifth of Site 1 (78 acres). Other key features of Site 1 include an open burn area (4 acres), an aircraft engine and parts storage area (size unknown), a pistol range (1 acre), and assorted buildings and structures situated on an open space that has, to a large extent, shown radiological anomalies. The cap proposed by the Navy measures up to 55 acres which extends beyond the waste disposal area and covers almost three-quarter of the entire Site 1. We believe that even if a presumptive remedy could ultimately be selected for the 14.7-acre landfill, it is not appropriate under any circumstances to promote a presumptive remedy for the contamination across Site 1.

Site 1 is a Solid Waste Management Unit (SWMU) as designated in the RCRA Hazardous Waste Facility Permit currently in force at Alameda Point. As such, the cleanup of Site 1 must meet the RCRA correction action requirements. DTSC prefers to integrate, to the maximum extent possible, the RCRA and CERCLA in the process leading up to the final cleanup at Site 1. We look forward to your proposal for full integration and assurance that RCRA corrective action requirements will be met.

Attached please find our detailed comments. The comments from the Department of Health Services (DHS) concerning radiological issues are also attached. Should you have any questions, please call me at (510) 540-3767.

Sincerely,



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

enclosure

cc: (see next page)

Mr. Richard Weissenborn

Page 3

March 21, 2003

cc: Michael McClelland, SWDiv
Andrew Dick, SWDiv
Steve Edde, Alameda Point
Mark Ripperda, EPA
Judy Huang, RWQCB
Charlie Huang, DFG
Christopher Fong, CIWMB
Penny Leiwander, DHS
Elizabeth Johnson, City of Alameda
Peter Russel, Northgate Environmental
Randolph Brandt, LFR
Burt Morgan, RAB Co-Chair
Lea Loizos, Arc Ecology
Brian Dela Barre, Tetra Tech

**DTSC COMMENTS
REVISED DRAFT FEASIBILITY STUDY REPORT
OU-3, SITE 1 – 1943-1956 DISPOSAL AREAS
ALAMEDA POINT, ALAMEDA, CALIFORNIA**

PART I: COMMENTS FROM THE OFFICE OF MILITARY FACILITY

GENERAL COMMENTS

Remedial Action Objectives

1. Site 1 consists of a number of key features including the 1943-1956 waste disposal areas (landfill), an open burn area, an aircraft engine and part storage area, and a small arms range. Because of different past uses, it is possible that the contamination present in the soil media at each feature area is different to the extent that the associated risk is different. This could lead to different soil remedial approaches and capping not necessarily will be the preferred alternative.

The soil Remedial Action Objectives (RAOs) presented in this Feasibility Study (FS) appears to be tailored for the preferred remedy, i.e., capping. Please explain why this “one size fits all” approach should be considered the preferred alternative for feature areas other than the landfill.

2. The FS contains no RAOs for landfill gas which is consistent with Alternative 2B-1, the alternative preferred by the Navy which requires no landfill gas remediation. It is not, however, consistent with other alternatives such as Alternative 3. Please provide appropriate RAOs for landfill gas.
3. Please discuss the criteria for selecting chemicals of concern (COCs) for the groundwater medium. Please make sure the discussion includes the parameters that were analyzed, the year the data were obtained, and any consideration of daughter products generated by the proposed treatment process. Please also discuss the criteria for selecting soil COCs.
4. Please explain why radionuclides are not considered COCs for the groundwater media. It appears that radionuclides in groundwater were investigated in 1991-1992 and 1994-1995 and there has been no recent sampling event that involves radionuclides. It is unclear what level of radioactivity is currently present in the groundwater and whether it has increased to a level that a designation of COC is warranted.
5. Please include in the RAOs both the acceptable chemical concentration for each COC (i.e. chemical specific RAO) and the cumulative acceptable excess lifetime cancer risk (ELCR) and hazard index (HI) for human and ecological receptors (i.e. narrative RAO).

