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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION II

290 BROADWAY

NEW YORK, NEW YORK 10007-1866

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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: RCRA Facilities Investigation (RFI)- Comments on Draft RFI
Work Plan
U.S. Naval Station Roosevelt Roads
RCRA/HSWA Permit No. PR2170027203

Dear Captain Wood:

The United States Environmental Protection Agency (EPA) Region II has received the March 1995 Draft RFI work plan, submitted by Baker Environmental on behalf of the Navy. EPA cannot approve the Draft RFI Work Plans as submitted. Review of the RFI Work Plan revealed numerous deficiencies that will result in the incomplete site characterization of the SWMUs/AOCs required to be investigated pursuant to the terms of the 1994 Final RCRA/HSWA Permit for your facility. Among the most significant and recurring deficiencies are the following:

- proposed laboratory analyses do not cover all Appendix IX constituents;
- analyses for asbestos and explosives were not included for SWMUs 1, 2, and 3;
- the proposed Work Plan does not fully list the specific constituents that will be analyzed;
- the proposed method for analyzing total petroleum hydrocarbons typically underestimates concentrations of aviation gasoline, may not detect Bunker C fuel oil, and is prone to producing false positive in the presence of decaying vegetation;
- subsurface soil characterization is inadequate;
- the background sampling strategy will not characterize "regional" background conditions;

- proposed data validation procedures are not provided for analytical methods which lack NASA validation procedures;
- the Work Plan contains numerous inconsistencies in the proposed number of samples; and
- EPA comments, transmitted with my letter of December 19, 1994 and discussed during the January 13, 1995 meeting with Navy representatives, on the Draft Final Pre-Investigation Corrective Measures Screening Report (PICMSR) are not incorporated into the RFI Work Plan.

For many SWMUs/AOCs, the RFI Work Plan will not provide site characterization adequate to fulfill the requirements of the 1994 Final RCRA/HSWA Permit. In many cases, the proposed analytical program comprise a fraction of the "full Appendix IX constituents" which the text of your Draft RFI Work Plan states will be analyzed. As submitted, only 8 of the 19 Appendix IX metals will be analyzed for, and herbicides and organophosphorus pesticides will not be analyzed at many SWMUs/AOCs where their presence may be reasonably hypothesized. Also, since the proposed analytical program uses the generic term volatiles and semivolatiles, numerous other volatile and semivolatile organic compounds in the Appendix IX list may not be analyzed for.

Related to the issue of incomplete chemical characterization, the Navy has not proposed to analyze explosives or asbestos at SWMUs with landfilling histories. This issue was discussed with Navy representatives during the January 13, 1995 meeting with EPA staff in Region II's New York offices. Such analyses are particularly necessary at SWMUs 1, 2, and 3.

At many SWMUs where full characterization is required by the RCRA Corrective Action Permit, proposed subsurface sampling points will characterize only one soil sample per soil boring. Such limited sampling will not be sufficient to provide vertical profiling of potential contamination. This inherently limits any calculations for estimating the volume of potential contamination. Additional soil sampling will be necessary to provide the necessary characterization.

The proposed locations for background soil and ground water samples will not define regional background concentrations of various chemicals because the locations are, in some instances, downgradient or otherwise near potential source areas. The proposed locations appear to be placed in a manner to define background concentrations at different SWMUs rather than for the facility as a whole. This strategy may be useful in determining whether contamination at one SWMU may be influencing another, but it is not acceptable for characterizing regional background concentrations which can be used as potential action levels.

The text states that all laboratory analytical results will be validated by a third party in accordance with NASA Guidelines. However, NASA does not provide guidance for most of the SW-846 methods. Therefore, it is inappropriate to cite these guidelines for most of the SW-846 methods. The NASA Level C data validation guidelines (NASA document 20.2-047B) require the contractor to provide validation procedures for methods not specifically listed in the guidance. Because such validation procedures were not provided in the RFI Work Plan, it is impossible to verify that proposed sampling will produce data of acceptable quality for the RFI requirements. RFI data validation should follow either EPA's "Contract Laboratory National Functional Guidelines for Data Review", or the Region II "CERCLA Quality Assurance Manual", a copy of which was previously provided to Mr. James Szykman of LANTDIV. Alternative validation procedures for RFI data must be approved in advance by EPA.

