

04,01-12/19/94-00286



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

JACOB K. JAVITS FEDERAL BUILDING

NEW YORK, NEW YORK 10278-0012

DEC 19 1994

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Stephen C. Wood, Captain, U.S. Navy  
Commanding Officer  
U.S. Naval Station Roosevelt Roads  
TSC 1008 Box 3001  
Code NO  
FPO AA 34051-3001

Re: Pre-Investigation Corrective Measures Screening Report  
U.S. Naval Station Roosevelt Roads  
RCRA/HSWA Permit No. PR2170027203

Dear Captain Wood:

The United States Environmental Protection Agency (EPA) Region II has completed its review of the Pre-Investigation Corrective Measures Screening Report (PICMSR) and Appendix A (Supplemental Investigation Report) transmitted April 29, 1994 by Baker Environmental Inc. on behalf of the Navy. The enclosed "Technical Review of the PICMSR and Appendix A", incorporates our comments.

Since the PICMSR and attached Appendix A contain the conceptual outline of future corrective action investigations envisioned by the Navy as sufficient to fulfill the investigation requirements of the Final Permit, EPA considers it important to lay-out clearly our evaluation of all conclusions and recommendations given in the PICMSR.

As has been discussed in telephone conversations between Mr. Art Wells of Atlantic Division, Naval Facilities Engineering Command (LANTDIV) and Mr. Tim Gordon of my staff, EPA looks forward to meeting with LANTDIV staff at Region II's offices on January 13, 1995 to review the PICMSR and EPA's comments in the enclosed "Technical Review".

Please contact Mr. Tim Gordon, of my staff, at (212) 264-9538 if there are any questions.

Sincerely yours,

Andrew Bellina, P.E.  
Chief, Hazardous Waste Facilities Branch

Enclosure

cc: Commander L.V. Marchette, U.S. Navy w/encl.  
Mr. P.A. Rakowski, P.E., w/encl.  
Mr. Carl A. Soderberg, 2EPA-CFO w/encl.  
Mr. Israel Torres, PREQB w/encl.  
Mr. Art Wells, LANTDIV, Atlantic Division w/encl. ✓

**NAVAL STATION ROOSEVELT ROADS  
CEIBA, PUERTO RICO  
PR2170027203**

**TECHNICAL REVIEW OF  
DRAFT FINAL PRE-INVESTIGATION  
CORRECTIVE MEASURES SCREENING REPORT  
AND  
APPENDIX A  
SUPPLEMENTAL INVESTIGATION  
VOLUMES I, II, AND III**

**Prepared by:**

**A.T. Kearney, Inc.  
Kearney/Centaur Division  
One Wall Street Court  
New York, New York 10005**

**November 17, 1994**

**Modified by:**

**Timothy Gordon  
U.S. Environmental Protection Agency  
Region II  
26 Federal Plaza  
New York, New York 10278**

**December 14, 1994**

## 1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA), under Work Assignment R02020, has requested that A.T. Kearney provide support to the agency for technical review of documents associated with the RCRA Facility Investigation (RFI) of Roosevelt Roads Naval Station (NAVSTA) located in Ceiba, Puerto Rico.

NAVSTA is located on the east coast of Puerto Rico in the municipality of Ceiba, approximately 33 miles southeast of San Juan. The primary mission of NAVSTA is to provide full support for the Atlantic Fleet weapons training and development activities. NAVSTA is currently operating under a Draft Corrective Action Permit that includes some degree of work at twenty-eight (28) Solid Waste Management Units (SWMUs) and three Areas of Concern (AOCs).

The overall objective of this Work Assignment is to assist EPA with the evaluation of the Draft Final Pre-Investigation Corrective Measures Screening Report (PICMSR) and the Appendix A - Supplemental Investigation Report (SIR), Volumes I, II, and III.

This report, which presents the results of the Kearney Team's review effort, is divided into four sections. Section 1.0 of this report (Introduction) presents a discussion of the scope of this current review task. Section 2.0 (Methodology) discusses the Kearney Team's approach to performing the review of the PICMSR and the SIR. Section 3.0 (General Overview) discusses the overall adequacy of the report in meeting the facility's RCRA permit objectives, and summarizes the major outstanding technical issues which require further resolution in subsequent phases. Section 3.0 also includes non-SWMU-specific comments and is divided into four subsections: 3.1 General Overall Comments, 3.2 General Data Assessment Comments, 3.3 General Risk Assessment Comments and 3.4 General Ecological Assessment Comments. Each of these subsections is then divided into subparts. The number of subparts per subsection varies, but the subparts are divided based upon which report(s) the comments are associated with. For instance, subsection 3.2 discusses the general comments associated with the Data Assessment only, and Subpart 3.2.2 discusses all General Data Assessment Comments associated with the SIR only. Subparts may be divided even further to discuss general comments on specific SIR volumes (i.e. - Appendix A, SIR, Volume I, II or III). The reader should keep in mind that general comments are non-SWMU-specific and, as such, can sometimes be identified by page-specific numbering. Section 4.0 (Detailed Technical Evaluation) provides the Kearney Team's SWMU-by-SWMU and page-by-page review of the PICMSR and the SIR.

## 2.0 METHODOLOGY

The Kearney team reviewed the documents entitled Draft Final Pre-Investigation Corrective Measures Screening Report and Appendix A, Supplemental Investigation, Volumes I, II, and III. The primary focus of the Kearney Team's review was to assess the validity of all conclusions/recommendations provided in the documents listed above and the adequacy of the sampling (performed and proposed). The assessment was performed for specific media (soils, ground water, surface water, and sediment) and only included those SWMUs and AOCs that are subject to the corrective action requirements of the RCRA permit. The assessment was based on the following criteria:

1. The acceptability of the results in terms of QA/QC;
2. The existence of data gaps affecting the results, conclusions, and recommendations;
3. The basis for SWMUs/AOCs determined to be fully characterized based on previous investigations;
4. The basis of SWMUs/AOCs determined to require no remedial action, based on risk assessment or other rationale; and
5. The adequacy of all recommendations supporting that further investigation is required to complete the characterization of the SWMUs/AOCs.

To effectively evaluate the characterization of each SWMU/AOC, the Kearney Team conducted the document review utilizing a multi-disciplinary team of technical staff members in the areas consisting of geology, risk assessment, ecology, chemistry, hydrogeology, and remedial design engineering. Such an approach enabled the Kearney Team to identify deficiencies, data gaps, and other relevant issues from all perspectives with regard to the proper characterization and potential need for remediation at each SWMU/AOC.

### **3.0 GENERAL OVERVIEW**

#### **3.1 General Overall Comments**

The Pre-Investigation Corrective Measures Screening Report attempts to provide a comprehensive image of contamination at each of the SWMUs/AOCs based on the data collected to date. However, the lack of detail in this report renders the image conceptual rather than comprehensive. The summary of historical investigations [particularly Environmental Science and Engineering's (ESE's) 1988 Confirmation Study] does not provide details on the number and location of samples, analytical procedures and results, data validation, or data quality and limitations. These deficiencies not only prevent the report from being self-standing, but more importantly, limits the understanding of the degree of site characterization associated with these data. This understanding is essential because the historical data may represent the primary data set for site characterization, and future sampling may merely augment this primary data set. For instances where the historical data are the primary data set, the Kearney Team was unable to concur with or refute the conclusions of the risk assessment, remedial options, and need for further investigation because the historical summaries are too limited to determine if site characterization is comprehensive. Evaluation of Corrective Measures is premature at this time due to the inadequate characterization of SWMUs/AOCs.

At other SWMUs/AOCs where Baker's SI samples are the primary data set, often times the sample locations and intervals were not included in the figures. In addition, when Baker discusses the results of the analyses, they use qualitative terms such as "low", "moderate", and "high". The report should discuss results in terms of exceedances of RCRA Corrective Action Levels and the discussions should be much more in depth than are provided in either of these two reports. The same deficiencies apply to SWMUs/AOCs where Baker has proposed sampling. For instance, proposed sample locations are often times not included in the associated figures. These deficiencies also make it difficult, if not impossible, to concur with or refute the conclusions of the risk assessment, remedial options, need for further investigation, or adequacy of proposed sampling.