ARAR Selection

6. Site 1 is a solid waste management unit (SWMU) subject to RCRA correction action. The cleanup of this unit must conform to RCRA corrective action requirements. For the waste disposal areas, state requirements found in California Code of Regulation (CCR) Title 22 and Title 27 should be complied with for the following:
 - landfill capping and monitoring
 - gas control and monitoring
 - leachate/groundwater control and monitoring.
7. As natural resources co-trustee, California Department of Fish and Game (DFG) reviews all remedial investigation (RI) and feasibility study (FS) for biological resources issues and provide ARARs as necessary. For this FS, DFG will comment on the *draft final* document because they were not provided with the *draft* FS.
8. In the future, please make sure the following State agencies are on the document distribution list to allow sufficient time for agency review:
 - DFG for any documents involving biological resources issues
 - Department of Health Services (DHS) for reports concerning radiological issues
 - Integrated Waste Management Board (IWMB) for reports concerning landfills.

General Response Actions

9. DTSC does not agree that the presumptive remedy is appropriate for the landfill at Site 1. Significant amounts of hazardous wastes, military munitions, and radioactive wastes are known, or believed, to have been buried at the subject landfill which abuts the San Francisco Bay. Groundwater at the site is shallow, averaging only 3 to 5 feet below ground surface and waste is likely in direct contact with groundwater. Furthermore, the presumptive remedy calls for streamlined RI/FS which, given the nature of contamination and the proximity to sensitive environment, is not warranted. Based on these, we believe the presumptive remedy does not apply to the landfill at Site 1.

We acknowledge that Site 1 landfill may not be a good candidate for excavation and that source containment may be the most feasible alternative. However, we believe such a determination can only be made after complete site characterization, risk evaluation and feasibility studies, i.e., not streamlined RI and FS as allowed by the presumptive remedy and presented for the subject site by the Navy.

Recommended Remedial Action Alternative

Soil Capping

10. The proposed capping extends beyond the landfill. Given that the landfill is estimated to be only 14.7 acres and the total area proposed for capping is 55 acres and that capping is a relatively expensive remedial alternative, please explain why capping is proposed beyond the landfill areas.
11. The open burn area is 4 acres which, according to the 1983 Initial Assessment Study, was used in the early 1950s as the primary means of disposing wastes at the base. Please summarize the site characterization and risk assessment data pertinent to the open burn area. Please explain why capping is preferred over other possible alternatives such as excavation.
12. For radiological anomalies outside of the landfill boundary, please explain past waste disposal practices that may have contributed to the spread. Please summarize the site characterization and risk assessment data pertinent to these areas and explain why limited removal (20 inches below ground surface (bgs)) with capping is preferred over complete removal.

Radioactivity has been detected at Site 1 in all three depth intervals investigated to date (0, 2.5, and 5 ft) suggesting radioactive wastes are present at 5 ft and deeper. We are concerned that radioactive materials will remain exposed to the groundwater even after remediation (groundwater average 3-5 ft bgs) and continue to release radionuclides into the groundwater.

13. For the pistol range, it is our understanding from the Site 1 *Ordnance and Explosive Waste/Geotechnical Characterization Report* that a 48-inch cover, rather than 24-inch, will be installed. Please clarify. Also, please summarize the site characterization and risk assessment data pertinent to the pistol range.
14. For the aircraft engine and parts storage area, please summarize the RI results from previous studies. An examination of Figures 2-1, 2-7, and 2-8 indicates that the subject area is located directly on top of the groundwater hot spots (i.e. M028A, M028E and M034A) suggesting that the former storage area may be a source for the contaminant plume. If true, capping at the subject area will not be preferred.
15. Please describe any site features other than those identified as key features (i.e. landfill, open burn area, pistol range, and aircraft engine and parts storage area). Please briefly discuss their past use and explain if there were any past releases at these areas and summarize site characterization data, if any. If they are within the proposed capping area, please explain why capping is appropriate. Please make sure to include in the discussion the old oil sump near M029-A and former skeet and target ranges.

Landfill Gas

16. Except for Alternative 3, all alternatives presented in this FS do not call for any remediation of the landfill gas. Please explain why landfill gas left untreated is not a concern. Please substantiate it with proper landfill gas characterization and risk assessment data.

