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Ser 702P3JF/L8106  
17 Feb 1998

From: Commanding Officer, Engineering Field Activity, West, Naval Facilities Engineering Command  
To: U. S. Environmental Protection Agency (Attn: Sheryl Lauth)  
California Department of Toxic Substances Control (Attn: Chein Kao)  
California Regional Water Quality Control Board (Attn: David Leland)  
Subj: PROJECT COMPLETION REPORT, EXPLORATORY EXCAVATIONS,  
ENGINEERING FIELD ACTIVITY, WEST, NAVAL FACILITIES ENGINEERING  
COMMAND, HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA  
Encl: (1) Replacement pages for the Project Completion Report, Exploratory Excavations,  
Engineering Field Activity, West, Naval Facilities Engineering Command, Hunters  
Point Shipyard, San Francisco, California  
(2) Navy Response to Comments, Project Completion Report, Exploratory Excavations

1. Enclosure (1) is submitted in accordance with the Hunters Point Shipyard Federal Facilities Agreement. The replacement pages contain revised text which reflects changes based on comments received from the EPA. The first 13 replacement pages, cover page through page 10, should replace all of the original pages preceding Appendix A. The remaining pages should replace all of Appendix C. The Appendix C replacement pages do not contain any content changes but do provide clearer drawings.

2. Enclosure (2) is submitted as the Navy's response to U.S. EPA's comments, dated 17 December 1997.

3. If you have any questions regarding these enclosures, please contact Ms. Jil Finnegan, at (650) 244-2554.

Original signed by:

RICHARD E. POWELL  
By direction of  
the Commanding Officer

Blind copies to:  
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N00217.003703  
HUNTERS POINT  
SSIC NO. 5090.3

ENCLOSURE 1

REPLACEMENT PAGES FOR THE PROJECT  
COMPLETION REPORT  
EXPLORATORY EXCAVATION

DATED 01 JANUARY 1998

IS ENTERED IN THE DATABASE AND FILED AT  
ADMINISTRATIVE RECORD NO. N00217.003704

**NAVY RESPONSES TO REGULATORY AGENCY COMMENTS**  
**on the**  
**EXPLORATORY EXCAVATIONS PROJECT SUMMARY REPORT**  
**HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA**

Following are the U.S. Navy's responses to regulatory agency comments on the Exploratory Excavations Project Summary Report at Hunters Point Shipyard, San Francisco, California. The U.S. EPA submitted their comments on the report on December 17, 1997.

The regulatory agency comments are presented in regular type; the U.S. Navy's responses are presented in italics.

**GENERAL COMMENTS**

**Comment 1:** There are several exploratory excavations where cleanup criteria were exceeded yet the excavations were not continued. This is of particular concern for the EEs in Parcel B as these were to be final actions as documented in the ROD. EPA reviewed the EE samples against the residential soil levels (RSL) in the Parcel B ROD and the industrial soil levels (ISL) in the Parcel D ROD, whichever was appropriate (note: Areas designated for future Maritime use and as Open Space were also evaluated using ISLs; this may not have been appropriate and will be determined as part of the RODs for these areas). In addition, the detection limit for PAHs and PCBs almost always exceeded the residential clean-up levels. Based on our review, it would appear that contamination may have been left in place for the following EEs:

The SL criteria used to evaluate each excavation is noted in Parentheses.

*Response: The exploratory excavations (EEs) were based on removal action criteria that were previously agreed upon by the Base Realignment and Closure Act (BRAC) Closure Team (BCT). These criteria are both physical and chemical.*

*The physical criteria were:*

- 1. At each site, an EE volume of 500 cubic yards will not be exceeded;*
- 2. EE activities will not extend vertically beyond the shallow groundwater table; and*
- 3. EE activities will not extend horizontally or vertically beyond buildings, foundations, and other physical structures which act as obstructions.*

