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MEMORANDUM

To: Ernesto Galang, EFA-WEST      Date: January 20, 1998  
Jim Sullivan, EFA-WEST      Subject: Comments on the Naval  
Fr: Patricia Nelson, NSTIRAB      Station Treasure Island  
Technical Subcommittee      (NSTI) Draft Corrective  
Action Plan (CAP)  
Report

This memo transmits the comments on the technical adequacy of the November 1997 Draft NSTI CAP Report issued as prepared by Pat Nelson, Co-Chair of the Community NSTIRAB. The comments are summarized in two parts: general comments and specific comments.

I. General Comments

A. Overview

It is understood from the 1996 and 1997 Remedial Investigation (RI) reports, that nine of the former Installation Restoration (IR) sites (Nos. 4, 6, 14, 15, 16, 19, 20, 22, 25) were determined to be "petroleum sites" and would be addressed in the CAP. Although the sites are addressed in the CAP under the California Environmental Protection Agency (Cal EPA) Underground Storage Tank (UST) program (administered by the California Water Quality Control Board - San Francisco Bay Region), their site characterizations were developed from the RI data collected while they were part of the CERCLA program, the objectives of which are generally the same as those for the UST program, to determine the:

- o nature and extent of contamination,
- o geology, hydrology and physical features,
- o potential contaminant pathways and receptors, and
- o fate and transport of contaminants.

In addition, the site investigation activities were to include:

- o gathering data to support a baseline human health risk assessment (HHRA, or UST program equivalent) and ecological risk assessment and
- o gathering data to support feasibility study (FS) activities.

Because the technical bases for the RI analyses of IR sites were fundamentally flawed as I have summarized in my December 1997 comments on the Draft Final NSTI RI, I believe the technical bases for the CAP analyses are similarly flawed. Hence, you will find there is a great similarity between the comments below and my December 1997 comments.

B. Community Restoration Advisory Board Member Expectations

The Navy needs to understand that the Community Restoration Advisory Board (RAB) had expectations of the CAP report to not only achieve the objectives identified above, in a clear fashion, but also to address the RAB comments on:

- o the Draft RI submitted to you in January 1997 which stressed the importance of evaluating IR sites adjacent to those being evaluated in the CAP (e.g., Site nos. 12 and 6); and
- o the RI Addenda No. 4 submitted to you in May 1997 wherein a relationship soil and groundwater contamination between adjacent IR site nos. 5, 17 and 24 was identified as an issue to further explore. Therein, a suggestion was made for the Navy to consider combining all three IR sites and address them systemically with other adjacent CAP/IR site nos. 4 and 19.
- o the Phase IIB Work Plan (work plan) submitted to you in 1995 and identified issues with: technical content; summarizing the intent and result of the PA/SI; Phase I and Phase IIA work and how the Phase IIB work would supplement that previously performed; soil and groundwater screening technologies proposed (immunoassay kits); and addressing and evaluating the characteristics of neighboring CERCLA sites and CERCLA and CAP/UST sites systemically rather than individually.

Hence, since the expectation was upon reviewing the CAP that it would address those comments and other RAB member comments in a meaningful fashion, such as:

- o providing meaningful technical analyses of data collected in the Phase IIB work rather than describing procedural efforts to conduct the Phase IIB work;
- o describing and summarizing the PA/SI, Phase I and Phase IIA data with the Phase IIB data;
- o summarizing, by site in tabular and cross-section/site plan map formats, the horizontal and vertical extent of contamination using data from the immunoassay kits and traditional laboratory methods based; all locations of soil and groundwater sampling using the geoprobe and

- traditional sampling methods should be illustrated on one drawing; and
- o summarizing the evaluation of soil and groundwater chemical data from neighboring CERCLA sites and CERCLA and UST sites to use as a basis of developing hypotheses of contaminant migration to evaluate in a fate and transport model.

The issues were not addressed in the draft CAP report nor were they addressed, where appropriate, in the Draft Final RI report.

#### C. Comments on the Draft NSTI CAP Report

This subsection summarizes inadequacies in the Draft CAP report for which examples or explanations are provided in Section II. The following objectives identified in Subsection No. A were not achieved:

1. The vertical and horizontal extent of soil and groundwater contamination has not been adequately characterized for the CAP sites.
2. The potential contaminant pathways and receptors were not adequately identified for the interim and ultimate land uses identified by the City of San Francisco for TI.
3. The fate and transport of contaminants has not been adequately characterized for the CAP sites.