#### **3.2 General Data Assessment Comments**

##### **3.2.1 General Data Assessment Comments Applying to Both the PICMSR and SIR**

- The Pre-Investigation Corrective Measures Screening Report is based primarily on the Baker 1993 Supplemental Investigation (SI) data included in Appendix 4.B of the SIR.

Baker discusses the ESE Confirmation Study (CS) data briefly in the Nature and Extent Section (Section 3). However, it appears that Baker used only the 1993 SI data to identify and recommend data needs for the SWMUs/AOCs subject to RCRA Corrective Action.

Baker indicates that the SI data are equivalent to Contract Laboratory Program (CLP) Level 4 data. The Kearney Team cannot evaluate the quality of the SI data given the limited information provided in the reports. The only information provided are the summary tables in Appendix 4.B, which list the sample identification numbers, the analytical results, and data qualifiers. In order to evaluate the quality of the SI data, the report should provide the following information:

- sampling procedures;
  - list of field QC samples (trip blanks, equipment blanks) and associated field samples;
  - analytical methods;
  - precision and accuracy objectives;
  - name of laboratory that performed the analyses;
  - dates of sampling, sample extraction, and analysis;
  - results of field QC samples;
  - data validation procedures;
  - name of organization that performed the validation; and
  - data validation reports.
- The SIR states that all of the SI semi-volatile organic compound results (SVOC) are "unreliable," due to elevated detection limits [i.e., detection limits were four times higher than CLP Contract Required Quantitation Limit (CRQL)]. However, the PICMSR concludes, based on this SI data, that the soil and sediment for SWMUs 1, 2, 11, 13, and AOC B have been adequately characterized. The report should address this potential data gap, especially given that some of the SVOC detection limits are greater than the target levels presented in the risk assessment (Section 5).
  - Under RCRA Correction Action, EPA requires the facility to evaluate/address the hazardous constituents identified in Appendix VIII of 40 CFR part 261 and Appendix IX of 40 CFR Part 264. The SI samples were analyzed for the Superfund Target Analyte List (TAL) and Target Compound List (TCL) constituents. The TAL/TCL constituents and RCRA hazardous constituents are not the same. For example, the Appendix VIII and IX analytes include herbicides, organophosphate pesticides, dioxin/furans, and other compounds not included on the Superfund lists. The report should address this potential data gap, and include the RCRA hazardous constituents in the RFI analytical program.

### 3.2.2 General Data Assessment Comments Applying to the SIR Only

#### 3.2.2.1 General Data Assessment Comments Applying to the SIR, Volume I Only

- ES-12, ¶3      The last sentence in this paragraph states that the data and analysis were found valid. As discussed in Section 3.2.1 of this report, the report needs to provide additional information to demonstrate the quality of the SI data.
- Page 3-11,  
§ 3.1.4      This section, entitled Sampling and Analysis, should explain the sampling and analysis procedures in much greater detail, including sampling procedures, analytical methods, detection limits, accuracy and precision objectives, and data validation procedures. This information is required in order to evaluate the quality of the SI analytical data.
- Page 3-11, ¶2      This paragraph states that all analytical results were of acceptable quality control, except SVOC. This statement does not accurately characterize the results provided in Appendix 4.B. Several results were rejected or estimated. For example, the PCB/pesticides results for samples 01SS101, 01SS102, and 01SS103 from IR Site 1 were rejected. Many of PCB/Pesticide data for the other samples were estimated. Some of the volatile organic compound (VOC) data were rejected for sample 06 SS 154 from SWMU 2 (IR Site 6). The SVOC data were rejected for 07 GW 106 from SWMU 3 (IR Site 7). Many of the detected results were estimated. The text should be revised to more accurately and comprehensively describe the quality of the data. The text should also describe the impact the rejected data have on the investigation's Data Quality Objectives. The report should indicate whether or not the completeness goal was achieved, and whether or not the lack of data for these locations effects the characterization of the site.
- Additionally, the text should explain the validation procedures used to evaluate the analytical data. The data validation reports should be included in an appendix. A sub-section of the raw data should also be provided so that the data validation procedures can be verified.

Finally, the text states that the SVOC detection limits were four times higher than the required limits (assuming this refers to CLP CRQL). The text further states that the data are still useable in calculating apparent risk. The report should explain how the data was deemed useable for the risk assessment. It should be noted that the elevated detection limits reported in Appendix 4.B are higher than the target levels presented in the Risk Assessment (Section 5).

- Page 4-20, ¶12 This paragraph states that the inorganic concentrations found in the soil samples are in the range expected for soils developed from a ferromanganous, igneous rock. Data or a reference should be provided to support this statement.
- Page 4-53, ¶16 This paragraph indicates that the SI data were compared to the CS data. It is unclear from the information provided in the reports how the sampling locations from the two investigations correlate. The comparison/evaluation of the two data sets should be described in greater detail.
- Page 5-41, ¶11 This section should discuss the impacts of the elevated SVOC detection limits on the results of the risk assessment. The detection limits were reported to be four times higher than the CLP CRQL.

3.2.2.2 General Data Assessment Comments Applying to the SIR,  
Volume II Only

- §4.A The SIR should more clearly present the information provided in this appendix; the tables should clearly list each field sample and the associated QC samples (trip, rinsate, and field blanks). The analytical results of the QC samples should also be included in the report.

3.2.2.3 General Data Assessment Comments Applying to the SIR,  
Volume III Only

- Appendix B The data included in this appendix should be presented in a more organized manner. All footnotes and column headings should be clearly identified (e.g., The report should identify what the letters REF stand for).

### 3.3 General Risk Assessment Comments

#### 3.3.1 General Risk Assessment Comments Applying to Both the PICMSR and the SIR

- Not all potentially contaminated media were evaluated for each individual SWMU/AOC. Risk estimates do not include risks associated with ground water or surface water exposures. Sediment was not evaluated at SWMUs 1 and 2 (IR Sites 5 and 6). Justification for excluding certain media from the risk assessment for individual SWMUs/AOCs needs to be included; overall human health and ecological risks may be underestimated.
- Further justification is needed for not considering future development at the SWMUs under investigation.
- The risk assessment is based on only a subset of the available data (i.e., only the most recent sampling event). Data from the 1986 Confirmation Study (CS) should be used to develop a more comprehensive characterization of some of the SWMUs/AOCs. Eliminating these data may mask the presence of potential threats to public health. For example, the 1986 CS results revealed the presence of several pesticides in soils at SWMU 13 (IR Site 18) at concentrations greater than both the 1992 results and risk-based target levels (e.g., chlordane, 4,4'-DDE, and 4,4'-DDT). The maximum detected concentration of chlordane (181 mg/kg) is 60 times greater than the lowest risk-based target level for a trespasser scenario and 180 times greater than the target level for a child resident scenario. Exceedances of risk-based target levels were observed for four 1986 CS sample locations, so elevated concentrations may be widespread.

#### 3.3.2 General Risk Assessment Comments Applying to the SIR Only

##### 3.3.2.1 General Risk Assessment Comments Applying to the SIR Volume I Only

Page 5-1, ¶1, §5.1 The risk assessment examines both current and potential future land-use scenarios, including worker and trespasser scenarios. Only a limited discussion is provided regarding the likelihood/feasibility of future residential development of the sites. Additional justification should be provided for not

evaluating future residential scenarios. Justification should include a more detailed discussion on topography and accessibility and should include information from the following sources:

- master plans from local planning and zoning boards;
- Bureau of Census projections;
- lease agreements regarding the land presently occupied by the Naval Station Roosevelt Roads (NSRR);
- established land use trends within the boundaries of the NSRR; and
- established land use trends in the immediate vicinity of the NSRR.

Page 5-2, ¶1  
§5.2

The text needs to justify why the risk assessment evaluated only the most recent analytical data (cited as Baker, 1992) and does not include previous sample results, specifically results associated with the 1986 Confirmation Study performed by ESE. The 1986 Confirmation Study provides initial chemical characterization for many of the SWMUs. The 1986 sampling results revealed higher detected contaminant concentrations in certain cases; therefore, the 1986 data should be considered for inclusion in the risk assessment data set. If the quality of the earlier data is not suitable for use in the quantitative risk assessment, at a minimum, a qualitative discussion of the historic data needs to be presented.