Groundwater

17. Elevated levels of VOCs, SVOCs, TPHs, metals, cyanides, and radionuclides have been detected at wells around the site both in the first water bearing zone (FWBZ) and second water bearing zone (SWBZ). Please briefly describe why only the FWBZ plume seen at M028A, M028E and M034A is considered a “hot spot” and why only reduction of five VOCs and SVOCs (2,4-DMP, 2-methylphenol, 1,2-DCE, toluene, and xylene) is proposed for this FS.
18. Some of the Site 1 groundwater data appear to be quite old. TPH, for example, was only analyzed in 1991/1992. Metals and radionuclides appear to have no new data after 1994/1995. The 1999 data gap sampling, on the other hand, appear to be mostly hydropunch data. Please discuss the groundwater data used in the interpretation of groundwater COCs and plume delineation. Please explain if they adequately represent the site condition today.
19. Groundwater at Site 1 discharges west and north towards San Francisco Bay and the Oakland Inner Harbor. The proposed funnel and gate system extends in the north-south direction for a total of approximate 350 ft which is less than one half of the length of the landfill. Also, there has been no discussion to maintain the groundwater vertical flow. Please explain why a total containment of the groundwater, both laterally and vertically, is not necessary. Also, please explain how the groundwater gradient will be affected by the addition of a 2-ft soil cap.
20. The proposed funnel and gate system is centered on the core of the “hot spot” plume and a portion of the system appears to be inside the waste disposal cells. It is not clear why the system is not placed more toward the shoreline or the edge of the plume to maximize the capture of the plume. Please explain.
21. Please clarify if the funnel-and-gate system is also designed to capture contaminants in the SWBZ.
22. Please clarify if contamination has gone deeper than FWBA and SWBZ.
23. Please include pertinent funnel-and-gate pilot study data in the FS to facilitate the review.

Sediment

24. The 1983 Initial Assessment Study seems to suggest that some waste disposal occurred along the shore during the 50s. Please clarify if there was any historical waste disposal offshore of Site 1. Please explain if the sediment at Site 1 requires remediation and, if so, what avenue it will take.

Landfill Boundary

25. Please state in the FS that the area of refuse within Site 1 has never been delineated. Specifically, on the legends of all figures which depict the landfill, a clarification should be inserted that the landfill boundary is only approximated.

Results of Previous Studies

26. FS is built upon the findings of the RI and treatability study. Given that the said studies of Site 1 spanned over almost a decade and that the data are published in at least five different documents, it will be very helpful if pertinent RI and treatability data are made available in this FS report.

Prior Agency Agreement

27. The FS report has indicated prior agency agreements on a number of issues including the streamlined approach for the FS and the RAO for radiological anomalies. For clarity, please elaborate the nature of the agreements and provide backup documentation whenever possible.

Regulatory Framework

28. Please state in the FS that Site 1 is a RCRA solid waste management unit (SWMU) subject to RCRA corrective action.

PAGE-SPECIFIC COMMENTS

1. Report Title: Key environmental features of Site 1 include seven waste disposal areas (i.e. 1943-1956 disposal areas), an open burn area, an aircraft engine and part storage area, and a small arm range. By referring this report as Feasibility Study (FS) report for "OU-3, Site 1 – 1943-1956 disposal areas", it suggests that either this report deals with the 1943-1956 disposal areas only or the 1943-1956 disposal areas are synonymous to Site 1. Either way it is not what this report is intended for. Please delete the reference of 1943-1956 disposal areas from the report title.

Also, Executive Summary, ES-1, paragraph 1, lines 4 and 5 state, "... the physical boundaries of OU-3 are identical to those of Site 1, a former waste disposal area, ...". Please delete the phrase "a former waste disposal area".