*The chemical criteria for constituents of concern (COC) were:*

- 1. Residential soil levels (RSL) in Parcel B and industrial soil levels (ISL) in Parcel D will be either the appropriate (residential for Parcel B and industrial for Parcel D) U.S. EPA Region 9 preliminary remedial goal (PRG) of February 1995 or the Hunters Point Ambient Level for metals (HPAL) of August 17, 1995, whichever is higher.*
- 2. For HPALs, which depend on a regression analysis (that is, chromium, cobalt, and nickel regressed against the measured magnesium concentration in the soil sample), the sample-specific, regression-based HPAL will be the HPAL.*
- 3. If the analytical detection level (DL) under the U.S. EPA Contract Laboratory Program (CLP) is above the PRG or HPAL, as is anticipated to occur when petroleum hydrocarbons interfere with*

*polynuclear aromatic hydrocarbons (PAH) or polychlorinated biphenyls (PCB), the DL will override the cleanup or sample confirmation criterion. DLs depend on several factors, including soil moisture, chemical concentration, analytical method, and chemical interference.*

*In addition, please see Attachment C, rather than Attachment A, of the Action Memorandum in Appendix A of the Project Completion Report for reference to EE Site Tables and Figures.*

*Therefore, applying these criteria and references to General Comment 1, these responses follow:*

**Comment:** **EE - 01 (RSL):** There was one sample that exceeded the 4,4-DDT RSL; an additional 2 feet of excavation was done to the northeast, but no confirmation sample was taken. After additional excavation, one bottom (601 mg/Kg) and one sidewall (southern-most, 1300 mg/Kg) sample exceeded the RSL for nickel, but no further action was taken because the detected levels allegedly were below HPALs.

**Response:** *Excavation to the northeast was terminated, consistent with physical criteria, where a physical obstruction was encountered. Side wall and bottom excavation was terminated because the HPAL for the COC was the screening level, consistent with the chemical criteria. Because nickel is present in soil at concentrations above the RSL but below the HPAL, no further action is required regarding nickel.*

*ACTION REQUIRED AT EE-01: An additional soil sample should be collected in the vicinity of EE0102 from below the clean fill level at greater than 3 feet below ground surface (bgs) to confirm that 4-4-DDT is no longer present at a concentration exceeding the RSL. If this confirmation sample detects DDT above the RSL, excavation of this area may need to be included as part of the remedial action for Parcel B.*

**Comment :** **EE - 02 (RSL):** The detection limits for PAHs were much higher than the RSL (by as much as 23 times). The Aroclor 1260 detection limit also exceeded the B RSL by a factor of 22. All four sidewall samples (collected after the excavation was expanded) exceeded the B RSL for nickel; the concentration of nickel detected in the sample from the northeast wall (2480 mg/Kg) was about 35% higher than the sample collected from the northeast wall before the excavation was expanded (1830 mg/Kg), suggesting that there may be additional nickel contamination to the northeast of EE-02. One additional note is that 2-methylnaphthalene, benzo (g,h,i) perylene, and phenanthrene were originally identified as COCs, but results for these SVOCs are not included in the data summary tables.

**Response:** *Regarding nickel, excavation was terminated because the sample-specific HPAL for the COC was the screening level, consistent with the chemical criteria. For the absence of another COC not being mentioned, please see Attachment C, rather than Attachment A, of the Action Memorandum in Appendix A of the Project Completion Report for reference to EE Site Tables and Figures.*

*The detection limits for PAHs in soil collected at 4 feet bgs were significantly elevated as noted in the EPA comments. However, this area was excavated to a depth of 6 feet bgs. Detection limits for PAHs in soil collected at 6 feet were only about twice the standard CLP detection limits because of matrix interferences. No action is recommended based on this comment because (1) the RSLs for these PAHs are not achievable by the CLP methods, and (2) the sample matrix apparently contains interferences that prevent achieving lower detection limits.*

*The detection limits for Aroclor-1260 in soil collected at 4 feet bgs were significantly elevated as noted by the EPA comments. However, this area was further excavated to a depth of 6 feet bgs. Detection limits for Aroclor-1260 in soil collected at 6 feet bgs were comparable to the standard CLP detection limits. No action is recommended based on this comment because the RSL for Aroclor-1260 is not achievable by the CLP method.*

*In addition, 2-methylnaphthalene, benzo(g,h,i)perylene, and phenanthrene compounds were not detected in any samples collected at EE-02 in concentrations exceeding the RSLs.*

