

5090  
Ser1832.5EG/L7255  
4 Sep 1997

From: Commanding Officer, Engineering Field Activity, West, Naval Facilities Engineering Command

Subj: REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) FOR  
NAVAL STATION TREASURE ISLAND (NAVSTA TI)

Encl: (1) Final Interim Groundwater Monitoring Plan dated 2 September 1997  
(2) Response to Agency Comments on the Draft Final Interim Groundwater Monitoring Plan

1. Enclosures (1) and (2) are provided for your information. Enclosure (1) document provides a groundwater monitoring plan based on the results of sampling conducted as part of the remedial investigation. The report includes the proposed sampling frequency and rationale; analytical methods; and guidelines for reevaluation of the plan.
2. Enclosure (2) document provides the Navy's responses to agency comments on the Draft Final Interim Groundwater Monitoring Plan. Comments were received from the U.S. Environmental Protection Agency (EPA) and Cal/EPA Department of Toxic Substances Control, in conjunction with the San Francisco Bay Regional Water Quality Control Board. The comment responses have been incorporated, as appropriate, into the Final Interim Groundwater Monitoring Plan.
3. Thank you for your guidance and involvement in this project. For further information, please call me at (650) 244-2560.

**Original signed by:**

ERNESTO M. GALANG  
By direction of  
the Commanding Officer

**Distribution:**

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Bay Conservation and Development Commission (Attn: Mr. Steve McAdam)(w/o encl)  
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TREASURE ISLAND  
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ENCLOSURE 1

FINAL  
INTERIM GROUNDWATER MONITORING PLAN

DATED 02 SEPTEMBER 1997

IS RECORD NO. N60028\_000750

**RESPONSE TO AGENCY COMMENTS ON  
THE DRAFT FINAL INTERIM GROUNDWATER MONITORING PLAN  
NAVAL STATION TREASURE ISLAND**

This document presents the Navy's responses to comments from the regulatory agencies on the draft final Interim Groundwater Monitoring Plan for Naval Station Treasure Island (NAVSTA TI), dated April 17, 1997. The comments addressed below were received from the California Department of Toxic Substances Control (DTSC) in conjunction with the San Francisco Bay Regional Water Quality Control Board (RWQCB) (dated July 29, 1997), and the U.S. Environmental Protection Agency (EPA) (dated June 9, 1997).

**RESPONSE TO COMMENTS FROM DTSC**

**General Comments**

**Comment:** The Navy should (1) evaluate all data, including the most recent data, and (2) obtain consensus from the BCT on data presentation before finalizing this interim groundwater monitoring plan.

**Response:** Data presented in the draft final Interim Groundwater Monitoring Plan include the most recent four quarters of sampling for each well. Appendix A provides groundwater sampling from September 1992 through September 1996. A meeting is scheduled with the regulatory agencies in September 1997 to discuss the presentation format for the quarterly monitoring reports.

**DTSC Specific Comments**

1. **Comment:** Filtered/Unfiltered Metals Samples (page 7): This Section should state that the Navy will consult with the regulatory agencies before reaching a decision on whether only filtered metals samples will be collected in future sampling rounds.

**Response:** The Navy will present the results of the filtered and unfiltered metals analyses in the quarterly groundwater monitoring report and propose to the agencies a subsequent metals sampling methodology.

2. **Comment:** Table 2:  
a. This Table would be easier to use if it included screened interval.

**Response:** The screened intervals will be added to Table 2.

**Comment:** b. "Well" 21-MW05 should be included in the Table and identified as a piezometer.

**Response:** Well 21-MW05 will be included in Table 2, with a note that it is a piezometer and will not be sampled.

**Comment:** c. Wells 25-CMW01, -02, and -03 are shown on the maps, but not included in the Table. Please provide the rationale for not including these wells.

**Response:** Wells 25-CMW01, -02, and -03 were installed by ERM-West to monitor an underground storage tank. These wells are not part of the IR program well network, and therefore are not included in the sampling plan.