2. Executive Summary, ES-1, paragraph 1 states, “The process of identifying and evaluating the remedial alternatives presented in this FS report was based on a streamlined approach, which was agreed upon by the Navy and regulatory agencies”. Please clarify what agreement was reached.
3. Page 1-1, Section 1.2, paragraph 1: Please note that the 1943-1956 waste disposal area is a RCRA Solid Waste Management Unit (SWMU) subject to RCRA corrective action.
4. Page 1-1, Section 1.2, paragraph 1: Please explain that at the state level the remediation of Site 1 is being coordinated not only with the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB), but also with the Department of Health Services (DHS), Department of Fish and Game (DFG), and Integrated Waste Management Board (IWMB).
5. Page 1-2, Section 1.2, paragraph 3 states, “The Navy and regulatory agencies have agreed to a streamlined remedial alternative development approach....”. Please clarify what agreement it was.
6. Page 2-3, Section 2.2.1, paragraph 3, line 4 states, “Gross alpha and gross beta radiation occur in nature, and thus are not necessarily attributable to a specific source or compound”. Given that this Feasibility Study (FS) proposes to excavate over 1800 discrete radiation anomalies from Site 1, the subject statement appears to be unnecessary. Please consider removing it.
7. Page 2-3, Section 2.2.2, paragraph 1: The contaminants reported for groundwater do not include pesticides and PCBs. Given that pesticides and PCBs were detected in the soil throughout Site 1, it is unclear if their absence from groundwater was a result of low concentration, masked detection limit, or omission of proper analyses. Please clarify.
8. Page 2-4, Section 2.2.3, last paragraph states, “From August 1998 to June 1999, the Navy performed an additional Ultrasonic Ranging and Data System survey Revealing a number of discrete, randomly distributed radiological sources in surface soil”. Please quantify the number of anomalies discovered rather than using the phrase “a number of”. Also, please indicate where the results were published.
9. Page 2-6, Section 2.2.4.1, paragraph 3, first line: M025-A is not shown on Figure 2-4.
10. Page 2-8, Section 2.3, paragraph 1, states “Residential risks were not evaluated, because a closed landfill is not conducive to future residential uses”. The landfill, measured at 14.7 acres, accounts less than 20% of Site 1 which is

measured at 78 acres. Please re-word this so that the landfill does not become the sole reason for restricted use at Site 1.

11. Page 3-1, first paragraph, has a typo error. Remedial action *alternatives* (RAO) should be remedial action *objectives* (RAO).
12. Page 3-2, third bullet: Please elaborate the agreement with the agencies and provide backup documentation for the RAO for radiological anomalies.
13. Page 3-2, third bullet: Please explain how 15,000 counts per minute (CPM) gross compares to 25 millirems per year (mrem/yr) which is the ARAR selected for ionizing radiation in the FS (see Page 3-4).
14. Page 3-8, Section 3.3 states, "The Navy and regulatory agencies have implemented a streamlined approach for the OU-3 FS report....". Please delete the phrase "regulatory agencies".
15. Page 4-9, Section 4.3.1.2, line 2 states, "Radiological sources were statistically a rare occurrence and widely dispersed". Please explain what this means.
16. Page 5-2, fourth paragraph states, "The monolithic cap would not significantly reduce migration of contaminants to groundwater; however, such migration appears to be occurring only in an area that occupies less than ten percent of the site surface area....". Please explain why the Navy believes such migration occurs only in less than 10 percent of the landfill area.
17. Page 6-1, paragraph 4, line 3 states, "...landfill gas was determined not to pose risks to human health". Please substantiate it.
18. Page 6-1, paragraph 4, last sentence, "Buildings or structures intended for human occupancy within 1,000 ft of the site boundary would require additional measures" Please clarify if the boundary means the boundary of the landfill area or the boundary of Site 1.

**PART II: COMMENTS FROM DTSC ENGINEERING SERVICES UNIT
(SACRAMENTO)**

Please refer to the February 7, 2003 memo prepared by Mr. Ram Ramanujam, P.E..

**PART III: COMMENTS FROM DTSC ENGINEERING SERVICES UNIT
(GLENDALE)**

Please refer to the March 11, 2003 memo prepared by Mr. Amit Pathak, P.E..



Department of Toxic Substances Control



Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

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

Gray Davis
Governor

MEMORANDUM

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

VIA: John Hart, P.E. 
Chief, Engineering Services Unit

FROM: Ram Ramanujam, P.E. 
Hazardous Substances Engineer
Engineering Services Unit

DATE: February 7, 2003

SUBJECT: Revised Draft - Feasibility Study Report - Operable Unit 3 - Site 1 -
1943-1956 Disposal Area, Alameda Point, Alameda, CA



Per your request, I have reviewed the following Report:

Revised Draft - Feasibility Study Report - Operable Unit 3 - Site 1, 1943 - 1956
Disposal Area, Alameda Point, Alameda, CA (Prepared by Tetra Tech EM INC.,
dated December 12, 2003).