*Finally, consistent with the human health risk assessment strategy in the Parcel B Remedial investigation (RI) Draft Final Report, a residential exposure area consists of 2,500 square feet. Although an individual soil sample at several feet below a now clean-backfilled excavated pit may have been encountered with results exceeding an RSL, if the analytical results for confirmation soil samples and the assumed non-detected concentrations for the clean overlying backfill are considered in a risk assessment, the 95<sup>th</sup> Upper Confidence Level on the mean concentration would be expected to be well below the clean up goal for the exposure area. In other words, the risk assessment criteria assumes that an individual lives on the exposure area for 70 years and is exposed to soil in the exposure area for 24 hours a day, as well as eating vegetable produce grown within the exposure area—not merely from within an individual point in the soil profile. Therefore, using the same risk assessment approach as in the RI, no further action is recommended at EE-02.*

**Comment:** **EE - 03 (RSL):** The B RSL for arsenic and nickel was exceeded. The RSL for arsenic was exceeded in 2 trench bottom samples; resampling resulted in confirmation of the sample that exceeded the RSL in 1 of the 2 locations. The RSL for nickel was exceeded in every sample collected from both the bottom and sidewalls of the excavation (range 383 to 955 mg/Kg). Cobalt was originally identified as a COC, but is not included in the data summary tables.

**Response:** *Regarding the trench bottom sample, excavation was terminated at the groundwater interface, consistent with the physical criteria.*

*At EE-03, with respect to nickel in the confirmation soil samples, the sample-specific HPAL for nickel was not exceeded, and therefore no further action is required. The third round soil sample for arsenic confirms values below the cleanup goal, and therefore no further action is recommended at EE-03.*

*Because groundwater was encountered at 4.5 feet deep at station EE0311, the excavation was terminated at groundwater at EE-03. As specified in the ROD and discussed under Response to General Comment 6, a notification will be placed on the deed indicating that soil below the groundwater table in the remediated areas as specified in the remedial action close-out report may be contaminated.*

**Comment:** **EE - 04 (RSL):** The detection limits exceeded the EE and B RSLs, but all samples were non-detect.

**Response:** **EE-04A:** *Detection limits for VOCs did not exceed the RSLs. Detection limits for PAHs were only about twice the standard CLP detection limits because of matrix interferences. Detection limits for PCBs were comparable to the standard CLP detection limits. Therefore, no further action is recommended at EE-04A.*

**EE-04B:** *The analytical results for TCE did not exceed the screening levels. For the Aroclor sample, excavation was terminated, consistent with physical criteria, where a physical obstruction was encountered.*

*Detection limits for VOCs did not exceed the RSLs. Detection limits for PAHs were about only twice the standard CLP detection limits because of matrix interferences. Detection limits for PCBs (except for in sidewall sample EE04B07 at 1 foot bgs) were comparable to the standard CLP detection limits. The PCB detection level was only slightly twice the RSL.*

*Because building foundations as physical obstructions were encountered at 2 feet deep at station EE04B2 and at 1 foot deep at station EE04B07, the excavation was terminated at the obstructions at EE-04B. A human health risk evaluation will be performed on the contaminants left in place for this exposure area. If a carcinogenic compound or group of carcinogens presents a risk within the range of  $10^{-4}$  to  $10^{-6}$  to an individual at that exposure area, no further remedial action will be performed. If a carcinogenic compound or group of carcinogens presents a risk that exceeds  $10^{-4}$ , the physical obstruction will be demolished, if possible, and the excavation continued until clean up goals are met or the groundwater table is encountered.*

**EE-04C:** *Concerning chromium, please see Attachment C, rather than Attachment A, of the Action Memorandum in Appendix A of the Project Completion Report for reference to EE Site Tables and Figures. Detection limits for VOCs did not exceed the RSLs. Detection limits for PAHs were only about twice the standard CLP detection limits because of matrix interference. Detection limits for PCBs were comparable to the standard CLP detection limits. Therefore, no further action is recommended at EE-04C.*