The RFI Work Plan, particularly the Data Collection Quality Assurance Plan (DCQAP), contains numerous inconsistencies in the number of samples proposed for collection. The numbers proposed in the text do not coincide with the numbers presented in Table 4-2 or depicted in the various figures of the DCQAP.

Section 3.0 of the RFI Work Plan (Description of Current Conditions) and the DCQAP discuss/summarize the Navy's interpretation of the adequacy of existing media characterization and the extent of additional investigation needed for each SWMU/AOC. However, for most SWMUs/AOCs, the present extent of media characterization remains replete with data gaps/deficiencies, as discussed with Navy representatives during the January 13, 1995 meeting with EPA and in the Technical Review of Draft Final Pre-Investigation Corrective Measures Screening Report transmitted with my letter of December 19, 1994. The RFI Work Plan needs to be modified as to the conclusions regarding the adequacy of previous site characterization and risk conclusions based on that characterization. To avoid the redundancy of restating the concerns expressed in EPA's December 1994 Technical Review of the PICMSR, the following summarizes the two most relevant site characterization issues.

The first is that the adequacy of proposed soil sampling cannot be fully evaluated because insufficient data was provided during the Supplemental Investigation. Specifically, information is needed that describes the locations and depths of all soil samples collected during the Supplemental Investigation. Currently, the data are inadequate to determine if subsurface characterization occurred at several SWMUs. This data gap significantly limits the ability to determine if proposed soil sampling is adequate to supplement the existing database.

The second issue is that sample results from the Confirmation Study are not applicable for site characterization because the data quality associated with these samples is unknown. These issues were agreed upon by all parties in the January 13, 1995 meeting with EPA. As such, all references to Confirmation Study data must be eliminated from the text. This also applies to previous sampling locations illustrated on proposed sampling location maps. The uncertainties and potential impacts of the Confirmation Study sampling results are described in detail in the Technical Review of Draft Final Pre-Investigation Corrective Measures Screening Report transmitted by my letter of December 19, 1994.

Enclosed (Enclosure 1) is a Technical Review which contains our detailed comments regarding the proposed investigation plans for those SWMUs/AOCs for which a full RFI is required (SWMUs 1, 2, 3, 7, 8, 9, 11/45, and AOC B), and also comments regarding the following portions of the RFI work plans: Project Management Plan (PMP), Data Collection Quality Assurance Plan, and Data Management Plan (DMP).

Enclosure 2 contains our comments regarding the investigation work plans for those SWMUs/AOCs requiring a First Phase RFI investigation, and additional comments on the DCQAP and PMP.

EPA requests that within 45 days of your receipt of this letter, the Navy submit revised RFI work plans to fully address the comments contained in this letter and the two enclosures.

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

Enclosures

cc: Commander L.V. Marchette, NAVSTA Roosevelt Roads w/encls.
Mr. P.A. Rakowski, P.E., LANTDIV w/o encls.
Mr. Carl A. Soderberg, 2EPA-CFO w/encls.
Mr. Israel Torres, EQB w/encls.
Mr. Art Wells, LANTDIV w/encls.

TECHNICAL REVIEW

Draft RCRA Facility Investigation Work Plan
Naval Station Roosevelt Roads
Cieba, Puerto Rico

Submitted to:

Ms. Elizabeth Van Rabenswaay
Regional Project Officer
U.S. Environmental Protection Agency
Region 2
290 Broadway, 22nd Floor
New York, NY 10007

Submitted by:

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

June 1, 1995

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Attachment

Table 1

1.0 INTRODUCTION

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

NSRR 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 NSRR is to provide full support for the Atlantic Fleet weapons training and development activities. NSRR is currently operating under a Draft Corrective Action Permit that includes varying degrees of work at 28 Solid Waste Management Units (SWMUs) and three Areas of Concern (AOCs).

The objective of this task under Work Assignment R02020 is to assist EPA with the evaluation of the Draft RFI Work Plan dated March 1995 and prepared by Baker Environmental, Inc. (Baker). The RFI Work Plan defines the technical approach and scope for the RFI and is presented as five distinct plans:

- Project Management Plan
- Data Collection Quality Assurance Plan
- Data Management Plan
- Health and Safety Plan
- Community Relations Plan

The Project Management Plan describes the strategy for managing the RFI. The detailed technical approach to examining each SWMU is presented in the Data Collection Quality Assurance Plan. Procedures for reporting analytical results are discussed in the Data Management Plan. The Health and Safety Plan describes safety practices for addressing chemical and physical hazards associated with the planned field investigation. The Community Relations Plan presents the manner in which the NSRR will inform and involve the surrounding communities with regard to the RFI.