Based on the review, my comments are as follows:

GENERAL COMMENTS:

G1. The Report identifies three remedial alternatives (Alternatives 1, 2 and 3) for the project. However, the proposed Alternatives 2 and 3 use the same containment (cap system) technology. It is not clear how the same cap system technology can be termed as various 'Alternatives.'

G2. The Operable Unit 3, site 1 is considered a hazardous waste unit. The Report proposes final cover for the site based on the California Code of

Regulations (CCR) Title 27 which applies to non-hazardous waste sites. The final cover for the site should be based on CCR Title 22 and the US EPA Guidance document (May 1991) for hazardous waste.

SPECIFIC COMMENTS:

S1. Section 2.1.1, Geology and Hydrogeology: The Report should include a typical cross sectional profile of the geologic and the hydrogeologic units.

S2. Section 2.2.1, Soil Investigation Results: The Report should include the range of concentrations for various contaminant compounds for the site.

S3. Section 2.2.2, Groundwater Investigation Results:

- . See the Specific Comment No: S2.

- . The Report should include a brief summary conclusions of the groundwater analytical data.

S4. Section 2.2.3, Page 2-5, 2nd Bullet Item: The Report should include summary conclusions of the funnel-and-gate demonstration to treat the groundwater.

S5. Section 2.2.4.3, Remedial Investigation Report Addendum Volume III: The referenced document title, 'Draft Final Ordinance and Explosives waste/Geotechnical Characterization Report,' prepared by Foster Wheeler Environmental Corporation, 2002a, is not compatible with the Section 2.2.4.3 subtitle. This issue needs clarification.

S6. Foster Wheeler Environmental Corporation (FW) report on the draft geotechnical and seismic FS Report indicates that a soil revetment gravity wall, with stone columns to reduce liquefaction potential was determined to be the most feasible alternative. Also, FW recommends a 4 ft thick moncover in the engineering analysis. It is unclear how the current FS accommodates the recommendations provided by the Geotechnical FS.

S7. Section 2.3, Human Health and Ecological Risk: The Report should include the following item within the reference section:

- California EPA Department of Toxic Substances Control (DTSC) guidance (referred to as "state assumptions.")

S8. Section 2.3.1: It is appropriate to include soil contamination concentration contours with a 3-dimensional fence diagram.

S9. Figures 2-7 and 2-8: Groundwater data is provided from the 1994 and 1995 quarterly sampling. It is appropriate to include more recent data to understand the present existing conditions of the first Water-Bearing Zone.

S10. Section 3.1.1, Soil Remedial Action Objectives: The Report should include a definition for the 'shallow soil' for the site (such as depth from ground surface).

S11. Figure 3-1, Chemicals of Concern in Shallow Soil: Lead compounds should be included as chemicals of concern in shallow soils.

S12. Figure 3-3, Commingled Groundwater Plume: Figure 3-3 is not tied with the text in the Report. This figure should be included with the Report appropriately.

S13. Section 3.2.3.2, Disposal Area Capping and Monitoring: The Report should include additional requirements under the CCR Title 22 (such as Sections 66264.25, Seismic and Precipitation Design Standards, 66264.228, Closure and Postclosure Care etc.).

S14. Section 3.2.3.2, Disposal Area Capping and Monitoring: Project ARARs should include the requirements of CCR Title 22 §66264.110 and CCR Title 22 §66264.228.

S15. Section 3.3, General Response Actions: See General Comment No: G1.

S16. Section 4.3.1.3, Monolithic Cap, Page 4-11, 2nd paragraph

. "The Hydrologic Evaluation of Landfill Performance (HELP) was used to evaluate the effectiveness of the two monolithic cap designs...." It should be noted that HELP model is not applicable to mono covers. The appropriate models for the mono covers (evapotranspiration cover) are VLEACH, LEACHM, etc. The cover analyses in the Report needs to be revised.

. The Report proposes two monolithic cover alternatives (48 inches and 24 inches). It is an industry practice to have a minimum 48 inch-thick barrier soil layer as a monolithic cover (and not a 24 inches thick soil barrier layer).