Pages 5-2  
through 5-7

A number of detected chemicals were eliminated from consideration in the risk assessment. Current §5.2.1 and risk assessment guidance states that eliminating §5.2.7 chemicals from the risk assessment is only necessary when a large number of contaminants are detected. Since few contaminants were detected, there was no need to eliminate chemicals from the risk assessment. These eliminated chemicals should be reintroduced to and evaluated within the risk assessment.

Furthermore, the rationale described for the elimination of certain contaminants has the following flaws: 1) Certain chemicals were eliminated because they are common laboratory contaminants. This argument does not apply because the data set was subject to data validation. If the chemicals in question were

attributable to laboratory contamination, then the data validation process would have eliminated them from the data set; 2) Certain organic chemicals were eliminated due to their possible natural occurrence. While this approach may be valid for inorganic chemicals, current risk assessment guidance requires a "very strong case" for eliminating organic chemicals on the basis of natural occurrence. Citing the open literature as was done in the SIR does not constitute a strong case. In addition, if organic chemicals are detected in site-specific background samples it may indicate impact from contaminated areas and that the sampling location is not truly representative of background. Therefore, organic chemicals should not be eliminated from the risk assessment solely on the basis of natural occurrence or comparison to background.

Pages 5-2  
through 5-7  
§5.2.1 and  
§5.2.7

Numerous deficiencies have been identified in the characterization of many of the SWMUs. As a result of inadequate site characterization, the data set that forms the basis of the risk assessment may not reflect actual site conditions. These sections will need to be modified to include more comprehensive information on the nature and extent of contamination. Section 4.0 of this report provides specific comments on the additional information required for each SWMU/AOC.

Pages 5-8  
through 5-11  
§5.3.1

The exposure scenarios evaluated in the risk assessment are restricted to outdoor workers and trespassing youth/adults exposed to surface soils and sediments. Additional receptors (e.g., residents) and exposure pathways (e.g., ground water consumption) may have to be evaluated after potential future land use issues are resolved. (see section 3.3.2.1 of this report for the comment for page 5-1, ¶1, §5.1).

Current EPA Risk Assessment Guidance for Superfund (RAGS Part B) states that ground water consumption needs to be evaluated in the risk assessment if ground water is deemed suitable for drinking. The rationale for not evaluating drinking water exposures needs to be presented in the risk assessment.

Page 5-13

Note that future worker exposures may include

- Table 5-2** exposure to both soil and sediments during excavation. Therefore, the table needs to be revised to include sediment exposures. In addition, the risk-based target concentrations for worker exposure to sediments will need to be compared with concentrations detected in sediments.
- Page 5-19** The "Relative Potency Estimates" cited in the SIR have been superseded by EPA's Provisional Guidance for Quantitative Risk of Polycyclic Aromatic Hydrocarbons, dated July 1993 (EPA/600/R-93/089). As a result, the oral cancer slope factors for benzo(b)fluoranthene and benzo(k)fluoranthene are ten times lower than the values presented in Table 5-3. The risk assessment needs to be revised to incorporate the most recent guidance. Reference to the Interim Region IV Guidance (1992) should be deleted.
- Page 5-19**  
**Table 5-3** Oral Reference Doses (RfDs) are available from the Integrated Risk Information System for three of the compounds that were listed in Table 5-3 without RfDs. These compounds include alpha and gamma- chlordane and dieldrin with RfDs of  $6 \times 10^{-5}$ ,  $6 \times 10^{-5}$ , and  $5 \times 10^{-5}$  mg/kg/day, respectively. In addition, the current RfD for endosulfan ( $5 \times 10^{-5}$  mg/kg/day) is ten times lower than the one listed in Table 5-3. This table should be revised using the appropriate RfDs.
- Page 5-22, ¶2**  
**§5.5** Note that the risk assessment was prepared using Superfund methodologies rather than those specified under the RCRA program. The text should include an explanation of the regulatory context of the risk assessment process and a justification for the selected approach.
- Page 5-25,**  
**First Equation**  
**and Page 5-26,**  
**First Equation** Note that the equations for calculating target levels for carcinogenic and noncarcinogenic compounds do not fully comply with the risk assessment guidance that was cited in previous sections of the report (i.e., RAGS Part B). Instead, the equations represent a modification of the recommended approach. Specifically, the component which accounts for exposure via inhalation has been eliminated from the equation without justification. Even though it is believed that this modification is inconsequential because the exposures from inhalation are expected to be minor compared to other exposures, the omission

must be justified in the report. The second modification involves the addition of a component that accounts for dermal contact exposures. Dermal exposures are not incorporated into target level calculation methodologies currently recommended under either Superfund or RCRA. Although the approach used in the report deviates from current risk assessment practices regarding inhalation and dermal exposures, conservative target levels have been estimated for the scenarios evaluated. The rationale for this approach should be included in the report.

Page 5-26  
§5.5.2

This section presents the methodology for calculating target levels for surface water. However, these calculations are not provided in Appendix 5.B nor are surface water exposures and risks discussed in subsequent sections of the risk assessment. Target levels need to be calculated for surface waters at NAVSTA to determine if detected concentrations pose risks to actual or potential receptors (e.g., IR Site 18).

Tables 5-6,  
5-10, 5-11  
and 5-13

The term "ICR" (Incremental Cancer Risk) is incorrectly listed in the noncarcinogenic section of these tables. NAVSTA should revise the text to correctly read, "HI" (Hazard Index).

Page 5-41, ¶5,  
§5.6 and  
Appendix 5.B

Section 5.6 (Uncertainties) presents a limited discussion on the potential future residential development of IR Sites 10 (SWMU 6 and AOC B) and 18 (SWMU 13). Although not referenced within the text, soil target levels for future residential children and adults are presented in Appendix 5.B. Note that the ingestion rate for children should be 200 mg/day, not 100 mg/day. This would change risk estimates for IR Site 18 to approximately  $1.6E-04$ , just on the upper end of EPA's target risk range. If 1986 CS data were included in the quantitative assessment of IR Site 18 (i.e., pesticide data), risks would increase to more than  $3E-04$  for soil exposure only. This information needs to be included in the risk assessment.

Page 5-43, ¶3,  
§5.6

Although there are no toxicity values available to quantitatively evaluate lead-related risks, the risk assessment should compare detected lead concentrations to EPA's target cleanup levels for lead of 500 to 1000 mg/kg (EPA, Interim Guidance on Establishing Soil Lead Cleanup Levels, Office of Solid Waste and Emergency Response (OSWER) Directive 9355-4-02, 1989) or evaluate lead using

the Uptake Biokinetic Model (UBK) for lead. Note that lead was detected at SWMU 2 (IR Site 6) at concentrations up to 5,850 mg/kg.

### 3.4 General Ecological Assessment Comments

#### 3.4.1 General Ecological Assessment Comments Applying to Both the PICMSR and the SIR

- The Ecological Risk Assessment provided in Appendix A for several of the SWMUs is extremely simplistic. The ecological features of the SWMUs were inadequately characterized (if at all) while the ecological risk characterization only provided a brief assessment of potential direct risks attributed to surface water and sediment contaminants (when data was available). Characterization of ecological risk due to elevated levels of contaminants within surface soils was not, and should be provided in the risk assessment.

#### 3.4.2 General Ecological Assessment Comments Applying to the SIR Only

##### 3.4.2.1 General Ecological Assessment Comments Applying to the SIR Volume I Only

Page 5-24 Freshwater and marine Ambient Water Quality Criteria Table 5-5 (AWQC) for contaminants are presented in this table. Several apparent errors were noted in the presented AWQC values for ethylbenzene [chronic Lowest Observed Effect Level (LOEL) value does not exist], arsenic (incorrect values presented for freshwater acute and chronic AWQC), lead (freshwater acute and marine acute and chronic values incorrect), nickel (all AWQC presented incorrectly), and zinc (all AWQC values presented incorrectly). In addition, the table footnotes that present the National Oceanic and Atmospheric Administration (NOAA) sediment guidelines are in mg/kg units. Although this is correct for inorganic contaminants, NOAA guidelines for organic contaminants represent  $\mu\text{g}/\text{kg}$  units. NAVSTA should correct and reassess ecological risk from organic contaminants.