**Comment:**

**EE - 05 (RSL):** After the excavation was expanded, samples still exceeded the RSLs for nickel, lead, manganese and mercury. Every sidewall and bottom sample exceeded the RSL for nickel. On the north side of the excavation sample EE0511 exceeded the RSLs for lead (2090 mg/Kg) and mercury (134 mg/Kg) and sample EE0515 exceeded the RSLs for mercury (9.1 mg/Kg) and manganese (2420 mg/Kg), but no further excavation could be done because of the building foundation. Round 2 sidewall sample EE0514 exceeded the RSL for lead (2910 mg/Kg) and mercury (434 mg/Kg); additional excavation was done to the east and the excavation was extended to the water table, but not bottom confirmation sample was collected from this area. Since significant vertical contamination may have existed in this area, the lack of a bottom confirmation sample is problematic. This is confirmed by the bottom sample (EE0517) that was collected about 10 feet south of this location where the RSL for mercury was exceeded (6.8 mg/Kg); this sample also exceeded the RSL for arsenic. It is likely that there is an area with significant mercury contamination at and below the water table in the vicinity of sample locations EE0514 and EE0517. A second area with significant mercury contamination exists in the vicinity of samples EE0505 and EE 0511.

One additional note of EE-05. Benzo (g,h,i) perylene and not phenanthrene were originally identified as COCs, but were not included in the data summary tables.

**Response:** *Sidewall excavations were terminated, consistent with physical criteria, where a physical obstruction was encountered. No bottom soil samples were taken because groundwater was encountered. With regard to COCs not shown in summary tables, please see Attachment C, rather than Attachment A, of the Action Memorandum in Appendix A of the Project Completion Report for reference to EE Site Tables and Figures. Additionally, excavation at this site was terminated to conform to the excavation volume limitation at each site of 500*

*cubic yards, consistent with physical criteria.*

*Because building foundation as physical obstructions were encountered at 3 feet deep at station EE0511 and at 3.25 feet at station EE0515, the excavation was terminated at the obstructions at EE-05. In addition, excavation was terminated at the water table at 7.5 feet deep at station EE0517, and other excavation depths were terminated at 6 feet to keep within the 500-cubic yard removal action criteria at EE-05.*

*A human health risk evaluation will be performed on the contaminants left in place for this exposure area. If a carcinogenic compound or group of carcinogens presents a risk within the range of  $10^{-4}$  to  $10^{-6}$  to an individual at that exposure area, no further remedial action will be performed. If a carcinogenic compound or group of carcinogens presents a risk that exceeds  $10^{-4}$ , the physical obstruction will be demolished, if possible, and the excavation continued until clean up goals are met or the groundwater table is encountered.*

**Comment:** **EE - 11A (RSL):** The analytical data that defines the COCs was not included in the Action Memorandum or in the EE Project Completion Report, so it is difficult to evaluate whether there are problems. If the post-excavation samples were analyzed for the correct analytes, the only problem is that the detection limit for PCBs exceeded the RSL.

*Response: Please see response under EE - 11B.*

**Comment:** **EE - 11B (RSL):** The analytical data that defines the COCs was not included in the Action Memorandum or in the EE Project Completion Report, so it is difficult to evaluate whether there are problems. If the post-excavation samples were analyzed for the correct analytes, the only problem is that the detection limit for PCBs exceeded the RSL.

*Response: Please see Attachment C, rather than Attachment A, of the Action Memorandum in Appendix A of the Project Completion Report for reference to EE Site Tables and Figures. Regarding EE-11A, the PCB detection limits are comparable to standard CLP detection limits. Regarding EE-11B, the PCB detection limits are comparable to standard CLP detection limits, with the exception of the sample collected from EE11B05, which was affected by interferences. Therefore, no further action is recommended at EE-11.*

**Comment:** **EE - 11?:** The Action Memorandum shows 3 small areas that were to be excavated as EE-11, however, only 2 of these areas were actually excavated. The reason the third area was not excavated is not discussed in the EE Project Completion Report.