S17. Section 4.3.1.4, Groundwater Treatment:

. The Report includes two groundwater treatment systems such as the Funnel-and-gate, and pumping and treatment. Since the groundwater contamination is in the shallow groundwater, it is appropriate to consider another alternative such as a trench system for groundwater treatment.

. The Report should include the depth of pumping wells that will be used to collect groundwater for treatment.

. The extraction well locations are close to the boundary of the commingled groundwater contaminant plume. It is unclear how these locations were determined. This issue needs clarification.

S18. Figures 4-3 and 4-4: See Specific Comment No: S9.

S19. Section 4.3.1.6, Long-Term Monitoring, page 4-17: It appears that gas monitoring wells will be installed in an 8-inch boring drilled to a depth equal to the maximum depth of the waste. The Long-Term monitoring should meet the requirements of CCR Title 27 §20925.

S20. Section 4.3.2.2: The Monolithic cap should satisfy the requirements of CCR Title 22 §66264.110 and 66264.228. The Report refers CCR Title 27 §20190 for the monolithic cap. Please verify the reference (not included with the CCR Title 27).

S21. Figures 4-3, 4-4, 4-5 and 4-6: See Specific Comment No: S9.

S22. Figure 4-8: See Specific Comment No: S9.

S23. Section 5.0, Comparative Analysis of Remedial Action Alternatives: See Specific Comment No: S16.

S24. Section 5.3: See Specific Comment No: S16.

S25. Section 7.0: Reference Section should include the following US EPA guidance document:

Design and Construction of RCRA/CERCLA Final Covers, EPA/625/4-91/025, May, 1991.

S26. Appendix A, Page A-11, Monolithic and Engineered Cap: The site (Operable Unit 3, Site 1) is considered a hazardous waste Management Unit. The cover should be based on the US EPA guidance document (May, 1991).

S27. Appendix B: The various input parameters used for the HELP Model should be identified (and justified). Also, the HELP model should have a comparative analysis between prescriptive cover and the proposed cover.

S28. Appendix C: The cost estimate should include a detailed breakdown of cost for various site activities.

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.



Gray Davis
Governor

Department of Toxic Substances Control

Edwin F. Lowry, Director
5796 Corporate Avenue
Cypress, California 90630



Winston H.
Hickox
Agency Secretary
California
Environmental
Protection
Agency

MEMORANDUM

TO: Marcia Liao
Office of Military Facilities
DTSC- Berkeley office
(510) 549-3767 Fax: (510) 849-5285

VIA:

John Hart, P.E., Chief
Engineering Services Unit-HQ
(916) 255-6663 Fax (916) 255-3697

FROM:

Amit Pathak, P.E.,
Hazardous Substances Engineer
Engineering Services Unit - Cypress Office
(714) 484-5468 Fax: (714) 484-5438

DATE: March 11, 2003

SUBJECT: -REVISED DRAFT FEASIBILITY STUDY REPORT, OU3
-FUNNEL-AND-GATE DEMONSTRATION DATA SUMMARY REPORT
FOURTH QUARTER
ALAMEDA POINT, ALAMEDA, CALIFORNIA

Documents Reviewed:

1. A few sections of "Revised Draft Feasibility Study Report, Operable Unit 3, Site 1-1943-1956 Disposal Area" prepared by Tetra Tech EM dated December 12, 2002 for Department of The Navy.
2. "Funnel-and-Gate Demonstration Data Summary Report, Fourth Quarter" submitted by Tetra Tech EM dated May 19, 1999 for Department of The Navy.

Based on the review of the above documents, the Engineering Services Unit (ESU)'s comments are listed in this memorandum.

General Comments:

- G1. The radioactivity in the groundwater is not discussed during evaluation of different remedial alternatives. If the radioactivity in the groundwater is an issue, the selected remedy (funnels and gate groundwater treatment system) will not remove radioactivity.
- G2. The draft FS should include the rationale for rejecting other applicable in-situ groundwater treatment technologies such as air/ozone sparging and in situ chemical oxidation for the contaminated groundwater plume covering area of 300 ft x 300 ft .