#### 4.0 DETAILED TECHNICAL EVALUATION

#### 4.1 SWMU 1: Army Cremator Disposal Site (IR Site 5)

##### 4.1.1 General SWMU 1 Comments

- Neither the PICMSR nor the SIR report indicates locations or depth intervals from which the soil, groundwater, and other analytical results were obtained. Figure 4-3 of the SIR (Appendix A Volume I) shows 6 soil sample locations, but they do not correspond to the sample results presented in PICMSR Tables 4-2 and 4-3 and SIR Tables 4-6 and 4-7, where (the same) 19 soil sample are listed. Table 3.A-5 and 3.A-6 of Appendix A Volume II, list groundwater results from apparently 5 Confirmation Study wells, and depicts well locations on Figure 2-3 of Appendix A Volume II, but only 4 wells are shown there. Also, Table 3.A-5 and 3.A-6 list results from 5 surface water samples and 5 sediment samples; however, no map depicts the location of these samples. The adequacy of past soil, groundwater, surface water, and sediment characterization, and its relationship to the groundwater wells NAVSTA proposes, cannot be evaluated until all prior sample locations are depicted on Figure 6-1 of the PICMSR, the most detailed map of the SWMU and where the 3 proposed wells are shown, and the depth intervals for all soil samples are listed.
- Adequate surface water and sediment samples have not been collected from the mangrove swamp area located immediately adjacent to this SWMU. The Permit requires that these media be characterized. Due to the proximity of the mangrove swamp to SWMU 1 and the likelihood that ecological receptors would be affected by contamination within the mangrove swamp, characterization of the surface water/sediments within the mangrove swamp (adjacent to SWMU 1) needs to be completed.

##### 4.1.2 Page Specific SWMU 1 Comments

- Page 4-1, ¶4 The PICMSR states that the [Final] Permit requires a full RFI including soil, groundwater, and surface water/sediment samples.
- Pages 4-1 and 4-9 The report uses qualitative terms such as "trace" and "moderate" when describing the laboratory results. At a minimum, the report should compare

the sample results to a standard such as RCRA Corrective Action Levels.

Page 4-1, ¶5 The report indicates that SVOC data for the 1 groundwater sample are unreliable. One SVOC constituent, bis(2-ethylhexyl)phthalate, was measured at a concentration equal its health-based action level (3ug/l), but was "J" qualified. Therefore, NAVSTA should re-sample the ground water for SVOCs where SVOC results are unreliable. In addition, groundwater for this site cannot be considered characterized with only 1 sample point, as is stated in Section 4.2.2 of the PICMSR.

Page 4-9, ¶2 This paragraph states that acetone, carbon disulfide, and methylene chloride were detected in all samples from SWMU 1; and that these constituents are common laboratory contaminants. The Region II CLP Organics Review standard operating procedure does not list carbon disulfide as a common laboratory contaminant. Furthermore, the results should have been qualified by the data validators if they were, in fact, due to laboratory contamination. The text also states that the soil SVOC data are "unreliable". The text should clarify why the data are considered unreliable/qualified (i.e., detection limits are four times higher than the CLP CRQL). In addition, if NAVSTA wishes to utilize this "qualified" SVOC data to support the conclusion, given in Section 4.2.2 of the PICMSR, that the soil at this SWMU has been adequately characterized and there is no risk to human health or the environment, the PICMSR must clearly give a rationale for this conclusion, such as "The instrument detection levels were taken as the concentration levels utilized in the risk evaluations performed". This discrepancy should be rectified.

Page 4-9,  
Section 4.2.2 The report states on Page 4-9 of the PICMSR that surface water/sediments have been adequately characterized. Five surface water and five sediment samples were collected during the Confirmation Study stage at this site; however, the locations of these samples is not depicted on any maps in the report. Table 3.A-5 of Appendix A - Volume II indicates that several metals were detected above health-based action levels in surface water and sediment samples during the Confirmation Study. However, NAVSTA only collected soil and one groundwater sample at this SWMU during the subsequent Supplemental

**Investigation.** The PICMSR suggests that surface water/sediment have been adequately characterized for this SWMU based on Supplemental Investigation data from IR Site 14 (the Ensenada Honda mangrove swamp shoreline). Though 5 sediment samples were collected for IR Site 14 during the SI stage, none of these samples (as shown on Figure 4-8 of Appendix A Volume I) are located in sufficiently close proximity to SWMU 1 to characterize the impact of that SWMU. In addition, for many of the pesticide/PCB analytes, the detection levels utilized were above relevant action or Sediment Quality Guideline levels, so as to not provide meaningful results. Based on the above, the surface water/sediments have not been adequately characterized for SWMU 1, as required in the Final Permit.

- Page 5-83, ¶4 This paragraph precludes the "pump and treat" scenario based on the assumption that the waste is above the ground water table, and that the extent of ground water contamination is not fully characterized. Until the subsurface stratigraphy is investigated, and subsurface soils (both fill and natural deposits) and ground water are fully characterized, the "pump and treat" scenario can not be discarded.
- Page 6-3, ¶1 The report indicates that the newly installed wells will be installed to intersect the top of the ground water surface. Methylene chloride was detected in some of the soil samples that were collected. Methylene chloride is often found as a dense non-aqueous phase liquid (DNAPL) and may be a contaminant of concern. As a result, this fact should be considered when the wells are installed and consideration should be given towards installing deeper wells. Also, since the types of wastes involved are not definitively known, the full Part 261 Appendix VIII list should be included as constituents analyzed for.
- Page 6-3, ¶1 No rationale is provided for the locations of the wells that are proposed to be installed. This should be provided.
- Page 6-15, ¶1, Page 4-9, ¶3 The SIR indicates that no further investigation is necessary at SWMU 1. The PICMSR indicates that ground water needs further characterization. NAVSTA should make these discussions consistent.
- Appendix A Appendix A does not indicate all of the proposed

Page 4-4  
Figure 4-3

sample locations. It is impossible to evaluate the adequacy of the sampling without knowing the locations of all the samples. All sample locations should be provided.

## 4.2 SWMU 2: Langley Drive Disposal Site

### 4.2.1 General SWMU 2 Comments

- Neither the PICSMR nor the SIR report indicates locations or depth intervals from which the soil, groundwater, and other analytical results were obtained. Analytical results from the "Supplemental Investigation" are listed in PICMSR Tables 4-4 and 4-5 and SIR Tables 4-8 and 4-9, for (the same) 16 soil samples and 1 groundwater sample. However, Figure 4-4 of the SIR (Appendix A Volume I) shows only 7 soil sample locations, and these do not correspond to the sample numbers listed in the tables above. Furthermore, Tables 3.A-7 and 3.A-8 of Appendix A Volume II, list analytical for 3 surface water and sediment samples, 15 soil samples, and 1 groundwater sample collected during Confirmation Study Round 1 and Round 2 (groundwater result for Round 2 only). Yet Figure 2-4 of Appendix A Volume II depicts only 9 soil sample locations, 1 groundwater location, and none of the 3 surface water or sediment locations. The adequacy of past soil, groundwater, surface water, and sediment characterization, and its relationship to the groundwater wells NAVSTA proposes, cannot be evaluated until all prior sample locations are depicted on Figure 6-2 of the PICMSR, the most detailed map of the SWMU and where (2) proposed wells are shown, and the depth intervals for all soil samples are listed.
- Adequate surface water and sediment samples were not collected from the mangrove swamp area located immediately adjacent to this SWMU. The Permit requires that these media be characterized. Due to the proximity of the mangrove swamp to SWMU 2, the high concentrations of inorganics detected within soil samples collected from SWMU 2, and the likelihood that ecological receptors would be affected by contamination within the swamp, characterization of the surface water/sediments

within the mangrove swamp (adjacent to SWMU 2) needs to be completed.