*Response: Please see Attachment C, rather than Attachment A, of the Action Memorandum in Appendix A of the Project Completion Report for reference to EE Site Tables and Figures.*

**Comment:** **EE - 12 (ISL):** The summary states that "approximately 160 cubic yards of soil was excavated from EE-12 site, containing primarily PCBs, polynuclear aromatic hydrocarbons (PAH), and metals to a depth of 10 feet bgs." This is somewhat misleading because PCBs and PAHs were only detected in one surface soil sample and the confirmation samples were apparently only analyzed for metals and TPH-mo. The elevated Thallium does not exceed the ISL.

*Response: This statement quoted in this comment could not be located in the Project Completion Report.*

*Because building foundation and railroad tracks as physical obstructions were*

*encountered, the excavation was terminated at the obstructions at EE-12. Thallium exceeded the HPAL of 0.81 milligram per kilogram (mg/kg) at 4 feet below ground surface in sidewall soil samples EE1201 and EE1206 at concentrations of 1.2 and 1.3 mg/kg, respectively. Currently, HPS does not have a PRG value for total thallium; therefore, the clean up goal defaults to the HPAL. However, other Navy facilities (such as Mare Island Shipyard and Concord Naval Weapons Station) use the PRG value of 5.4 mg/kg for thallic oxide as the PRG value for total thallium. Thallium concentrations in samples EE1201 and EE1206 do not exceed 5.4 mg/kg for thallic oxide; thus, no further action is required regarding thallium.*

**Comment:** EE - 13?: The Action Memorandum contained EE-13, but the EE Project Completion Report does not. It is not clear what happened to this site.

*Response:* Please see Attachment C, rather than Attachment A, of the Action Memorandum in Appendix A of the Project Completion Report for reference to EE Site Tables and Figures. No further action is recommended at EE-13.

**Comment:** EE - 14 (ISL): The document states, "At IR-37, approximately 36 cubic yards of soil was excavated from EE-14, containing PCBs, PAHs, and metals to a depth of 3 feet bgs." However, the confirmation samples were not analyzed for PAHs, or PAHs (specifically phenanthrene) or were not reported in the summary table. The excavation appears to have removed all soil with elevated PCBs and metals.

*Response:* This statement quoted in this comment could not be located in the Project Completion Report. No further action is recommended at EE-14.

**Comment:** EE - 15/16 (ISL): The document states, "At IR-53, approximately 65 cubic yards of soils were excavated from EE-15 and EE-16 sites, containing PCBs, pentachlorophenol, and metals to a depth of 3 feet bgs...." However, confirmation samples were not analyzed for PCBs or pentachlorophenol, or the results were not listed in the summary tables. The excavation did not extend past a confirmation sample with elevated thallium, apparently because of an adjacent foundation would have been undermined, but the thallium ISL exceeds the SL used for the EE project. Lead and 2-hexanone were listed as COCs in the Action Memorandum, but results for these analytes were not included in the summary tables.

*Response:* This statement quoted in this comment could not be located in the Project Completion Report. Referring to thallium, this material was removed to below screening levels as shown in Round 3 analytical data. For reference to 2-hexanone, please see Attachment C, rather than Attachment A, of the Action Memorandum in Appendix A of the Project Completion Report for reference to EE Site Tables and Figures. Lead results are shown in Round 3 analytical data, which indicate removal to below screening levels. Therefore, no further action is recommended at EE-15/16.

**Comment:** EE - 17 (ISL): The document states, "At IR-70, approximately 94 cubic yards of soil was excavated from EE-17 site, containing PCBs, pesticides, and metals to a depth of 7 feet bgs..." However, it appears that confirmation samples were not analyzed for PCBs or pesticides, or the data summary tables did not include these contaminant groups. The excavation appears to have removed all soil with elevated arsenic, thallium, TPH-d, and TPH-mo.

*Response:* This statement quoted in this comment could not be located in the Project Completion Report. No further action is recommended at EE-17.

**Comment:** EE - 18 (ISL): The analytical data that defined the extent of the contamination at

EE-18 was not provided in the Action Memorandum or in the EE Project Completion Report, so it is difficult to evaluate whether all of the contamination was removed. Based on the information provided, the excavation was sufficient to remove soil contaminated with arsenic and mercury.