#### D. Recommendation

It is recommended that the Navy, at the direction of the regulatory agencies:

1. Perform supplemental field work by July 1998 to ensure that all CAP sites have been adequately characterized utilizing traditional field and laboratory methods;
2. Prior to undertaking the proposed corrective actions and developing a Draft Record of Decision (ROD) for the IR sites, revise the Draft CAP report to reflect, not only the recommended supplemental field work, but also the PA/SI, Phase I, Phase IIA, Phase IIB and supplemental work for adjacent IR sites in a manner that provides meaningful technical and data analyses. The Final CAP report should also clearly describe the individual site characteristics and systemic TI characteristics, the latter is absent from the Draft CAP report.

3. Revise the project budget and schedule to allow for completion of the tasks above prior to undertaking the proposed corrective actions and Draft ROD work.

Members of the NSTI Community RAB Technical Subcommittee are willing to meet with the Navy, its consultant Tetra Tech-EMI, and regulatory agencies to assist them in developing a Final RI report that achieves the objectives cited above.

## II. Specific Comments

### A. Vertical and Horizontal Extent of Contaminants

Prerequisites for adequate characterization of the vertical and horizontal extent of contaminants include: full knowledge of historical land uses and site operations, full knowledge of chemicals associated with the historical land uses and site operations, utilization of soil and groundwater sampling methods that produce undisturbed samples from these media for characterization and evaluation of valid and reproducible chemical analyses. It appears that none of these prerequisites were developed nor were described in the IR report, examples of which are summarized below:

#### 1. Historical Land Uses and Site Operations

Similar to the RI, the historical operations of the NSTI, summarized in CAP focuses on World War II era operations. Additional operations supporting the Korean, Viet Nam and Gulf Wars for which hazardous substances were brought onto NSTI are neither described in text nor described in meaningful detail. Hence, it appears that historical operations for which hazardous substances other than petroleum may have been used and stored at the former IR sites have been overlooked and, therefore, the CAP sites have not been adequately characterized.

#### 2. Chemicals Associated with the Historical Land Uses

The CAP sites have been identified as petroleum sites and may have been locations of underground fuel tanks that were in operation during the 1980s when Methyl Tertiary Butyl Ether (MTBE) was an additive to fuels. The MTBE is considered to be a hazardous substance in the regulatory community. The NSTI appears to have been an operational base during the 1980s and analysis of the soil and groundwater samples during the Phase IIB work was neither proposed or performed by the Navy and its consultants nor the local, state and federal regulatory agencies

overseeing the RI field work. The RAB suggested that analyses for MTBE be performed in 1996, and again as part of the comments on the Draft RI; this subject has neither been addressed in the CAP nor Draft Final RI. Hence, it appears that chemicals associated with historical land uses have not been adequately investigated nor characterized.

### 3. Use of Reliable Soil and Groundwater Sampling Methods

In the summer of 1995 the RAB observed the use of the geoprobe and immunoassay kit technologies in the field to take and analyze soil and groundwater samples, respectively, the latter is discussed in item no. 4 below. During that field event, the geoprobe technology failed: the acetate liner containing the soil column sample crimped and distorted the soil strata for borehole logging. In addition, the additional handling of the soil boring core may have unnecessarily provided opportunities for fuel constituents to volatilize producing a disturbed sample, perhaps uncharacteristic of that IR site. In our February 1995 comments on the Phase IIB work plan, the RAB had recommended that soil and water samples be taken using traditional field methods so the islands' lithology could be accurately characterized, a minimization of soil and groundwater sample disturbance would occur.

The use of the geoprobe sampling technology as a field screening technology was not fully described, nor were the problems associated with using same and their impact on characterization of the vertical extent of contamination on a site by site basis. Hence, there is some question regarding the adequacy of vertical characterization of contaminants at NSTI.