3. **Comment:** Site 6:

a. The screened interval is unknown for wells 06-MW11, -12, and -13. For this reason, it is recommended to abandon 06-MW11 and sample 06-MW01 annually. Alternatively, the Navy may want to consider re-completing (or replacing) these wells with appropriate screened intervals.

**Response:** The Navy will abandon 06-MW11 and sample 06-MW01 annually.

**Comment:** b. Pursuant to the agreement between DTSC and the Regional Board regarding potential CERCLA constituents at the "petroleum-only" sites that were transferred out of the Navy's CERCLA program (see letter from Daniel E. Murphy to Shin-Roei Lee dated June 20, 1997), the Navy should add metals to analytes for Site 06.

**Response:** The Navy will add metals to the list of analytes for Site 06.

4. **Comment:** Site 11: Well 11-MW01 is not included in the data tables (Appendix A), and appears on Figure 3 as 11-MW07. Please correct the discrepancy. The screened interval is unknown for Well 11-MW07. The Navy may want to consider re-completing (or replacing) if it is to be retained in the monitoring program.

**Response:** A soil boring in the northeastern portion of the site is named 11-MW01. There are six completed monitoring wells at Site 11: 11-MW02 through 11-MW07. The screened interval for well 11-MW07 is 3.5 to 13.5 feet below ground surface. This information has been added to Table 2.

5. **Comment:** Site 12: Well 12-MW10 seems to fit the criteria for semiannual sampling (nearshore), not the recommended annual sampling. Well 12-MW06 should be retained for water level monitoring.

**Response:** Well 12-MW10 will be sampled semiannually, as it qualifies as a nearshore well. Well 12-MW06 will be retained for water level monitoring.

6. **Comment:** **Site 22:**

- a. **Please provide rationale for abandoning well 22-MW02, which seems better placed than well 22-MW01.**

**Response:** The monitoring network will be modified to include sampling of well 22-MW02, and abandonment of well 22-MW01.

**Comment:** b. **Pursuant to the agreement between DTSC and the Regional Board regarding potential CERCLA constituents at the "petroleum-only" sites that were transferred out of the Navy's CERCLA program (see letter from Daniel E. Murphy to Shin-Roei Lee dated June 20, 1997), the Navy should add metal to analytes for Site 20.**

**Response:** The Navy will add metals to the list of analytes for Site 20.

7. **Comment:** **Site 24: The value of using the wells in Site 4/19 for down-gradient monitoring is doubtful, since they may not be screened deep enough to detect migrating solvents.**

**Response:** The monitoring well network at Site 4/19 will be revised so that it does not include sampling for VOCs. Well 4/19-MW02 will be sampled and analyzed for TPH-extractables (TPH-e) semiannually to monitor potential migration of TPH-e detected in hydraulic punch groundwater samples 80 to 120 feet upgradient of the well. Wells 4/19-MW01 and 4/19-MW03 are not recommended for further sampling.

8. **Comment:** **Appendix A: It would be helpful to include water level data in these tables.**

**Response:** A table with water level data will be included in Appendix A.

## **RESPONSE TO COMMENTS FROM EPA**

### **General Comments**

1. **Comment:** **In May 1995, EPA conducted an evaluation of the groundwater sampling at Naval Station Treasure Island. Based on the evaluation, EPA prepared a report dated May 31, 1995 and provided recommendations to improve the groundwater sampling process (see attached pages). These recommendations should be considered in the subject monitoring plan.**

**Response:** The recommendations provided by EPA in the May 31, 1995 report were considered. Specific responses to EPA's recommendations follow the responses to these EPA comments.

2. **Comment:** To evaluate the biodegradation of TCE (trichloroethene) and PCE (tetrachloroethene) into vinyl chloride, EPA recommends analyzing for DCE (dichloroethene) isomers at IR (Installation Restoration) Sites 21 and 24 (see EPA's comments on the Draft RI Report Addendum #4).