*Response:* Please see Attachment C, rather than Attachment A, of the Action Memorandum in Appendix A of the Project Completion Report for reference to EE Site Tables and Figures. No further action is recommended at EE-18.

**Comment 2.** Please clarify how the stockpiles were consolidated from multiple excavation. Explain whether the combined soil cells comprised of soil from excavations exhibiting similar contaminants and concentrations or whether some other method was used. It appears that the analytes exceeding screening levels were different where soil from different excavations was combined. For examples see the following table (compiles from Table 1 of the Action Memorandum and Appendix D):

Cell ID	Cell Contents	Unique Analytes Exceeding Screening Levels
20	EE-15 EE-16 EE-17	-- lead, SVOCs arsenic
18	EE-15 EE-16	-- lead, SVOCs
14	EE-06 EE-07 EE-10 EE-11	arsenic -- thallium to be sampled (unknown)
13	EE-10 EE-11 EE-18	thallium, TPH-diesel, TPH-motor oil to be samples (unknown) to be samples (unknown)
19	EE-01 EE-05	chromium, 4,4-DDT beryllium, manganese, mercury, SVOCs, TPH-motor oil
29	EE-04 EE-15 EE-16	-- -- lead, SVOCs
28	EE-01 EE-05	chromium, 4,4-DDT beryllium, manganese, mercury, SVOCs, TPH-motor oil
6	EE-14 EE-18	chromium, thallium, SVOCs, TPH-diesel, TPH-motor oil to be sampled (unknown)

It appears that soil from these excavations should not have been combined because the effect of stockpiling soil with unique contaminants is to dilute those contaminants. Please explain why this was done. Soil with unique contaminants should have been samples for characterization before stockpiling. Please discuss this relative to RCRA requirements.

Also, please explain how it was determined that the composite soil sampling technique would yield results representative of an entire cell.

*Response:* The basis for temporary storage of soil is explained in Section 2.7 of the Project Work Plan that was reviewed and approved by the BCT for this removal action. Because more than one COC was identified in most of the EEs, it was not possible to separate excavated soil by COC. Excavated soil was stockpiled on site to separate potentially hazardous material from nonhazardous material. The

*basis for separating soil was the information provided in the Action Memorandum that the material from EE sites 01, 05, 12, and 15/16 should be handled as hazardous material based on sampling data generated during the initial investigation at these sites. Accordingly, the soil material removed from these sites was placed in temporary storage cells and segregated from material removed from the other EE sites.*

*Soil that was not indicated to be hazardous was temporarily stored in 100-cubic yard increments and not segregated specifically by EE site. By separating the potentially hazardous soil from the nonhazardous soil in this manner, the potential for dilution of hazardous material was reduced. The choice of storage cells of 100-cubic yard capacity complied with disposal facility requirements that require characterization of nonhomogeneous contaminated material in increments of not more than 100 cubic yards.*

*As stated in the approved Work Plan, soil that was removed from an EE site after the initial excavation at that site was completed, and that was thought to have the potential of being hazardous, was to be segregated from the nonhazardous material prior to characterization and disposal. This situation occurred in two instances, at EE-04 and EE-17. Analyses of soils from EE-04 and EE-17 taken after the initial excavation was complete at those sites indicated that additional soil to be removed from those sites might be hazardous. Soil material that was removed from EE-04 and EE-17 was stockpiled with existing material removed from EE-15/15 within cells 20 and 29.*

*The composite soil sampling technique that was used to characterize the stockpiles prior to disposal is discussed in the Project Sampling and Analysis Plan (PSAP) that was approved by the BCT for this removal action. A four-point composite sample, as described in the PSAP, is an agency and remediation-industry recognized method to characterize the contents of each temporary storage cell for the purposes of disposal.*

**Comment 3:** The analytical data from delineation of the extent of contamination of exploratory excavation 11, 13, and 18, which were labeled "To be Sampled" in Table 1 of the Action Memorandum needs to be included in this document. It is the EPA's understanding that these areas were to be sampled before excavations were done. Please specifically discuss the procedures used to delineate the extent of contamination at these sites.