The Kearney Team reviewed the RFI Work Plan to evaluate the adequacy and appropriateness of the proposed analytical program with respect to characterization and data quality objectives. This report presents the findings of the Kearney Team's technical evaluation. Section 1.0 (Introduction) of this report discusses the scope of this technical evaluation relative to the RFI process. Section 2.0 (Methodology) identifies the specific objectives of this technical evaluation and also presents the criteria used to evaluate the RFI Work Plan. Section 3.0 (General Overview) discusses the overall adequacy of the RFI Work Plan in satisfying the requirements of the RCRA Corrective Action Permit. Section 3.0 also summarizes significant technical deficiencies that require resolution prior to implementation of the RFI Work Plan. Section 4.0 (Detailed Technical Evaluation)

- the background sampling strategy will not characterize "regional" background conditions;
- proposed data validation procedures are not provided for analytical methods which lack NASA validation procedures;
- the Work Plan contains numerous inconsistencies in the proposed number of samples; and
- EPA comments on the Draft Final Pre-Investigation Corrective Measures Screening Report are not incorporated into this RFI Work Plan.

The RFI Work Plan, as written, will not provide site characterization that complies with the RCRA Corrective Action Permit. The proposed analyses comprise a fraction of the Appendix IX constituents, which is contrary to the RFI Work Plan text which states that "full Appendix IX constituents" will be analyzed. If the proposed analytical methods are not changed, only 8 of the 19 Appendix IX metals will be analyzed. Herbicides, organophosphorus pesticides, and numerous volatile and semivolatile organic compounds will not be analyzed if the proposed analyses are not changed. To identify all the chemicals that will not be analyzed, it will be necessary for the Navy to construct a tabular comparison of the Appendix IX constituents to the analytes included in the proposed methodologies. After the tabular comparison is complete, the table can be used as the basis for selecting additional analytical methods to provide full Appendix IX monitoring. More extensive analyses are required to satisfy the permit requirements.

Related to the issue of incomplete chemical characterization, the Navy has not proposed to analyze explosives or asbestos at SWMUs with landfilling histories. This issue was discussed with the Navy during the 13 January 1995 meeting with EPA and was also expressed in the *Technical Review of Draft Final Pre-Investigation Corrective Measures Screening Report* dated 14 December 1994. Despite the Navy's verbal acceptance during the 13 January 1995 meeting with EPA, explosives and asbestos were not included among the proposed analyses. Such analyses are deemed necessary at SWMUs 1, 2, and 3.

The RFI Work Plan does not provide a singular list of all constituents that will be examined via the proposed analytical procedures. Without such a list, a laboratory may report only a subset of analytes from an analysis.

The proposed TPH method, Method 418.1, may not be appropriate to define the extent of Bunker C fuel oil and aviation gasoline (AVGAS) contamination at the various SWMUs, including SWMUs 8, 9, and 11/45 which have fuel handling histories. Method 418.1 has several limitations which hinder the accurate determination of

proposed sampling will produce data of acceptable quality for the RFI requirements. This issue is discussed in detail in Section 4.2 of this report.

The RFI Work Plan, particularly the DCQAP, contains numerous inconsistencies in the number of samples proposed for collection. The numbers proposed in the text do not coincide with the numbers presented in Table 4-2 or depicted in the various figures of the DCQAP. Table 1 (attached) provides a SWMU-by-SWMU summary of these inconsistencies that require correction for the revised RFI Work Plan.

The PMP and DCQAP summarize media requiring further characterization for each SWMU. These determinations/conclusions are replete with all the gross data deficiencies that were discussed with the Navy during the 13 January 1995 meeting with EPA and also expressed in the *Technical Review of Draft Final Pre-Investigation Corrective Measures Screening Report* dated 14 December 1994. It is clear that language from the *Draft Final Pre-Investigation Corrective Measures Screening Report* dated April 1994 was incorporated into the current RFI Work Plan without regard to the deficiencies (and recommended solutions). The current RFI summary of previous site characterization, risk conclusions, and adequacy of previous sampling is unacceptable and needs to be seriously modified to address the concerns of the 1994 technical review report. To eliminate the redundancy of restating the concerns from the 1994 technical review, the following discussion presents the two, most relevant, site characterization issues from the 1994 technical review report.