#### 4.2.2 Page Specific SWMU 2 Comments

- Page 4-10, ¶2 The statement (also made in Appendix A Vol. I, Page 4-32, ¶3) that P/PCBs were not found in the groundwater is not fully acceptable, since for all PCB aroclors and many of the pesticide analytes, the detection levels utilized were too far above their respective health-based concentration levels to provide meaningful results. The text should be revised to note this data gap.
- Page 4-10, ¶3 This paragraph states that the soil SVOC data are "unreliable". The text should clarify why the data are considered unreliable/qualified (i.e., detection limits are four times higher than the CLP CRQL). In addition, if NAVSTA wishes to utilize this "qualified" SVOC data to support the conclusion, given in Section 4.2.2 of the PICMSR, that the soil at this SWMU has been adequately characterized and there is no risk to human health or the environment, the PICMSR must clearly give a rationale for this conclusion, such as "The instrument detection levels were taken as the concentration levels utilized in the risk evaluations performed". This discrepancy should be rectified.
- Page 4-10, ¶3 and ¶4 The report uses qualitative terms such as "trace" and "moderate" when describing the laboratory results. At a minimum, the report should compare the sample results to a standard such as RCRA Corrective Action Levels.
- Page 4-20, Section 4.3.2 The text states that soil analytical results indicate there is no risk to human health or the environment associated with this media. This has not been adequately demonstrated, as discussed previously in Section 3.3 and 3.4 of this document. Lead concentrations significantly exceeding EPA clean-up level of 500-1000 mg/kg were reported from several soil samples with a maximum reported concentration of 5850 mg/kg.
- Page 4-20, Section 4.3.2 Further, the report states on Page 4-20 that surface water/sediments have been adequately characterized. Three surface water and three sediment samples were collected during the Confirmation Study stage at this site; however, the locations of these samples is not depicted on

any maps in the report. Table 3.A-7 of Appendix A - Volume II indicates that several metals were detected in surface water samples during the Confirmation Study above health-based action levels. However, NAVSTA only collected soil and one groundwater sample at this SWMU during the subsequent Supplemental Investigation. The PICMSR suggests that surface water/sediment have been adequately characterized for this SWMU based on Supplemental Investigation data from IR Site 14 (the Ensenada Honda mangrove swamp shoreline). Though 5 sediment samples were collected for IR Site 14 during the SI stage, only 2 of the samples (as shown on Figure 4-8 of Appendix A Volume I) are located in proximity to SWMU 2. In addition, for many of the pesticide/PCB analytes, the detection levels utilized were above relevant action or Sediment Quality Guideline levels, so as to not provide meaningful results. Based on the above, the surface water/sediments have not been adequately characterized as to the impact from SWMU 2, as required in the Final Permit.

Appendix A  
Page 4-5  
Figure 4-4

Appendix A does not indicate all of the sample locations. It is impossible to evaluate the adequacy of the sampling without knowing the locations of all the samples. All sample location should be provided.

Page 5-84, ¶5  
Page 5-85, ¶2

These paragraphs contradict one another. Because sediments have not been fully characterized, the elimination of the various excavation and disposal technologies is unacceptable. The contradictions should be resolved so that excavation and disposal technologies are retained.

Page 6-4, ¶2

In the text, NAVSTA proposes to install three additional downgradient wells, whereas Figure 6-2 shows only two proposed wells. A minimum of three downgradient wells should be installed in order to fully characterize ground water. The report should also indicate the locations of all three wells that are to be installed. This needs to be done before an evaluation of the adequacy of the proposed sampling can be made.

Page 6-4, ¶4

Since the types of wastes involved are not definitively known, the full Part 261 Appendix VIII list should be included as constituents analyzed for.

Page 6-15, ¶2  
and Page 4-20,

The SIR indicates that no further investigation is necessary at SWMU 2. The PICMSR indicates

¶1 that ground water requires further characterization. These discussions should be corrected so that they are consistent. In addition, discussion should be provided regarding high concentrations of lead in soils (maximum concentration of 5,850 mg/kg).

#### 4.3 SWMU 3: Base Landfill (IR Site 7)

##### 4.3.1 General SWMU 3 Comments

\* The soils (surface and subsurface) at this SWMU have only been sampled/analyzed for oil and grease (three Confirmation Study samples), and have never been characterized for any Part 261 Appendix VIII hazardous constituents. The Final RCRA/HSWA Permit requires an RFI investigation for the soils at this SWMU. Therefore, the PICMSR must be modified to include investigations to fully characterize the soils at this SWMU.

\* Table 3.A-9 and 3.A-10 of Appendix A Volume II indicate that hazardous constituents (several metals and 1 organic) have been detected in the groundwater at this SWMU, yet there is no risk evaluation for this SWMU, or analysis of potential corrective measures technologies for the groundwater. A technically complete risk evaluation of the groundwater at this SWMU must be included in the PICMSR.

##### 4.3.2 Page-Specific SWMU 3 Comments

Page 3-2, ¶4 This paragraph states that the 1988 ESE report indicates that only low levels of oil and grease were detected in the soil samples collected during Confirmation Study sampling at this SWMU. This statement is misleading, since Table 3.A-9 and 3.A-10 of Appendix A Volume II show that the Confirmation Study (Round 2 only) soil samples were only analyzed for oil and grease and no other parameters. The text should be revised to clearly indicate that for the soil at this SWMU, no Part 261 Appendix VIII hazardous constituents were analyzed for.

Page 4-20, ¶5 The report states that groundwater samples were collected during the Supplemental Investigation, and results are included in Appendix B. This should be corrected to read Appendix A, and the specific location of the table of results (Volume

II, Table \_\_\_) and the map/Figure showing the well locations should be stated. Also, Figure 4-5 in Appendix A Volume I and Figure 6-3 of the PICMSR show (the same) 8 wells at this SWMU, yet the unnumbered table of results for this SWMU in Appendix A Volume II lists results from 10 wells. In addition, in order to evaluate whether the groundwater is adequately characterized, the following information must be supplied: the date of the sample collection, the water table elevation, and the interval sampled.

- Page 4-20, ¶6 The report uses qualitative terms such as "trace" when discussing laboratory results. At a minimum, the report should compare the sample results to a standard, such as the proposed Subpart S Action Levels.
- Page 4-21, ¶1 The report states that groundwater is being monitored in accordance with the landfill operating permit and that these results will satisfy the RFI requirement for groundwater. The report should supply the most recent groundwater data collected as part of the landfill operating permit. The report should also provide a discussion of these results and a comparison of the detected levels to the proposed Subpart S Action Levels.
- Page 4-21, ¶3 The report states that no surface water samples are planned to be collected due to the constant motion (tides, waves) of the surface water surrounding this SWMU. EPA will accept this approach for the marine waters of the bay and ocean; however, a program to investigate potential runoff and leachate in onshore drainage ditches/swales must be proposed. Figure 6-3 of the PICMSR must be modified to show all drainage ditches/swales that surround the landfill, and a program to sample both the sediments and water in these ditches/swales included in the revised PICMSR.
- Page 4-21, ¶4 The report states that soil samples will not be collected because samples would "be of waste or cover and not provide meaningful information". This statement is based on the assumptions that the surface material consists entirely of clean fill, and that there is no need to characterize the subsurface soils or the waste. There is no basis whatsoever for recommending no further characterization of surface and subsurface soils.

Potential human health effects include direct contact or ingestion of soils, and inhalation of fugative dust. Threats to the environment include runoff to surface water or leaching to the groundwater. In addition, only a limited portion of the 85-acre landfill is presently in active operation. The Final RCRA/HSWA Permit requires an RFI investigation for the soils at this SWMU. Therefore, the PICMSR must be modified to include investigations to fully characterize the soils at this SWMU. Numerous samples (surface and subsurface) will be required to adequately characterize site conditions.

Page 5-83, ¶1 Table 5-1 indicates that SWMU 3 has been preliminarily screened for corrective measure technologies for soil. However, no discussion appears in Section 5.3 of the PICMSR. Also, since the soil has never been analyzed for Part 261 Appendix VIII hazardous constituents, it cannot be considered characterized.

Page 6-7, ¶2 The proposed number of sediment samples appears to be adequate. However, the report should be revised to indicate that sampling of sediment is to be performed at low tide in order to intercept any possible leachate from the landfill.

#### **4.4 SWMU 4: Drone Fuel Oil/Water Separator**

##### **4.4.1 General SWMU 4 Comments**

- No further investigation is required under the Draft Correct Action Permit.

#### **4.5 SWMU 6: Building 145**

##### **4.5.1 Page-Specific SWMU 6 Comments**

Page 6-24 The sampling proposed by NAVSTA appears to be adequate for the first phase RFI requirements.

#### **4.6 SWMU 7: Tow Way Road Fuel Farm**

##### **4.6.1 General SWMU 7 Comments**

- The draft RCRA permit requires a full RFI for ground water and soil with contingent sampling for surface water and sediment at this SWMU. Neither the PICMSR nor the SIR contain any information regarding SWMU 7. As a result, none of the media that required investigation under the Draft

Corrective Action Permit have been adequately characterized. The report should be revised to incorporate this SWMU.

