

MEMORANDUM

To: Ernesto Galang, EFA-WEST      Date: December 16, 1997  
Jim Sullivan, EFA-WEST      Subject: Comments on the Naval  
Fr: Patricia Nelson, NSTIRAB      Station Treasure Island  
Technical Subcommittee      (NSTI) Draft Final  
Remedial  
Investigation (RI)  
Report

This memo transmits the comments on the technical adequacy of the Draft Final NSTI RI Report as prepared by Pat Nelson, Co-Chair of the Community NSTIRAB. A portion of the comments summarized below were described to you at the November 18, 1997 NSTIRAB meeting. Because they were not adequately responded to in the subject document, the majority of the comments are those originally submitted to you in January 1997 as a result of my reviewing the Draft RI issued in October 1996. The comments are summarized in two parts: general comments and specific comments.

I. General Comments

A. Overview

It is understood, from the RI report, that the objectives of the RI were to characterize the Treasure Island (TI) and Yerba Buena (YB) Islands':

- 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 RI activities were to include:

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

B. Community Restoration Advisory Board Member Expectations

The Navy needs to understand that the Community Restoration Advisory Board (RAB) had expectations of the Draft Final RI report to not only achieve the objectives identified above, in a clear fashion, but also to address the RAB comments on the Draft RI and RI addenda submitted to you in January 1997 and those that the RAB developed in 1995 upon our review of the Phase IIB Work

Plan (work plan). For instance, as discussed in RAB meetings our expectation was that the RAB comments would be responded to in writing in the Draft Final RI document in a manner similar to the responses to regulatory agency comments, as an appendix. Instead, on November 11, 1997, EFA-WEST provided a preliminary response to RAB comments on the Draft RI and addenda which is a separate document, outside of the Final Draft RI. Although a step in the right direction to respond to the RAB comments, the timing of the release of the Navy's response to RAB comments appears to be intended as a pacifier and an effort to derail the RAB efforts to meaningfully participate in the NSTI environmental restoration activities.

In addition, in 1995 I had prepared comments on the work plan (see excerpts of those comments following this subsection) which, in my practice of managing hazardous waste sites for industry, identified inadequacies in:

- o technical content,
- o 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,
- o soil and groundwater screening technologies proposed (immunoassay kits), and
- o addressing and evaluating the characteristics of neighboring CERCLA sites and CERCLA and UST sites systemically rather than individually.

Hence, since the comments weren't addressed in the Draft RI, my expectation of the Final Draft RI report was to 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.

1. February 1995 RAB Comment Excerpts on the Phase IIB Work Plan

On February 17, 1995 I had prepared comments on the Phase IIB Work Plan in which a lack of technical bases for the Phase IIB remedial investigation work was identified:

"The responses to the RAB subcommittee comments for the most part addressed procedural issues rather than technical content issues. My particular interest is in the technical content issues and found the responses inadequate. The response to the "Basis for Sampling Rationale" is an example of this inadequacy: the response identified meetings and documents that were developed in the preparation of the Phase IIB Work Plan Addendum. Although this information provides an overview of the process the Navy and its consultant undertook with regulatory agencies, it does not describe the technical bases for the Phase IIB remedial investigation work on a site by site basis."

In addition, on February 26, 1995, as a follow-up to the February 17, 1995 comments the following were provided:

"1) The RAB had not been provided necessary documentation to understand the nature of previous site studies or analyses that have and have not been prepared to date. Those previous studies have not been addressed within the Phase IIB work plan and appear not to have been evaluated comprehensively which, in the view of the subcommittee, compromises the efficacy of the Phase IIB work plan,

2) It appears that effective alternatives to the field screening and field investigation techniques proposed identified in the Phase IIB work plan were not considered by PRC. Hence, there are many unresolved issues associated with the technical bases of the planned Phase IIB work, and

3) Although the principal contaminants on TI are petroleum hydrocarbon related, the Navy has elected to separate the Underground Storage Tank (UST) investigations and the Installation Restoration (IR) site investigations. Of particular concern to the subcommittee is there are no apparent means of ensuring effective coordination of the two site investigation programs in place because they are being performed by separate contractors for the Navy. Also, the relationship between studying and remediating UST and other petroleum-contaminated IR sites is unclear and should be

addressed in a systemic fashion."

C. Comments on the Draft Final NSTI RI Report

This subsection summarizes inadequacies in the Draft Final RI report for which examples or explanations are provided in Section II. The following RI report objectives identified above were not achieved:

1. The vertical and horizontal extent of soil and groundwater contamination has not been adequately characterized for the TI and YB IR 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 the TI and YB Islands.
3. The fate and transport of contaminants has not been adequately characterized for the TI and YB IR 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 IR sites, including those that were transferred into the CAP program, have been adequately characterized utilizing traditional field and laboratory methods;
2. Prior to undertaking the FS work and developing a Draft Record of Decision (ROD), revise the Draft Final RI report to reflect, not only the supplemental field work, but also the PA/SI, Phase I, Phase IIA, Phase IIB and supplemental work for all IR sites in a manner that provides meaningful technical and data analyses; the Draft and Draft Final RIs describe RI administrative procedures and analytical results without providing a comprehensive context for analyses or evaluation of same. The Final RI report should also clearly describe the individual site characteristics and systemic TI and YBI characteristics, the latter is absent from the Draft and Final Draft RI.
3. Revise the project budget and schedule to allow for completion of the tasks above prior to undertaking the FS 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

The historical operations of the Naval Station Treasure Island (NSTI), which includes YB Island, summarized in Chapter 1 focus 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 depicted in Figure nos. 1-2 and 1-3; historical operations at YB are notably absent. The historical land uses illustrated in Figure 1-2 are not footnoted to indicate the year those land uses were current nor do they address YB. Hence, it appears that historical operations for which hazardous substances may have been used and stored have been overlooked and therefore the islands have not been adequately characterized.