The first issue is that the adequacy of proposed soil sampling cannot be fully evaluated because insufficient data was provided during the Supplemental Investigation. Specifically, information is needed that describes the locations and depths of all soil samples collected during the Supplemental Investigation. Currently, the data are inadequate to determine if subsurface characterization occurred at several SWMUs. This data gap significantly limits the ability to determine if proposed soil sampling is adequate to supplement the existing database.

The second issue is that sample results from the Confirmation Study are not applicable for site characterization because the data quality associated with these samples is unknown. These issues were agreed upon by all parties in the 13 January 1995 meeting with EPA. As such, all references to Confirmation Study data must be eliminated from the text. This also applies to previous sampling locations illustrated on proposed sampling location maps. The uncertainties and potential impacts of the Confirmation Study sampling results are described in detail in the Kearney Team's *Technical Review of Draft Final Pre-Investigation Corrective Measures Screening Report* dated December 14, 1994.

Since sampling has been proposed by the Navy, the text should be revised to reflect that surface water/sediment has not been adequately characterized.

In addition, the text should indicate that surface water has not been adequately characterized.

Page 4-7,
¶4, §4.2.1

Proposed sampling at SWMU 1 does not comply with the RCRA Corrective Measures Permit because it does not include collection of surface water samples. To comply with the permit surface water sampling needs to be conducted. Sampling depths of surface water samples need to be presented. Surface water samples should be submitted for Appendix IX constituents, explosives, and asbestos. Appendix IX analyses are specified in the RCRA Corrective Measures Permit. Explosives and asbestos analyses are necessary because these materials were reported disposed in SWMU 1. The need for analyzing explosives, and asbestos was discussed in the 13 January 1995 meeting with EPA.

Page 4-7,
¶5, §4.2.1

Proposed sampling will not examine subsurface soils, the zone where historical operations deposited a variety of potential contaminants. Since burial was the primary means of waste disposal, subsurface soils must be investigated to determine if a release to the environment has occurred. Therefore, it is recommended SWMU 1 subsurface sampling adopt the approach proposed for SWMU 3 (i.e., collection of three subsurface soil samples per boring).

It is unlikely that five surface locations will be sufficient to represent an area as large as SWMU 1 which may contain up to 100,000 tons of waste materials. The diverse wastes (e.g., inert ordnance, batteries, gas cylinders) that were deposited in SWMU 1 also further limits the likelihood that so few samples can adequately characterize SWMU 1. Therefore, the Navy should re-evaluate the sampling plan in light of these issues and propose more extensive sampling.

Soils should be submitted not only for the proposed Appendix IX analyses but also for explosive and asbestos analyses. The need for incorporating explosive and asbestos analyses was discussed with the Navy during the 13 January 1995 meeting with EPA and is deemed necessary at SWMUs with vague contaminant disposal histories (e.g., landfills).

justifying the need for sediment sampling.

Proposed analyses for sediment samples need to include explosives, asbestos, and total organic carbon, in addition to Appendix IX constituents. Explosives and asbestos analyses are necessary because these materials were reported disposed in SWMU 1. Total organic carbon analyses are needed for evaluating risk to, and calculating risk-based action levels for, ecological receptors.

4.1.2 SWMU 2

Page 3-4,
Bullet 1,
§3.3.2

The text states that "soil at this SWMU [SWMU 2] has been adequately characterized." However the Kearney Team is unable to verify this statement because the locations and depths of previous samples are unknown. This data deficiency was discussed with the Navy during the 13 January 1995 meeting with EPA and was also expressed in the *Technical Review of Draft Final Pre-Investigation Corrective Measures Screening Report* dated 14 December 1994. Until the locations and depths of the samples collected during the Supplemental Investigation are presented, the conclusion that soil is adequately characterized cannot be supported. Specifically, the Kearney Team cannot, but needs to, confirm that proposed soil sampling will examine areas beneath or immediately adjacent to the exposed 55-gallon drums described on Page 3-14 of the Project Management Plan. These drums reportedly contained "a whitish solid with a green outer crust." To evaluate whether this source area (and/or others) was previously examined and the degree of prior examination, the text must present the locations and depths of soil samples collected during the Supplemental Investigation. Until the locations and depths of the samples collected during the Supplemental Investigation are presented, soil cannot be considered to be adequately characterized. In addition, the locations of all potential source areas need to be depicted on Figure 4-2. If previous soil sampling did not characterize both surface and subsurface conditions, then additional soil sampling will be necessary. Additional soil sampling will also be necessary if previous soil sampling did not examine the subsurface environment at the various disposal areas.