#### **4.7 SWMU 8: Tow Way Road Fuel Farm**

##### **4.7.1 General SWMU 8 Comments**

- The draft RCRA permit requires a full RFI for ground water and soil with contingent sampling for surface water and sediment at this SWMU. Neither the PICMSR nor the SIR contain any information regarding SWMU 8. As a result, none of the media that required investigation under the Draft Corrective Action Permit have been adequately characterized. The report should be revised to incorporate this SWMU.

#### **4.8 SWMU 9: Tank 212-217 Sludge Burial Pits**

##### **4.8.1 General SWMU 9 Comments**

- All of the monitoring wells and borings proposed are located around the fuel tanks. NAVSTA should, at a minimum, make an attempt to locate the pits through ground penetrating radar (GPR) and review of historical aerial photographs. The proposed locations may not even be in the correct area, and until it is determined that they are, any investigative activities may not be useful.

##### **4.8.2 Page-Specific SWMU 9 Comments**

Page 6-9, ¶1 The report states that "it is likely that any contamination related to the pits has merged with that from other pits and now presents a general pattern rather than a 'hot spots' type profile." This statement, for which no basis is provided, is used as rationale to not excavate individual disposal pits. NAVSTA should attempt to locate the pits through aerial photographs and ground penetrating radar (GPR).

Pages 6-10 and 6-12 Neither Figure 6-4A nor 6-4B indicate the locations of the fuel tanks. These should be depicted in the figures to aid in the analysis of the adequacy of the proposed sampling. Also, Figure 6-4A contains Areas A and B, but the figure does not indicate the location or extent of either area.

Page 6-10, Only three borings are shown in Figure 6-4A for

**Figure 6-4A** Area B, whereas the text on Page 6-11 states that four borings are proposed to be installed. The fourth boring should be installed on the west side of the tanks, so that all four sides of the tank area are characterized.

**Page 6-11, ¶6** The report refers to existing monitoring well GBW08 in Figure 6-4B. This well is not plotted on this figure. The figure should be revised to include this well.

#### **4.9 SWMU 10: Substation 2, Building 90**

##### **4.9.1 General SWMU 10 Comments**

- The Draft Corrective Action Permit for this SWMU states that RFI requirements for ground water and surface water/sediment are contingent on the Interim Remedial Action (IRA). No results from the IRA have been included in this report, and no additional sampling has been performed. As a result, none of the requirements of the Draft Corrective Action Permit have been met. The report should be revised to include results of the IRA.

##### **4.9.2 Page-Specific SWMU 10 Comments**

**Page 3-5, ¶2** This paragraph, which discusses the SI sampling results at IR Site 10, appears to be out of place; since only SWMUs 31, 32, and AOC B are associated with IR Site 10 and Section 3.2 summarizes the 1988 CS results not the SI results. This paragraph should be deleted.

#### **4.10 SWMU 11: Old Power Plant/Building 38**

##### **4.10.1 General SWMU 11 Comments**

- Sediment samples are proposed to be collected from all access points of the intake tunnel from Puerca Bay, and from the outfall tunnel to Ensenada Honda (once its location is determined by digging test pits). The additional sampling (particularly of the intake tunnel) appears adequate. However, additional samples from the marine sediments at the entrance of the outfall tunnel, if located, are needed, and all samples should also be analyzed for total organic carbon.

##### **4.10.2 Page-Specific SWMU 11 Comments**

Page 2-16, ¶1 The report states that seven surface water and six sediment samples were collected during the supplemental investigation. The locations of these samples are not shown on any map in the PICMSR, which prevents an evaluation of their adequacy for fulfilling the RFI requirements. There are four sediment locations shown on Figure 4-9 of the SIR; however, whether these are four of the seven collected by Baker cannot be determined. In addition, at least one of these sediment samples are of apparently drainage ditch sediments, not associated with the cooling water tunnel entrances. As a result, a determination of the extent to which the Navy fulfilled the surface water/sediment investigation requirements of the Final Permit cannot be made.

Page 4-23, ¶1 The report states that RFI requirements for soil are contingent on the results of the Interim Remedial Action (IRA). No determination of the adequacy of the IRA can be made until the information from this action is made available. The report should be revised to include the results of the IRA.

Page 4-23, ¶3 The text states that laboratory analytical results from collected surface water and sediment samples are provided in Appendix B. However, a review of this appendix finds that a discussion of sampling conducted within SWMU 11 (IR Site 16) during the supplemental investigation is not provided, nor is analytical data from SWMU 11 presented in Appendix B. The report should clarify what (if any) sampling was conducted within SWMU 11 during the supplemental investigation.

Page 4-24, ¶5 The report should address the potential data gap associated with elevated SVOC detection limits in the soil and sediment samples.

Pages 6-1 through 6-46 The report lists in general terms the parameters that will be analyzed for during the RFI for each of the SWMUs subject to Corrective Action. As stated previously, RCRA Correction Action requires the facility to evaluate/address the hazardous constituents identified in Appendix VIII of 40 CFR part 261 and Appendix IX of 40 CFR Part 264. NAVSTA should incorporate the RCRA hazardous constituents into the RFI analytical program.

Pages 6-16, ¶6 and ¶7 and The proposed sampling for the interior of Building 38 appears to be adequate. This can only

- Page 6-17, ¶1 be ascertained because the reviewer has visited this site. The report should supply a map depicting the proposed sample locations.
- Page 6-17 To determine if the proposed sampling for the intake and discharge tunnels is adequate, the report should indicate in Figure 6-5 which access points have already been sampled by Versar and which access points are to be sampled during the RFI.
- Page 6-19, ¶3 The report indicates that NAVSTA proposes to advance borings around the 50,000-gallon tanks to a depth just below the bottom of the tanks. The borings that are proposed to be installed around the 50,000-gallon tanks should be advanced to the water table to ascertain whether or not ground water has been impacted by any leaks from the tanks.
- Page 6-19, ¶6 The report states that no further characterization of soil, ground water, and surface water is warranted for this SWMU as discussed in Sections 6.7.1 and 6.7.2. Section 6.7.1 and 6.7.2 are sections for AOC B which has nothing to do with SWMU 11. NAVSTA should determine whether or not these are the correct sections that they are referring to. Also, if Sections 6.6.1 and 6.6.2 are correct in the statement, then NAVSTA should explain the apparent discrepancy of this statement because Sections 6.6.1 and 6.6.2 discuss work that is planned to be performed for media that the report later states requires no further characterization.

#### **4.11 SWMU 12: Fire Training Pit Oil/Water Separator**

##### **4.11.1 Page-Specific SWMU 12 Comments**

- Page 3-3, ¶3 This paragraph discusses the results of the 1988 ESE sampling and analysis for pesticides at SWMU 12, Fire Training Pit Oil/Water Separator. It appears that the discussion belongs to SWMU 13, Old Pest Control Shop/Building, not SWMU 12. The text should be revised as appropriate.
- Page 3-10, ¶4 There appears to be an error in the fourth bold heading on this page; the title refers to SWMU 12 instead of SWMU 13. The text should be revised.
- Page 6-25, ¶3 The proposed sampling locations and analyses

and ¶4 appear to be adequate to determine whether or not a release has occurred from the Fire Training Pit Oil/Water Separator. NAVSTA should collect the samples immediately adjacent (within one foot) to the wall of the oil/water separator.

#### **4.12 SWMU 13: Oil Pest Control Shop/Building 258**

##### **4.12.1 General SWMU 13 Comments**

- Both the SIR and PICMSR indicate that soil, ground water, and surface water/sediment have been adequately characterized at this SWMU, and that there is no threat to human health associated with these media. Only soil and sediment were evaluated in the risk assessment. Potential risks associated with ground water and surface water have not been and should be quantified or qualitatively discussed.
- One surface water sample and one sediment sample were collected from these media. The report states that there is no threat to the environment from these media although no justification or rationale is provided for this conclusion. Chlordane was detected in the surface water sample above chronic AWQC while several pesticides (i.e., chlordane, DDT, DDD, and DDE) were detected above NOAA ER-M sediment guidelines (effect level where impacts are probable). In addition, several inorganics were detected within the sediment sample at elevated concentrations. Zinc was detected above its NOAA ER-M guideline while copper and lead were detected above their respective NOAA ER-L guideline. The extent of the sediment contamination within the drainage ditch needs to be further characterized as the potential for ecological risk has been established at this SWMU.