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

On both islands there were 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 Draft nor Draft Final RI. Hence, it appears that chemicals associated with historical land uses have not been adequately investigated nor characterized. In addition, the Navy indicated that a supplemental study was to be performed at IR site no. 12 in November 1997, hence the data set for that site is absent from the Draft Final RI rendering the document incomplete.

### 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.

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. 12. This subsection addresses a review of IR Site No. 12 data published in the 1996 Draft RI for the reason there appear to be discrepancies between those data and those reported in the 1997 Draft Final RI. There were 254 soil and groundwater samples listed in Table 12-3 in the 1996 Draft RI, 149 for soil and 105 for groundwater. Approximately 28 percent (approximately 42 samples) of the TPH soil samples and 30 percent (approximately 32 samples) of the groundwater samples analyzed by immunoassay kits for Total Petroleum Hydrocarbons (TPH) were also analyzed using traditional laboratory methods. The traditional laboratory analyses of those soil samples verified only 55 percent (approximately 23 samples) of the TPH immunoassay analyses and verified only 75 percent (approximately 24 samples) of the TPH immunoassay results performed on groundwater samples. Hence, the failure rate of the immunoassay analyses was 45 and 25 percent, respectively. Applying these rates to the total number of samples taken, 67 soil sample analyses and 26 groundwater samples were not characterized with any level of accuracy, therefore, the contaminants' vertical and horizontal extent has not been established at Site No. 12. This means for IR Site No. 12 which is approximately 90 acres in size, the characterization of soil and groundwater contamination was based on a frequency of approximately .25 samples per acre. Therefore, it is likely that other NSTI sites are inadequately characterized.

The data generated from the traditional laboratory analytical methods reported in the Draft RI is also suspect for Site No. 12. An example of this is the semivolatiles analyses for soil sample no. 199WW124 in Table 12-4 where footnote no. 7, "other problems, refer to data validation narrative" appears with results for a carcinogenic compound, benzo(a)pyrene, among other polycyclic aromatic hydrocarbons (PAH); the validation narrative is not provided in the IR report. Footnote no. 6, "calibration problems" is noted for soil sample no. 12MW018 analyzed for TPH-diesel. Similar data validation issues occur with the inorganic

soil analyses, many footnote nos. 5 (duplicate precision problems), 4 (surrogate and matrix spike problems). For groundwater analyses, Sample No. 199Q0022 had a positive value for analyte 3-nitrotoluene, an explosive, which was qualified with footnote no. 4, "surrogate and matrix spike problems".

Although disclosure of such data validation problems is appropriate in the data summary tables it should also be fully described in the IR text where it is notably absent. The high percentage (45 percent) of false negative results in the immunoassay soil analyses leaves the reader to conclude that the horizontal and vertical extent of contamination at all IR sites evaluated, including those that were dropped from the CERCLA program (e.g., Site No. 6), were inadequately characterized and that the basis for those that were dropped from the CERCLA program is fundamentally invalid. Use of immunoassay data to characterize CERCLA sites is highly irregular in my experience with CERCLA work. The RI work should be based on statistically valid sample populations for each IR site and analytical data that is not "qualified" whether or not the laboratory followed EPA guidelines for validating data.

Although the immunoassay kits were not used at all IR sites, there is no summary table in the Draft Final RI report that enumerates which method of analytical analysis was used to characterize the various IR sites. It is recommended that this information be developed and included in the Final RI report.

#### 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 have not been adequately addressed.

#### C. Fate and Transport of Contaminants

There is no discussion in either the RI 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 described from which gradient contours or tidal fluctuations were established for individual site areas are incomplete at best: 1) the groundwater monitoring wells are clustered around the NSTI island perimeter in certain areas and

only 13 of those wells were reportedly used on TI to establish gradient directions and there were none in the southwest portion of the island and 2) on YB there were only two wells used to establish gradient direction in the vicinity of IR site no. 11. There is a significant underground tank leak on YB which has not be adequately addressed as a result of the lack of wells in the site vicinity.

In addition, an analysis notably absent from the Draft Final RI 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. Also, the relationship between IR site no. 12 and no. 6 should be similarly examined. 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.

#### D. Other

As stated above, there appears to be a discrepancy between the number of samples analyzed by immunoassay kits in the 1996 Draft RI and those reported in the 1997 Draft Final RI for IR site no. 12. Specifically the total number of soil samples analyzed in the 1996 Draft RI is 149 and the total number of groundwater samples was 105. The 1997 Draft Final RI reports 161 total soil samples and 113 groundwater samples in Table 12-3. The IR site no. 12 data set may have been enlarged as a result of supplemental Phase IIB work, however, the table summarizing that work leads the reader to believe that 16 new soil and 8 new groundwater samples were taken. If this was the case then the total number of samples reported should have been 165 for soil and 113 for groundwater - what happened with the data for the other four soil samples? Using IR site no. 12 as an example, please identify any other such data discrepancies. It would be most helpful if the tables reporting the immunoassay and traditional laboratory sample result comparisons could also report the total the number of soil and groundwater samples, the total number matched between methods, and the total number oif false negative/positive results so that the reader does not have to take the time to count them to determine the bases of the percentages reported.

cc: Admin Record (3 copies)