**Response:** Analysis for volatile organic compounds (VOC) at Sites 21 and 24 will include 1,1-dichloroethene (DCE), total 1,2-DCE, and the isomers cis-1,2-DCE and trans-1,2-DCE. This will be clarified in the plan.

3. **Comment:** The evaluation of many of the wells was based on analytical data last obtained in November 1995; some well data was obtained from sampling performed as recently as September 1996. Site conditions and water quality could have changed considerably since the last sampling episodes. This could affect the conclusions and resulting monitoring program for many of the sites. This should be considered when evaluating the appropriateness of the proposed program (see Specific Comment #3).

**Response:** Monitoring recommendations presented in the draft final Interim Groundwater Monitoring Plan are based on the most recent four quarters of data for each well. Figure 2 shows the approximate extent of organic contamination and provides the basis by which the recommended monitoring network was established. Site-specific contaminant plume maps from November 1995 were provided as supplemental information. The November 1995 quarter was selected for the plume maps because it is the only quarter in which all 93 wells were sampled at NAVSTA TI. All analytical data are presented in Appendix A, and summarized in the site-specific sections.

#### Specific Comments

1. **Comment:** Section 4.0 Monitoring Well Evaluation, page 5: In the first paragraph, the monitoring plan states that an evaluation of the conditions and construction of all of the wells and piezometers on-site was performed in 1994. The evaluation should also include a detailed inspection of the condition of the wells. Given the age of some of the wells and the potential exposure of the wells to activities, such as traffic, which could compromise their integrity, the results of an evaluation could be of interest. These results could affect the evaluation criteria of the wells. The results of the evaluation should be presented in the monitoring plan or the reference for the document which contains the information should be cited.

The information obtained in an evaluation of the construction and general condition of the wells should be used in the well evaluation criteria. This information could affect which wells are selected for abandonment or non-sampling and which analytical parameters are selected for each well. The well information to be used in the evaluation criteria would include; age,

**construction material, screened interval, condition of filter pack, and turbidity of water samples produced from the well.**

**Response:** The 1994 well evaluation included a detailed integrity inspection of each well to determine whether they were suitable for continued sampling. This point is clarified in the second paragraph of page 7 of the draft final document.

The information obtained during the 1994 well inspection was used in the well evaluation criteria. A statement indicating this will be added to Section 4.2. Physical inspection of each well included in the monitoring network will be part of the annual monitoring reevaluation. Text will be modified accordingly in Section 4.4. Information gathering will include all parameters recommended by the EPA in the above comment, as is standard industry procedure during monitoring well inspection.

**2. Comment:** **Section 4.0 Monitoring Well Evaluation, page 5: In this section, it is stated that monitoring wells 06-MW05 and 06-MW08 were not located. Why weren't these wells located?**

**Response:** The locations of wells 06-MW05 and 06-MW08 were not identified during the 1994 well inspection. Discussions with Navy personnel indicate the wells were destroyed in 1994 during underground storage tank removal and building demolition at Site 06. An attempt will be made to confirm the destruction of these wells. If the wells are located, they will be properly abandoned. As stated in Section 4.3 of the draft final document, these wells are not proposed for further sampling.

**3. Comment:** **Section 4.2 Monitoring Frequency and Analytical Rationale, page 7: In the first complete paragraph of page 7, the second sentence reads: "As identified in the site-specific sections below, selected wells that met physical standards for monitoring have been deleted from the monitoring network because they do not provide necessary information." It is unclear what is meant by the term "physical standards"; it is also possible that the sentence is syntactically incorrect or missing a key word or phrase. Please explain.**

The next paragraph discusses the collection of both filtered and unfiltered metal samples during the first round of sampling; the analytical results will then be evaluated. Please be specific as to what the determining factors will be for deciding whether future samples will be filtered. Also, please specify if samples will be field filtered, acidified and then filtered in the lab, or filtered and then acidified in the lab.