##### **4.12.2 Page-Specific SWMU 13 Comments**

Page 4-31, all ¶ The report uses qualitative terms such as "trace" when describing sample results. At a minimum, the report should compare the sample results to a standard criteria such as RCRA Corrective Action Levels.

Page 4-31, ¶3 and ¶4 and Page 4-32, ¶1 The report states that SVOC data are unreliable. Every location with unreliable SVOC data should be re-sampled for SVOCs.

Page 4-32, ¶2 The report states that there is no threat to the environment from the surface water and sediment media, although no justification or rationale is provided for this conclusion. Chlordane was detected in the surface water sample above chronic AWQC while several pesticides (i.e., chlordane, DDT, DDD, and DDE) were detected above NOAA ER-M sediment guidelines (effect level where impacts are probable). In addition, several inorganics were detected within the sediment sample at elevated concentrations. Zinc was detected above its NOAA ER-M guideline while copper and lead were detected above their respective NOAA ER-L guideline. These results indicate that there is potential for ecological risk due to contamination within the drainage ditch. The extent of contamination within the ditch needs to be further investigated to determine the exposure potential of contaminants to ecological receptors.

Page 4-32, ¶3 The report states that soil, ground water, and surface water/sediment have been adequately characterized at this SWMU. This statement is not correct based on the deficiencies stated in this section (4.12.2).

Page 6-28,  
Figure 6-8 The figure should include the former location of Building 258 and the ditch to which the past releases have occurred. This needs to be done before a determination of the adequacy of sampling can be made.

Page 6-28,  
Figure 6-8 Not all pre-existing and proposed sample locations are depicted on Figure 6-8. All sample locations need to be depicted on Figure 6-8 before a determination as to their adequacy can be made. For instance, the text on Page 4-31 discusses soil sample 18SS174. Soil sample 18SS174 is not depicted on Figure 6-8 or on any other figure in the PICMSR or SIR.

#### **4.13 SWMU 14: Fire Training Pit Area**

##### **4.13.1 Page-Specific SWMU 14 Comments**

Page 6-25 The proposed sampling for the fire training pit appears to be adequate to satisfy first phase RFI requirements. However, NAVSTA should attempt to locate the second old fire training pit through review of historical aerial photographs. If

located, similar sampling should be performed at that location.

#### **4.14 SWMU 19: Building 121 - Discarded Pesticide Storage Area**

##### **4.14.1 General SWMU 19 Comments**

- Contingent on the results of closure sampling, the Final Permit requires possible ground water and soil investigation at this SWMU. Volume I of the SIR contains two maps of this SWMU on Pages 1-17 and 4-12, but the report provides no discussion of this SWMU. The report should be revised to incorporate results from the closure sampling at this SWMU.

#### **4.15 SWMU 23: Oil Spill Separator Tanks**

##### **4.15.1 General SWMU 23 Comments**

- The pad area should be checked for any cracks. If sizeable cracks are found, sampling beneath the concrete should also be conducted.

##### **4.15.2 Page-Specific SWMU 23 Comments**

Page 6-30,  
Figure 6-9

Figure 6-9 indicates that the two proposed sample locations are located within the confines of the concrete pad. NAVSTA should indicate whether they plan to collect the samples from within the pad or outside the pad on the east side. Based on information from the 1993 VSI, soil on the east side of the pad is the most likely site for evidence of releases to the environment; therefore, the samples should be collected from the soil on the east side of the pad. The sampled interval should be surface to 1 foot, not to 6 inches. In addition, sample collection cannot be contingent on visual evidence of a release.

#### **4.16 SWMU 24: Oil Spill Oil/Water Separator and Adjoining Pad**

##### **4.16.1 Page-Specific SWMU 24 Comments**

Page 6-29, ¶5  
and ¶6

It appears that one sample should be adequate to determine if there has been a release from this SWMU since three sides of the oil/water separator are surrounded by asphalt. However, the proposed sample location in Figure 6-9 appears to be on asphalt. If this location is on asphalt, then the sample location should be moved so that the sample is collected from the grassy area immediately

adjacent to the south side of the oil/water separator. The sampled interval should be surface to 1 foot, not to 6 inches. In addition, sample collection cannot be contingent on visual evidence of a release.

**4.17 SWMU 25: DRMO Storage Yard**

**4.17.1 Page-Specific SWMU 25 Comments**

Page 6-31 and Figure 6-10 The exact location of the area that contains the staining noted by the 1988 VSI team is not known. The proposed sampling appears to be adequate, but sampling of migration pathways at this SWMU should also be performed. NAVSTA should sample the ditch that runs along the south side of this SWMU (see Figure 6-10 of the PICMSR), and of the manhole inlet which is located near the southeast corner of Building 1973. These are two obvious migration pathways that should be sampled in order to assess whether or not a release has occurred. If any other ditches or storm sewers are discovered, then the sediment and/or surface water for these migration pathways should be sampled as well. Also, since the type of wastes involved is not definitively known, the full Part 261 Appendix VIII list should be included as constituents analyzed for.

**4.18 SWMU 26: Building 544 Area**

**4.18.1 Page-Specific SWMU 26 Comments**

Pages 6-31 through 6-34 The approach proposed by NAVSTA appears to be adequate, except that, since the type of wastes involved is not definitively known, the full Part 261 Appendix VIII list should be included as constituents analyzed for.

**4.19 SWMU 30: Former Incinerator Area**

**4.19.1 General SWMU 30 Comments**

- The Draft Corrective Action Permit requires soil sampling at this SWMU. The permit also requires contingent ground water sampling at this SWMU. There is no mention of SWMU 30 in either the PICMSR or SIR. As a result, the RFI Draft Corrective Action Permit requirements have not been met.

**4.20 SWMU 31: Waste Oil Collection Area/Buildings 31 and 2022**

**4.20.1 Page-Specific SWMU 31 Comments**

Page 6-15, ¶3 and Page 4-35, ¶3 The SIR indicates that no further investigation is necessary at IR Site 10 (SWMU 31) while the PICMSR indicates that both soil and ground water require further investigation. NAVSTA should make the SIR consistent with the PICMSR.

Page 6-34, ¶2 The report assumes that the second area of spills that were noted in the 1984 IAS Report are located immediately adjacent to Building 31. The location of this area can not be confirmed from the available information. NAVSTA should propose a program of soil gas investigation in order to accurately locate the area(s) described in the 1984 IAS before sampling, as the area indicated on Figure 6-11 may not be the correct area, or the entire area(s) impacted by the spills associated with Building 31, which were described in the IAS. The PICMSR should be modified to include the soil gas survey.

Page 6-34, ¶2 and Page 6-36, ¶7 The report states that NAVSTA assumes that the "second area" associated with Building 31 is located at the north corner of Building 31. On Page 6-36, ¶7 the report states that efforts will be made to locate the "other area" associated with Building 31 by using old reports, drawings, and long-term employee recollections. NAVSTA should clarify if these are the same areas. Also, as stated above, a program of soil gas investigation should be included to accurately locate the area(s) impacted by the spills associated with Building 31,

Page 6-36, ¶4 The sampling proposed for Area 1 appears to be adequate, except that full RCRA metals should be sampled for not just Arsenic, Chromium, Lead, and Selenium.

Page 6-36, ¶5 The report should state the number and identification of pre-existing wells that are proposed to be sampled. The locations of these wells should also be included in Figure 6-11. Until this is done, a determination of the adequacy of the proposed sampling of ground water can not be made.

**4.21 SWMU 32: PWD Storage Yard/Battery Collection Area/Building 31**

**4.21.1 Page-Specific SWMU 32 Comments**

Page 6-15, ¶3 and Page 4-35, ¶3 The SIR indicates that no further investigation is necessary at IR Site 10 (SWMU 32) while the PICMSR indicates that both soil and ground water require further investigation. NAVSTA should make the SIR consistent with the PICMSR.