Soil samples should be submitted not only for the proposed Appendix IX analyses but also for explosive and asbestos analyses. The need for incorporating explosive and asbestos analyses was discussed with the Navy during the 13 January 1995 meeting with EPA and is deemed necessary at SWMUs with vague contaminant disposal histories (e.g., landfills).

Page 4-9,
¶4, §4.2.2

The text states that proposed sediment sampling will be used "to augment previous sediment results." However, the source of the previous sampling effort was the Confirmation Study (as indicated in Figure 4-2). Sample results from the Confirmation Study are not applicable for site characterization because the data quality associated with these samples is unknown. During the 13 January 1995 meeting with EPA, all parties agreed that Confirmation Study data would not be used for site characterization purposes as a result of the unknown data quality. Therefore, additional sediment samples to those proposed are necessary to adequately characterize SWMU 2. In addition, the text should eliminate the statement referring to confirming previous sampling results. The Confirmation Study sample locations should also be eliminated from Figure 4-2. The uncertainties and potential impacts of the Confirmation Study sampling results are described in detail in the Kearney Team's *Technical Review of Draft Final Pre-Investigation Corrective Measures Screening Report* dated December 14, 1994.

Proposed sediment sample locations should not be restricted to arbitrary, fixed points. As conveyed during the 13 January 1995 meeting with EPA, the sampling plan should provide flexibility to deviate from the fixed locations so that leachate seeps, if visible, can be sampled. Therefore, the text should be revised to reflect this recommendation and also indicate that the length of the landfill base will be inspected for seeps prior to sediment sampling.

The proposed, northernmost sediment sample does not appear to be optimally located in an area which can intercept potential contaminants associated with SWMU 2. The rationale for the proposed location needs to be presented and/or it should be relocated to a location immediately downslope/downgradient of the inferred limits of disposal.

with vague contaminant disposal histories (e.g., landfills). Total organic carbon analyses are needed for calculating risk-based action levels for ecological receptors.

Page 4-12,
§4.2.3, ¶3

Proposed sampling at leachate breakouts indicates that only the aqueous portion will be sampled, but not the sediments. Many contaminants precipitate upon contact with air and/or bind with soils. This represents an exposure point that needs to be characterized for risk assessment purposes. Therefore, it is recommended that leachate sampling also examine the sediments at the leachate breakouts.

Page 4-12,
§4.2.3,
¶2, 3, 4,
and 5

The Kearney Team concurs with the proposed sample coverage approach for surface water, sediments, and ground water at SWMU 3, but recommends that these media be submitted for full Appendix IX, explosives, asbestos, and total organic carbon analyses (for sediments) and hardness (for fresh surface waters only). Sufficient rationale does not exist to limit the analytical parameters at this point in the investigatory process. The need for incorporating explosives and asbestos analyses was discussed with the Navy during the 13 January 1995 meeting with EPA and is deemed necessary at SWMUs with vague contaminant disposal histories (e.g., landfills). Total organic carbon and hardness analyses are needed for assessing risks to and calculating risk-based action levels for ecological receptors.

4.1.4 SWMU 7

Page 4-13,
¶2, §4.2.4

The text mistakenly states that the *Corrective Action Plan Tow Way Fuel Facility* is presented in Appendix B. This plan is not presented anywhere in the DCQAP. Since the text states that the document is intended to provide a summary of site characterization activities, the plan needs to be incorporated into the DCQAP.

disposal pits. The Navy also needs to cite minimum depths for proposed subsurface work and vertical termination criteria.