*Response:* *The analytical data are shown in Attachment C to the Action Memorandum.*

**Comment 4:** Please discuss how the characterization of the waste stream (contaminated soil) was conducted to determine final transportation and disposal of the soil. Please clarify whether characterization was based on the sampling used to delineate the exploratory excavation sites, or whether it was based on the results of the composite samples from the 100 cubic yard soil cells.

*Response:* *The characterization of the waste stream was based on analytical results of the composite samples taken at each of the temporary storage cells as discussed in detail in Section 3.1.2 of the PSAP that was approved by the BCT for this removal action.*

**Comment 5:** Please clarify whether chemical analyses of the borrow source were done to determine whether the backfill was clean. This should be discussed in the report.

*Response:* *The quarry that supplied all the backfill material provided a written certification that the material was not contaminated. A visual inspection of all backfill*

*material delivered to the site was made prior to accepting any material for backfilling purposes.*

**Comment 6:** Please clarify how the remaining risk will be evaluated for contaminants left in the excavation below the 10-ft level or in excavations where soil removal was suspended. The Action Memorandum indicates that if impacted soil was left in place, site controls may become necessary (Section 5.1). The same Action Memorandum indicates, however, that if the removal action is delayed, there is a potential for further soil contamination and impacts to groundwater or surface water (Section 6). Please clearly explain in the text that remediation of these sites will be deferred to the remedial investigation as stated in the Engineering Evaluation/Cost Analysis, Attachment A of Appendix A (Section 4.1 of the EE/CA).

*Response: The goal of the soil response action is to control risks posed by the ingestion of or dermal contact with contaminated soils or inhalation of vapors and fugitive dusts containing hazardous substances. The proposed cleanup goals for soil remaining on Parcel B are based on reducing risks to future residents to an excess lifetime cancer risk (ELCR) of  $10^{-6}$  and an hazard index (HI) of 1 or, for certain metals, to ambient concentrations. Soils presenting a potential human health risk above the cleanup goals would be excavated until clean up goals are met or to the groundwater table.*

*A notification will be placed on the deed indicating that soil below the groundwater table in the remediated areas as specified in the remedial action closeout report may be contaminated. All future soils excavated below the groundwater table in remediated areas must be managed as potential hazardous waste. In addition, any owner and/or tenant of Parcel B who excavates soils containing levels of contaminants in excess of the Parcel B Record of Decision (ROD) cleanup goals will be restricted from placing the excavated soils onto the ground surface and restricted from mixing the excavated soils with soils present in the surface to groundwater zone.*

*Excavations suspended before soil clean up goals were met because the groundwater table was encountered will be identified in the Parcel B remedial action closeout report. The Navy intends to manage the potential risk of these suspended excavations by deed notifications. Therefore, the Navy will not be performing a risk evaluation of contaminants left in excavations stopped at the groundwater table.*

*Excavations suspended because of physical obstructions such as building foundations will be evaluated using the following criteria:*

- A human health risk assessment will be performed on the contaminants left in place for that exposure area. If a carcinogenic compound or group of carcinogens presents a risk within the range of  $10^{-4}$  to  $10^{-6}$  to an individual at that exposure area, no further remedial action will be performed.*
- If a carcinogenic compound or group of carcinogens presents a risk that exceeds  $10^{-4}$ , the physical obstruction will be demolished, if possible, and the excavation continued until clean up goals are met or the groundwater table is encountered. If the physical obstruction can not be demolished because of historical or physical constraints, a notification will be placed on the deed indicating that soil below the physical obstruction in the remediated areas as specified in the remedial action close-out report may be contaminate.*

**Comment 7:** The completion report references other reports for information. The citations should include at least the section number, and perhaps page number, table number, and figure number. Some of the material, such as screening levels,

should be included in the completion report for clarity.

*Response: IT will provide these references as requested.*

### **SPECIFIC COMMENTS**

**Comment 1:** Section 2.0, p. 2, paragraph 4, last sentence. Please identify the criteria that were discussed to determine if an excavation was complete.