If the COCs have migrated deeper than the proposed depth of funnel and gate system in groundwater, the remediation will not be complete.

- G3. The followings are the comments on the data summary report for funnel and gate system, 4th quarter. These comments should be addressed in conjunction with the applicability of the full scale funnel and gate groundwater treatment system proposed in the draft FS.
- Although, the fourth quarter data summary report (Figures 4-1 and 4-16 in chapter 4) does not show the increase in concentration of vinyl chloride (VC) and ethene, the TCE and DCEs have decreased across the remedial gate including the biosparge section. Please explain why the increase of VC and ethene has not been observed across the remedial gate in spite of the decrease in the TCE and DCEs.
 - The ferric iron concentration in groundwater across the remedial gate (across the biosparge section) shows an increasing trend (Table 4-17). Please explain the implications of the increase in ferric iron (which is insoluble) in groundwater when the large scale funnel and gate system will be operated. The excess amount of iron may result in exceeding turbidity and total iron MCLs.
 - 2, 4-dimethylphenol an ecological COC was measured in the column B remedial gate section only from R1PB, R5PB and R7PB. This compound was not evaluated from performance wells. Although, one sampling round suggested that the compound was not detected down gradient of the granular iron section, the trend was not validated by other sampling rounds. Therefore, the reduction mechanism of 2,4-dimethylphenol should be explained.

- G4. The FS selects the Alternative 2B-1 that includes the funnel and gate groundwater treatment system. It should be noted that the fourth quarter data summary re-

Marcia Liao

Alameda Point, Alameda, California

Revised Draft Feasibility Study Report, OU 3, Site 1- 1943-1956 Disposal Area

March 11, 2003

Page 3 of 3

port section 5.2.1 acknowledges the presence of the cis 1,2 DCE and vinyl chloride in the off gas during the biosparging.

Therefore, the volatilization of the COCs may take place in the biosparge section of the funnel and gate system. The FS should evaluate the need to control and treat the off gas.

- G5. The iron fouling and biological activities may coat the iron wall surface over a period of time. The draft FS proposes to use ultrasonication for verifying iron wall thickness and projects estimated maintenance of the iron wall every seven years. Estimating time for the maintenance of the iron wall mainly due to the metals precipitation and biofouling may be difficult.

Analyzing the status of the iron wall currently existing at the site may be helpful to project the maintenance period of the iron wall. The difference in hydraulic conductivity data across the existing remedial gate or a core sample of the iron wall may also provide useful information.

Specific Comments:

- S1. The Figure 4-5 indicates the position of the additional gates for the proposed full scale funnel and gate groundwater treatment system. The additional northern gate is outside the extent of the commingled groundwater contaminant plume. Explain the need to install the additional gate outside the plume boundary.
- S2. The section 4.3.1.4 indicates that the thickness of the gate for additional gates were calculated based on the residence time. However, the concentration data that were used to calculate the residence time were old. The concentration of the COCs at present may have changed. Please verify that there is no expected change in residence time.

If you have any questions, please feel free to contact me at 714-484-5468.

DEPARTMENT OF HEALTH SERVICES REVIEW

ACTIVITY: *Review of Revised Draft Operable Unit 3, Site 1 Feasibility Study, Alameda Point, Alameda, CA*, dated December 12, 2002

FACILITY: Alameda Point (formerly Alameda Naval Air Station), Alameda, CA

GENERAL COMMENTS:

1. This feasibility study was reviewed to ensure that the requirements of the California Code of Regulations, Title 17, have been or will be met once the property is no longer under federal jurisdiction. The feasibility study recommends a remedial alternative that does not require that all of the discrete sources of radioactive materials be removed prior to use of the property for recreational purposes. Because radioactive material will remain at the site after transfer, the requirements of Title 17 must be met. The Radiologic Health Branch (RHB) of the Department of Health Services (DHS) is the branch responsible for ensuring compliance with Title 17. RHB staff will provide comments as this process proceeds.
2. In past meetings, the Navy indicated that a removal action would be performed prior to proceeding with the Feasibility Study so that characterization information could be obtained. It appears that the Navy decided to proceed with the Feasibility Study without first performing the characterization. Assumptions made about the quantity, type, dispersal mechanisms, location of sources and impact on groundwater would have been better assessed if the removal action had occurred. As a result, the Navy is leaving open the possibility that some unknown information may be discovered that limits the Navy's ability to ensure compliance with Title 17 under the recommended alternative. DHS sent a letter in February 2001 (attached), stating that there was minimum knowledge about the site and further characterization was needed to render a decision about radiological controls. What does the Navy propose to do to resolve this issue?
3. Acceptance by DHS of the recommended alternative is predicated on the following:
 - a) Monolithic cap integrity will be maintained.
 - b) All buried radioactive sources are underneath the monolithic cap, i.e., the cap extends to all locations where radioactive materials may be buried.