Page 6-37, ¶2 The report states that the location of the battery collection area is only generally known. The location of SWMU 32 must be determined before any sampling can be performed. This may be able to be done through the photographs taken during the VSI in 1993. At least, in this way the latest staging area can be addressed. Also, sampling should be biased to include the most contaminated areas. Finally, sediment/water in the drain depicted in Figure 6-11 should be sampled as this is the most likely migration pathway.

Page 6-37, ¶4 In addition to the same analytical program as employed at SWMU 31, full RCRA metals should be analyzed for, not just Arsenic, Chromium, Lead, and Selenium.

**4.22 SWMU 37: Waste Oil Storage Area/Building 200**

**4.22.1 Page-Specific SWMU 37 Comments**

Pages 6-37 The area of the SWMU, described in the Permit and the 1993 VSI photograph log, is not identified on Figure 6-12, but is believed to be the covered storage area and storage containers located away from the northern corner of Building 200, on the bituminous pavement area. Therefore the proposed area of soil gas investigation does not include the SWMU itself.

**4.23 SWMU 39: Building 3158/Former Battery Drain Area**

**4.23.1 General SWMU 39 Comments**

- NAVSTA recommends 3 soil samples; 2 will be selected on the east side of building 3158 based on visual evidence, while the third will be at an unspecified "background" location. The topographic contours on Figure 6-13 are not sufficient to determine the direction of slope on the east/southeast sides of building 3158.

However, rather than a "background" sample, EPA requests that the third sample be collected on the east/southeast side of building 3158.

**4.24 SWMU 43: Drone Washdown Drainage Ditch**

**4.24.1 General SWMU 43 Comments**

- There is no mention of this SWMU in either the PICMSR or the SIR, and no corrective action is necessary as per the permit. As a result, no comments have been made on this SWMU.

**4.25 SWMU 44: Aerial Target Drainage Ditch**

**4.25.1 General SWMU 44 Comments**

- There is no mention of this SWMU in either PICMSR or the SIR, and no corrective action is necessary as per the permit. As a result, no comments have been made on this SWMU.

**4.26 SWMU 45: PCB Spill Area/Old Power Plant**

**4.26.1 Page-Specific SWMU 45 Comments**

Page 4-23, ¶1 The report states that an Interim Remedial Action is being done/has been done at this SWMU. It is also stated that NAVSTA has sent copies of project plans, work plans, and project QA/QC plans to EPA of the Interim Remedial Action work that has been done at this SWMU. However, the report should contain at least a summary of the relevant information from these submittals, so that it is not required to search through additional documents to understand the impact of the IRA on this unit.

**4.27 SWMU 46: Pole Storage Yard Covered Pad**

**4.27.1 Page-Specific SWMU 46 Comments**

Page 6-40, ¶5 The report states that the proposed soil samples will be collected within 18 inches of the concrete pad. However, Figure 6-14 shows the six proposed samples as being spread around the entire yard area and are nowhere near the concrete pad. NAVSTA should collect the six soil samples at the locations depicted in Figure 6-14. These samples will characterize the perimeter of the fenced in yard area. In addition, NAVSTA should collect two soil samples from the center of the yard area.

Also, as discussed in the text, soil samples should be collected from around the four concrete pads depicted in Figure 6-14. These four pads are located at the north end of SWMU 46 and are named as follows: 1) drum storage; 2) covered storage drums and batteries; and 3) drums (this consists of two small pads).

Page 6-40, ¶6 Since the types of wastes and/or hazardous constituents formerly managed at this unit are not definitively known, the full Part 261 Appendix VIII list should be included as constituents analyzed for.

Page 6-42,  
Figure 6-14 Figure 6-14 depicts an area at the south end of SWMU 46 as "contaminated soil area (marked with tape)". The report does not address this area. The report should indicate what the soil is contaminated with, how it was determined that this soil was contaminated, and present the results of the sampling from this area. If no samples have been obtained from this area, additional sampling points should be added to the planned program to include this area.

#### **4.28 SWMU 51: New AIMD Storage Pad/Building 379**

##### **4.28.1 Page-Specific SWMU 51 Comments**

Page 6-44 SWMU 51 consists of a curbed concrete storage pad that is roofed and enclosed with a cyclone fence. It is located outside of Building 379. Also present at this SWMU is a 200-gallon tank which touches the storage pad, but is outside the curbed area. Figure 6-15 of the report does not identify the storage pad or the 200-gallon tank. Instead Figure 6-15 depicts SWMU 51 as an open area. In addition, the photographic log made during the 1993 VSI inspection shows a prominent drainage ditch located adjacent to this SWMU; however, this feature is not depicted in Figure 6-15. The drainage ditch and the SWMU itself must be clearly depicted on Figure 6-15. Pending this, no judgement can be made as to the adequacy of the proposed sampling program, as depicted on Figure 6-15. Furthermore, the drainage ditch was described during the 1993 VSI inspection as being down-slope from the SWMU. Accordingly it should be sampled with a minimum of three sediment samples (one upgradient, one in the middle, and one downgradient). If water is present in the drainage ditch at the time of sampling, then

surface water samples should be collected as well at the sediment sample locations.

#### **4.29 AOC B: Building 25**

##### **4.29.1 Page-Specific AOC B Comments**

- Page 4-35, ¶2 The report uses qualitative terms such as "trace", "low", and "high" when discussing the sample results. At a minimum, the report should compare the data to RCRA Corrective Action Levels and discuss any exceedances accordingly.
- Page 4-35, ¶2 The report should cite specific sample ID numbers when discussing the sample results instead of using general terms such as "one sample" and "another sample".
- Page 4-35, ¶2 The report states that SVOC data are unreliable. Every location with unreliable SVOC data should be resampled for SVOC.
- Page 6-15, ¶3  
and Page 4-35, ¶3 The SIR indicates that no further investigation is necessary at IR Site 10 (SWMU 32) while the PICMSR indicates that both soil and ground water require further investigation. The SIR should be consistent with PICMSR.
- Pages 6-20  
through 6-22 Due to extensive visual evidence of spills and "sloppy" waste management practices documented by the photographic log from the 1993 VSI, the sampling that is proposed on Pages 6-20 through 6-22 does not appear to be adequate. In addition to the two soil borings to the top of groundwater, shallow samples (surface to 12 inches) should also be obtained from soils adjoining the perimeter of the former pad. Furthermore, total petroleum hydrocarbons (TPHC) should be included as an analytical parameter. TPHC should be included because it is listed on Page 5-87 of the PICMSR as being a potential contaminant.

#### **4.30 AOC C: Transformer Storage Pad**

##### **4.30.1 Page-Specific AOC C Comments**

- Page 6-44  
through 6-46 The PICMSR states that the 14 proposed soil samples for AOC C are depicted in Figure 6-14. These sample locations are not depicted in Figure 6-14. There are twelve sample locations presented in Figure 6-14, but these sample locations all appear to be associated with the "Creosote Timber

Storage Area". These samples appear adequate (and necessary) for the "Creosote Timber Storage Area", which apparently should be either considered a new SWMU/AOC pursuant to Section C of Module III of the Permit, or (as here) part of AOC C; however, they do not fully address AOC C. The pads that were described during the 1988 RFA and 1993 VSI as constituting AOC C, are the concrete pads depicted on Figure 6-14 north, northeast, of the "Creosote Timber Storage Area". Due to extensive visual evidence of releases and "sloppy" waste management practices documented by the photographic log from the 1993 VSI, sampling must be performed around these pads, not just at the "Creosote Timber Storage" area. Two samples should be collected from each side of the three concrete pads and the transformer storage pad depicted in Figure 6-14. Samples should be collected within one foot of the concrete pad and should be biased to areas of greatest contamination. In addition, chip and whip samples should be collected from each of the three concrete pads as the pads themselves appeared to contain heavily stained areas during the 1993 VSI.

The depth of soil sample collection should be surface to 12 inches. Due to the uncertain nature of the wastes/hazardous constituents involved, all soil samples should be analyzed for the full Part 261 Appendix VIII hazardous constituent list, not just PCBs and TPH as proposed in the PICMSR.

#### **4.31 AOC D: Ensenada Honda Sediments**

##### **4.31.1 General AOC D Comments**

- The Draft Corrective Action Permit requires surface water and sediment sampling for this AOC. Neither the PICMS report nor the SIR mention AOC D. As a result, this AOC has not been adequately addressed. The report should be revised to incorporate this AOC.