### 4. Need for Valid and Reproducible Chemical Analyses

It was the RAB's understanding that the geoprobe and immunoassay kit technologies would be used as screening tools for the purpose of selecting the locations of the new ground water monitoring wells. In addition, it was the RAB's understanding that decisions regarding the extent of contamination at a site might be based on the chemical analyses produced using the immunoassay kits; twenty percent of such analyses would be verified by traditional laboratory analyses. However, the RAB observed the failure of immunoassay kits during the field demonstration identified in item no. 3 above and expressed concern that the immunoassay results would be used to characterize the IR sites. Nonetheless, the Navy announced at a fall 1995 RAB meeting, that instead of using reliable traditional analytical methods that a substitute immunoassay field kit would be used for the screening

and characterization analyses. Needless to say, the RAB has since been extremely concerned about the usefulness of the chemical analyses to characterize the NSTI CERCLA, CAP and UST sites because the data may neither be reproducible nor statistically valid due to the small population size of the samples submitted for traditional laboratory analyses for each IR site. The fact that the immunoassay data was used to make decisions to move the nine IR site to the CAP program makes those decisions fundamentally flawed.

Because of the RAB's concern about the use of the immunoassay kits before and particularly after the field demonstration, a review of that data and data generated by use of traditional laboratory analyses has been made as an example for IR Site No. 6, which is a site located adjacent to IR Site 12, the subject site of my RI comments. This subsection addresses a review of IR Site No. 6 data published in the 1997 Draft CAP for the reason there appear to be discrepancies between data reported and those provided in the CAP Appendices A and B. First, the text in Chapter 3 reports that "four dioxins were detected in sample 06-C06 at 0.5 - 1.0 ft." Dioxin is not an analyte typically associated with USTs. The fact that there were dioxins observed in Site No. 6 should have been enough to keep it in the CERCLA program. An error in judgment appears to have been made in putting Site No. 6 in the CAP program.

Dioxin analyses for sample 06-C06 were neither in the soil nor groundwater analytical results in summarized in Appendix A. Comparison of the contents of Appendices A and B, the latter summarizing the immunoassay results, indicates that immunoassay test results and selected analytical laboratory data are contained in Appendix A.

In an attempt to determine whether the dioxins were found in soil or groundwater Figures 3.2-2 (soil sample locations) and 3.2.3 (groundwater sampling locations) were reviewed; sample 06-C06 was determined to be in Figure 3.2-3 and a groundwater sample. However, groundwater in Site No. 6 is typically 4.0 - 8.0 ft below surface grade (BSG), so a sample identified with dioxin in groundwater at 0.5 - 1.0 ft is appears dubious. Also dubious is the summary of immunoassay results for Site No. 6 in Appendix B which does not identify which of the samples enumerated are of soil or groundwater media. Nonetheless, there was a reported 21 percent false negative rate for total petroleum hydrocarbons (TPH) in soil and an 11 percent false negative rate reported for groundwater for Site No. 6. Because the individual soil and groundwater samples are not identified in Appendix B it can not

be determined whether the underreporting of TPH constituents for Site No. 6 is statistically significant at this time.

B. Potential Contaminant Pathways and Receptors

There is a notable lack of discussion in the IR report about the interim and reuses of NSTI lands being considered in the EIS/EIR and exposure pathways related to same as a basis for either a human health or ecological risk assessment (HHRA or Eco-Risk Assessment). Hence, the potential contaminant pathway and receptor analyses for an HHRA and Eco-Risk Assessment equivalent for the CAP have not been adequately addressed.

C. Fate and Transport of Contaminants

There is no discussion in either the CAP report introductory chapters or individual site chapters that describe island-wide groundwater movement in a manner from which a contaminant migration or fate and transport model could be applied. In fact, the data depicted in the groundwater contours for Site No. 6 should have been combined with Site No. 12 since they are adjacent and have similar contaminants, even dioxins.

In addition, an analysis notably absent from the Draft CAP report is the migration of contaminants in adjoining IR sites such as Site Nos. 5, 17, 24, 4 and 19. Such an analysis would monitor the contaminants in upgradient Site No. 5 to determine whether they migrate to downgradient Site Nos. 4 and 19 and how far, if at all contaminants from Site No. 5 travel. Information derived from such an analysis would be useful in developing a groundwater and fate and transport model, evaluating the NSTI in a systemic fashion and developing a HHRA.

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