- c) The monolithic cap is thick enough to ensure the external dose rate from any radioactive materials is negligible or as low as reasonably achievable.
- d) Predictive modeling of the radioactive source term indicates that groundwater contamination exceeding acceptable limits is not likely.
- e) Groundwater monitoring will be conducted that will provide assurances that impact to groundwater from radionuclides will be detected before interdiction actions should be considered.
- f) Contingency plans will be in place in case any of the previous conditions are not met in the future, i.e., if cap integrity is lost, if radioactive material is found beyond the cap boundary, or if groundwater conditions require interdiction actions.
- g) An investigation into the burn pit area shows that a consolidated radioactive waste pit does not exist that could significantly impact groundwater or present a significant radiation exposure hazard if accidentally encountered.

The specific comments below discuss where information may be lacking in the Feasibility Study to adequately address the above items.

Specific Comments:

1. Figure 3-2 shows elevated radiological survey locations that are outside the boundary of the proposed disposal cap. The elevated locations are east of the runway and south of the most eastern 1947-1949 disposal pit. What will be done with these elevated locations? How is it known that these anomalous locations are not indicating another disposal cell? If these anomalous locations turn out to be discrete radioactive sources or radioactive waste not associated with a disposal pit, then why and how did they get there? Does the removal of anomalies detected only by the surface scan demonstrate a complete removal? If not, then a more extensive removal is necessary or the cap should extend to this location.
2. Figure 3-2 appears to indicate that an anomalous survey reading was found at the very edge of the surveyed area. Does this indicate that there may be more anomalous readings outside the surveyed area? Provide the justification that no further surveys are required if that is the case. (This may be outside the boundary of OU 3, and if so, specify which documents will address the area.)
3. Page 3-2, 3rd bullet: The Navy needs to show through calculations that the proposed thickness of the cap will ensure that the exposure rate at the surface of the cap (or possibly at 1 meter above the cap) due to any radioactive discrete source or radioactive waste material is negligible or as low as reasonably achievable (ALARA). The feasibility study indicates that removal will be attempted for locations that indicate 10,000 cpm

above background. Calculations need to be provided showing that ALARA is achieved using this criteria with the proposed thickness of the cap. In addition, the 10,000 cpm needs to be associated with a detector of known efficiency for radium-226, and possibly for Strontium-90.

4. DHS requests that predictive modeling be performed demonstrating that it is unlikely that the quantities and types of materials disposed would create an unacceptable present or future impact on groundwater. The modeling should consider the potential impact of drinking wells down gradient from the disposal site, if they exist. Reasonable estimates of the amount of material buried should be derived from the radiological removal action, and knowledge of the burial site volume.
5. Groundwater monitoring must be performed to ensure that any impact from buried radioactive waste is detected and that preventative actions can be taken if necessary. Detailed information on the groundwater monitoring program for radionuclides that will be conducted has not been reviewed for adequacy by DHS at this time because of the lack of documents available.
6. Page 4-10, 2nd paragraph: As previously discussed in meetings, the IAS document from 1983 appears to indicate the possibility of a burial trench containing consolidated radioactive waste within or near the burn pit site and near the most elevated radiation readings detected. DHS requests that the investigation of this trench be more extensive than just a surface scan and removal of anomalies above 10,000 cpm. It is not known if clean soil was placed as cover on the trench, thereby shielding potential buried sources. More specific information needs to be provided on the "excavation trenching" that the Navy is planning for this area before concurring with the activity.