*Response: The criteria that were used to determine that excavation was complete were (1) physical criteria and (2) removal of COC to below chemical criteria as screening levels. Please see the introductory information in the Response to General Comment 1 above.*

**Comment 2:** Section 2.0, p. 3, paragraph 3, sentence 3. Please clarify whether the soil in the cells was segregated according to contaminant type and concentration.

*Response: It is assumed that this comment refers to paragraph 2 (not 3) on page 3. The rationale for separating soil in the stockpiles is explained in the response to General Comment 2.*

**Comment 3:** Section 2.0, p. 4, paragraph 1, sentence 2. This sentence should be rewritten to say, "...results of the field density tests of the compacted soil backfill and asphalt paving..."

*Response: Reference to field density tests will be added.*

**Comment 4:** Section 3.0, p. 4, paragraph 1, sentence 4. Please clarify whether the 2,678 cubic yards mentioned here were bank yards or loose yards.

*Response: These are bank yards (i.e. measured volume excavations).*

**Comment 5:** Section 3.0, p. 4, paragraph 1, sentence 7. List the cleanup threshold concentrations.

*Response: The threshold levels are the screening levels as identified in the Final Action Memorandum for each COC. These can be determined by referring to Attachment C to the Final Action Memorandum, dated July 24, 1996.*

**Comment 6:** Section 3.0, p. 4, last paragraph. Please state where the "voluminous laboratory reports" are kept and indicate that they will be available for inspection.

*Response: Electronic data packages are available from either IT or Tetra Tech EMI.*

**Comment 7:** Section 3.0, p. 7, paragraph 2, sentence 4. Please discuss the specific criteria used to classify the waste prior to shipment. Also discuss whether the waste stream was characterized from the sampling used to delineate the exploratory excavation sites or from the composite sampling from the 100 cubic yard soil cells.

*Response: Acceptance criteria from Class 2 disposal facilities varies from facility to facility but in any case requires that material cannot be accepted if it is classified as a RCRA, TSCA, or California hazardous material. Class 1 facilities can accept RCRA, TSCA, and California hazardous material. As discussed previously, the waste stream was characterized as per the Sampling and Analysis Plan, which used composite sampling of the material that was removed from the excavations. Please see Response to General Comments 2, 4, and 7.*

**Comment 8:** Section 5.0, p. 7, paragraphs 1, 2, 3, and 4. Please discuss plans for the future disposition of the sites with contaminants remaining in the soil medium after excavation was suspended (Sites EE-3, EE-4B, EE-5, and EE-12). The Action Memorandum (Appendix A) indicates that a detailed risk evaluation will be conducted on the remaining soil as part of a possible feasibility study. Please indicate if this will occur for these sites.

**Response:** See response to General Comment 6 above. In addition, the suspended excavations will be addressed as follows:

- *EE-3 - Excavation was terminated at the groundwater interface and will be identified in the Parcel B remedial action closeout report as an excavations requiring a notification on the deed.*

*EE-4B and EE-5 - Excavations were terminated because building foundations were encountered; therefore, a human health risk evaluation will be performed on the contaminants left in place for those two exposure areas. If a carcinogenic compound or group of carcinogens presents a risk within the range of  $10^{-4}$  to  $10^{-6}$  to an individual at that exposure area, no further remedial action will be performed. If a carcinogenic compound or group of carcinogens presents a risk that exceeds  $10^{-4}$ , the physical obstruction will be demolished, if possible, and the excavation continued until clean up goals are met or the groundwater table is encountered.*

- *EE-12 - Thallium exceeded the HPAL of 0.81 milligram per kilogram (mg/kg) at 4 feet below ground surface in sidewall soil samples EE1201 and EE1206 at concentrations of 1.2 and 1.3 mg/kg, respectively. Currently, HPS does not have a PRG value for total thallium; therefore, the clean up goal defaults to the HPAL. However, other Navy facilities (such as Mare Island Shipyard and Concord Naval Weapons Station) use the PRG value of 5.4 mg/kg for thallic oxide as the PRG value for total thallium. Thallium concentrations in samples EE1201 and EE1206 do not exceed 5.4 mg/kg for thallic oxide; thus, no further action is required regarding thallium.*