Figures 7 through 34 present contaminant plume configurations for each of the sites based on November 1995 data. Additional data was collected in September 1996 for many of the sites. A review of the data summaries in Appendix A indicate that significant changes in contaminant concentrations occurred in several wells. Please discuss the potential changes to the extent

**and concentrations of the plumes presented in the figures based on the more recent data.**

**Response:**

The intent of the referenced statement was to indicate that criteria other than well integrity were considered when developing the monitoring network. Wells other than those determined to be of substandard physical condition for sampling purposes were removed from the monitoring network because they are not needed for data gathering purposes. The specific wells from each site deleted from the monitoring network were all found to be in good condition for sampling purposes during the 1994 well inspection, but are not needed for data purposes. Text will be modified to clarify this point.

Results of filtered and unfiltered metal samples from the first sampling event will be plotted on correlation graphs for metals of concern and a correlation coefficient will be derived. The correlation coefficients should indicate if turbidity is significantly affecting the analysis for metals. The Navy will present the results of the analysis and propose a subsequent sampling methodology for metals. Filtered metals will be filtered in the field, acidified in the field, and analyzed in the laboratory. This information will be clarified in the plan.

Figure 2 shows the approximate extent of organic contamination, incorporating the most recent four quarters of analytical data for each well and provides the basis by which the recommended monitoring network was established. Figures 7 through 34 were provided as supplemental information. (See response to EPA General Comment 3.)

**4. Comment:**

**Section 4.2.1 Site 04/19 - Hydraulic Training School/Refuse Transfer Area, page 7: According to the results of Phase II Remedial Investigation, a motor oil groundwater plume was identified at this site approximately 80 feet up gradient of well 4/19-MW02. This plume is not identified on Figure 2. Was this plume considered during the monitoring well evaluation?**

**Also, it is unclear how effective wells 4/19-MW01 and 4/19-MW02 will be in monitoring Site 24 contaminants since the wells are screened from 3.5-13.5 feet and the solvent plume from Site 24 appears to be sinking as it migrates.**

**Response:**

As recommended, well 04/19-MW02 will be sampled and analyzed for TPH-e semiannually to monitor potential migration of TPH-e (up to 460 micrograms per liter [ $\mu\text{g/L}$ ] motor oil range) detected in hydraulic punch groundwater samples 80 to 120 feet upgradient of well 04/19-MW02. The monitoring well network at Site 04/19 will be revised so that it does not include sampling for VOCs. Wells 04/19-MW01 and 04/19-MW03 are not recommended for further sampling, but will be maintained as backup wells in the event contamination is detected in well 04/19-MW02. Additional hydraulic punch groundwater samples were collected in July 1997 to better define the Site 24 VOC plume. The results of the additional

sampling will be presented in a technical memorandum scheduled to be completed in September 1997.

5. **Comment:** **Section 4.2.5 Site 14/22 - New Fuel Farm And Navy Exchange Service Station and Site 7/10 - Pesticide Storage Area/Bus Painting Shop, page 11: There is no discussion of the age of the wells at this site and who installed them. Please provide this information to make it consistent with the remainder of the site discussions.**

**This section also discusses the selection of Well 22-MW02 to be abandoned. This well had higher concentrations of TPHg and TPHd than 22-MW01 (7,800 µg/L TPHg and 2,000 µg/L TPHd versus 2,500 µg/L and 610 µg/L, respectively). Well 22-MW02 is also closer to the edge of the plume as presented in Figure 2. Why was this well selected for abandonment as opposed to Well 22-W01?**

**Response:** The year in which the wells were installed will be added to the text. The monitoring network will be modified to include sampling of well 22-MW02, and abandonment of well 22-MW01.

6. **Comment:** **Section 4.2.8 Site 24 - 5th Street Fuel Releases/Dry Cleaning Facility, page 13: Well 24-MW02 showed TPH concentrations from the sampling period of September 1996 at 78 ug/L diesel and 86 ug/L motor oil; all previous sampling events showed no detectable levels of either compound. This well has been selected for no further sampling based on the evaluation criteria. This well should be sampled at least one more time to confirm whether dissolved constituents are present. If so, sampling should continue indefinitely.**

**Response:** The Navy agrees that well 24-MW02 should be sampled at least once to confirm the September 1996 results. Future analytical results will be evaluated and compared to previous results to determine the appropriate sampling schedule for this well.