The number of soil samples to be collected and proposed analytical parameters are not identified in Table 4-2. Soil sample collection should be consistent with the protocols proposed by the Navy for SWMU 3 (i.e., collection of three subsurface soil samples per boring/test pit). Analytical parameters should include, at a minimum, volatile and semivolatile organic compounds, RCRA metals, TPH, and total organic carbon. Physical property tests of the soil material may also be warranted and should be considered by the Navy. The text and table must be revised to include the total proposed number of samples and the analytical parameters.

The Kearney Team disagrees with the proposal to advance borings only if ground penetrating radar (GPR) scans indicate the location(s) of the disposal pits. Like most screening tools, GPR is subject to limitations such as limited depth of penetration (e.g., 5 to 8 feet) and sensitivity to soil heterogeneity and above-ground metallic/electrical interferences.

Therefore, GPR should be used to refine potential test pit/soil boring investigations, but should by no means be used as conclusive evidence that the pits do not exist. The Kearney Team recommends the installation of test pits (preferred over soil borings) regardless of GPR results.

The Kearney Team notes that all proposed field efforts are focused on the unsaturated zone. While the saturated zone has been partially characterized through previous investigations by Blasland, Bouch, and Lee (1994), characterization is not deemed complete. The Kearney Team identified numerous deficiencies in the characterization of the soils, petroleum product, and aquifer properties. These deficiencies were presented in the Kearney Team's *Technical Review of Site Characterization Report - Tow Way Fuel Farm Facility and Corrective Action Plan* dated March 1995. The deficiencies identified in the Technical Review report have to be satisfied to comply with the RCRA Corrective Action Permit requirement for complete characterization of soils and ground water at SWMU 8.

details on the GPR survey. The Kearney Team recommends that traverses not be greater than five feet apart since the dimensions of the sludge disposal pits are estimated to have eight feet by eight feet dimensions. Larger spacing could miss the pits entirely.

Page 4-16,
¶2, §4.2.6

Tank locations are not shown in Figures 4-6 or 4-7 but would be useful in evaluating the effectiveness of proposed field efforts. The tank locations were previously requested in the *Technical Review of Draft Final Pre-Investigation Corrective Measures Screening Report* dated 14 December, 1994. They should be provided in the DCQAP.

A series of soil borings are proposed to locate former fuel sludge disposal pits at SWMU 9. The Kearney Team recommends replacing the soil borings with an equal number of test pits because a test pit can examine a far wider cross-section of soil than a soil boring. This is particularly important at SWMU 9 because test pits will increase the probability of encountering the unknown locations of the former disposal pits. The fact that previous soil borings have been unsuccessful at locating disposal pits at SWMUs with similar histories strengthens the argument to use test pits. In addition, the discarded sludges are likely to be near the surface which is well within the reach of trenching machinery.

The DCQAP also needs to cite minimum depths for proposed subsurface work and vertical termination criteria. A minimum depth should be proposed for the test pits/soil borings surrounding the underground tanks to ensure that the pits/borings will not be terminated until they are at least 12 feet below the surface (i.e., 8 feet thick disposal pit plus 4 feet of cover). If ground water or refusal is encountered prior to this minimum depth, then provisions should be made to re-advance the pit/boring at a slightly different location without changing the intent of the pit/boring.

The criteria for selecting soil samples for laboratory analysis needs to be discussed. Any and all field screening techniques should be cited.

The proposed single sample per boring will not be sufficient to provide vertical profiling of potential contamination. This inherently limits any calculations for estimating the volume of

Petroleum Hydrocarbon	Limitation of Method 418.1	Recommended Method & Advantage over Method 418.1
Gasoline Range	Loss through volatilization during extraction procedure. No identification of hydrocarbon.	Modified Method 8015. Purge & Trap method avoiding loss of hydrocarbon through extraction & identification of hydrocarbon by fingerprint.
Diesel Range	No identification of hydrocarbon, possibility of false positive results	Modified Method 8015 and 8100. Identification of hydrocarbon.
Jet Fuels	Loss through volatilization during extraction procedure (depending on type of fuel mix). No identification of hydrocarbon.	Modified Method 8015 and 8100. Identification of hydrocarbon. Purge & Trap method avoiding loss of hydrocarbon
Heavy Fuel Oil (Bunker C Fuel Oil)	Artificially low results.	Modified Method 8100. Calibrated using hydrocarbon of interest (included entire carbon range). Identification of hydrocarbon.