7. **Comment:** **Section 4.3 Well Repair, Abandonment, and Water Level Monitoring, page 14: The Introduction (page 2) states that this monitoring plan will present procedures (or criteria) for well repair and abandonment. Section 4.3 presents neither the criteria nor procedures for repair or abandonment. Please specify what wells are in need of repair, what are the criteria for determining the need for repair, and what the procedures will be (see also Specific Comment #1 above).**

**Response:** The introduction does not state that the monitoring plan will present procedures for monitoring well repair and abandonment. The referenced text on page 2 states, "Section 4 provides the monitoring well evaluation, including...well repair and abandonment..." The monitoring plan presents rationale for well repair and abandonment, including substandard well conditions and unneeded data points.

Standard industry procedures for well repair and abandonment will be employed as needed and documented in well repair and abandonment logs. Currently, there are no wells in need of repair, but several wells have been identified for abandonment. Please refer to the response to Specific Comment No. 1.

**Attached EPA Recommendations:**

- 1. Comment:** **General:** The FSP (field sampling plan) should be updated. Sampling procedures have been modified considerably since they were documented in the 1991 FSP. An SOP (standard operating procedure) that documented the updated groundwater sampling procedures was submitted to EPA on May 22, 1995. This procedure should be reviewed and formalized in a revised FSP or FSP amendment.

**Additionally, the appropriate sections of the FSP should be updated to address the field measurement instruments that are in current use, including calibration procedures for these instruments, and calibration frequency.**

**Response:** A sampling addendum specific to the long term groundwater monitoring plan will be prepared prior to sampling. This plan will address instrumentation and procedures.
- 2. Comment:** **Well Construction:** Surface casings should be examined and retrofitted if a potential exists for surface water to collect within the protective casing.

**Response:** The vulnerability of each well head to surface water infiltration will be evaluated during periodic well inspections.
- 3. Comment:** **Field Instruments:** The adequacy of the field instrument calibration procedures should be reevaluated. An interface probe should be used to detect immiscible phase liquids prior to sampling. Additionally, it is recommended that a two-point calibration be performed for parameters that involve absolute measurements.

**Response:** These considerations will be addressed in the sampling addendum.
- 4. Comment:** **Groundwater Sampling:**

  - a. Sampling Equipment:** The use of bailers for the collection of groundwater samples to be analyzed for volatile organic constituents is not recommended. Additionally, the surging action of a bailer during purging and sampling may artificially elevate turbidity to unacceptable levels. Therefore, it is recommended that pumps capable of a discharge less than 0.3 l/min be used during sampling. If the use of bailers is to be continued, they should be fitted with a bottom-emptying device employing a stopcock. Sample containers should not be filled by pouring groundwater from the top of bailers.

**Response:** This consideration will be addressed in the sampling addendum.

5. **Comment:** **Sample Handling:**

- a. **Forty milliliter vials observed to contain air bubbles should be discarded and unused vials filled with an undisturbed sample aliquot.**
- b. **All sample containers be stored out of the sun in a cool place (e.g., in ice chest), both prior to and following sample collection.**

**Response:** These are standard procedures and will be followed during each sampling event.

6. **Comment:** **Field QC Samples: It is recommended that field blank samples be collected daily during groundwater sampling to monitor for contamination present in sample containers or introduced in the field or during sample handling and transport. Additionally, collection of an EB sample with each new lot of disposable bailers is recommended.**

**Response:** These considerations will be addressed in the sampling addendum.

7. **Comment:** **Documentation: Instrument calibration information should be recorded in a bound log book with consecutively numbered pages.**

**Response:** It is standard procedure to record instrument calibration in either a bound logbook or on field forms specific for this purpose.