Page 4-16,
¶3, §4.2.6
and
Figures 4-
6 and 4-7

The locations of the proposed boring locations do not match the GPR survey lines. It is stated in the text that the boring locations will be based on the findings of the GPR survey. According to the figures, the boring locations do not correspond to the location of any GPR traverse line. Either the figures or the text should be corrected.

Page 4-16
¶4 §4.2.6

Rationale needs to be provided for the locations of each proposed monitoring well. In addition, ground water samples collected from all monitoring wells at SWMU 9 need to be submitted for TPH analyses since petroleum fuels are the primary constituent in the sludge pits. It should be noted that the proposed laboratory analyses do not comply with the RCRA Corrective Action Permit because full Appendix IX analyses are not proposed by the Navy.

potentially impacted ground water and determining if a past/current release has occurred. The rationale for soil boring placement needs to be included in the text. In addition, each soil boring should be converted to a monitoring well so that potential impacts to ground water can be evaluated presently as well as in the future. The current DCQAP does not propose such ground water monitoring.

Characterizing the vertical extent of soil contamination is impossible if only a single soil sample is analyzed from each soil boring. A soil sampling strategy that is similar to that proposed for SWMU 3 needs to be adopted at SWMUs 11/45. In addition, the criteria for selecting soil samples for laboratory analysis needs to be discussed. Any and all field screening techniques should be cited.

The proposed TPH method, Method 418.1, may not be appropriate to define the extent of Bunker C fuel oil and aviation gasoline (AVGAS) contamination at SWMU 11/45. Method 418.1 has the following limitations which will hinder the accurate determination of the extent of petroleum product contamination at SWMU 11/45:

- approximately half of any gasoline present in a sample will be lost during the extraction procedure (EPA, 1979);
- the method cannot distinguish between individual fuels (AVGAS from Bunker C fuel oil) and cannot differentiate between fuel and decomposing plant materials such as those found in swamps;
- the method is prone to producing false positive results in the environments rich in decaying organic materials (e.g., mangroves, stagnant water bodies);
- method 418.1 is likely to underestimate or not detect Bunker C fuel oil because the method is calibrated for light fuels such as mineral oils, but not heavier fuels such Bunker C fuel oil; and
- method 418.1 can remove heavy fuels during the silica gel clean up process of the analysis thereby leading to an underestimation of the fuel concentration.

needs to be stated in the DCQAP. The recommended depth for sampling sediments is the uppermost 0 to 6 inches.

In addition, the number of sediment samples proposed in the text is inconsistent with the number proposed in the DCQAP Table 4-2. This inconsistency must be corrected.

Page 4-19,
§4.2.7,
Bullet 3

The three proposed sediment samples from Ensenada Honda are inadequate to delineate potential PCB contamination of the bay sediments. A minimum of five additional sediment samples (for a total of six samples) should be collected from the bay sediments surrounding the outfall/inlet. These samples should also be analyzed for total organic carbon analyses in order to evaluate risk to, and calculate risk-based action levels for, ecological receptors.

4.1.8 AOC B

Page 4-20,
§4.2.8, ¶4

Proposed soil sampling will only examine soils directly within the former location of Building 25. This approach is severely limited and will not assess potential impacts from several other potential source areas including 20 to 25 apparently "empty to partially filled 55-gallon drums, 10 to 15 5-gallon pails, ... asbestos sheeting, ... and transformers" (PMP, 1995). These features should be included on Figure 4-9 to allow the effectiveness of the sampling plan to be assessed. Given that the materials were scattered across AOC B as a result of a hurricane which also destroyed the former storage building (Building 25) at this AOC, it does not appear that the two soil boring locations around the former location of Building 25 will be representative of the area. Additional borings should be advanced near the drums, pails, and transformers. Both surface and subsurface soils should be collected from the suspected source areas to determine if a release had occurred. It is further recommended that soil sampling be conducted in the same manner as proposed for SWMU 3 (i.e., collection of three subsurface soil samples per boring).

In addition, samples of the asbestos sheeting and surrounding soils should be collected for a determination of asbestos content for corrective measures decisions.

proposed at SWMUs 1, 2, and 11/45. Therefore, the initial statement is incomplete and should be revised for consistency.

Page 4-31
and 4-32,
§4.3.1 and
§4.3.3

The proposed locations for background soil and ground water samples will not define regional background concentrations of various chemicals because the locations are, in some instances, downgradient or otherwise near potential source areas. The proposed locations appear to be placed in a manner to define background concentrations at different SWMUs rather than for the NSRR facility as a whole. This strategy may be useful in determining whether contamination at one SWMU may be influencing another, but it is not acceptable for characterizing regional background concentrations which can be used as potential action levels. Therefore, it is recommended that additional soil and ground water samples be proposed at locations that can serve to define regional background in areas which are likely to have experienced chemical releases.

Page 5-1,
¶1, §5.0

The text provides a list of Standard Operating Procedures (SOPs) that are presented in Appendix B. The list of SOPs exceeds the number included in Appendix B. The following SOPs must be included in Appendix B; F106, F201, F204, F303, F501, F502, F504, F600, F702, F703 in order to fully evaluate the adequacies of the procedures. The SOPs are also necessary in this DCQAP so that they can be accessed by field personnel.

Page 6-1,
¶1, §6.0

The text states that the project organization is shown in Figure 4-1 and that resumes of key project personnel are provided as Appendix B. Figure 4-1 does not exist and Appendix B includes the SOPs. According to the DCQAP Table of Contents, Appendix A includes the resumes of key personnel. The DCQAP has provided Figure 5-1 which is an organization chart but does not include Mr. John Mentz or Mr. Raymond Wattras. Figure 5-1 is not included in the Table of Contents. The incorrect references in Section 6.0 should be corrected as well as the Table of Contents. The organization chart should also be corrected to include the key personnel presented in Section 6.0.

Page 6 of
8, ¶2,
§5.2.2

The injection of water into the well to create an impressed head for falling-head testing is not recommended. The insertion of an appropriately

appropriate cleanup criteria. Table 9-1 will also need to incorporate analyses for explosives, asbestos, and hardness in addition to the standard Appendix IX parameters. The need for analyzing explosives, and asbestos was discussed in the 13 January 1995 meeting with EPA and was agreed upon by the Navy.

Page 10-1,
¶2, §10.2

The text references SOP F303 and A008 for document control procedures that will be used. Both of these SOPs must be included in the DCQAP.

Page 10-2,
¶2, §10.3

The text states that all laboratory analytical results will be validated by a third-party in accordance with NASA Guidelines. Further validation information must be provided. According to NASA Level C data validation guidelines presented in NASA document 20.2-047B, the contractor must provide validation procedures for methods not specifically listed in the guidance. The validation procedures need to outline validation of the holding times, initial calibration, continuing calibration, and blank-vs-sample results. The guidance document provides validation guidelines for TPH by Method 418.1, TCL volatile and semivolatile organic analysis by CLP methods and TAL metals determination by CLP methods. This DCQAP must provide the data validation procedures that will be used to validate Appendix IX parameters by SW-846 methods as well as for explosives, asbestos, hardness analyses, and TPH by modified Methods 8015 and 8100.

Page 11-1,
¶1, §11.1

The text references Table 11-1 as presenting the QA/QC samples that will be submitted to the laboratory. Table 11-1 is not presented in the DCQAP rather there is an unlabelled table in Section 11.1 which presents QA/QC samples and frequencies. This table should be identified as Table 11-1 as appropriate.

The review of Table 11-1 revealed that the Navy plans to collect rinsate samples every day of sampling but analyze every other sample. The rationale to analyze equipment rinsates from every other day must be discussed in light of EPA Region II policy which dictates that an equipment rinsate be collected at a frequency of one for each type of equipment used each day a decontamination event is carried out. It is also EPA policy that all blanks

4.2.2 DCQAP - Standard Operating Procedures

- SOP F102,
Page 9,
Item 2,
§5.2
- To comply with EPA Region II Quality Assurance Manual (1989), surface soil samples must be homogenized prior to transfer into appropriate containers but after removal of extraneous debris (e.g., rocks, twigs, and leaves). The only samples that should be collected directly into the sample containers without homogenization are samples for volatile organic analyses and total organic halogens (TOX).
- SOP F104,
Page 6,
Item 6,
§5.2
- The equation for calculating the volume of standing water in a monitoring well incorrectly employs well diameter instead of the proper use of well radius. To properly calculate the water volume, the equation needs to either replace well diameter with well radius or divide well diameter by 2 (the equivalent of radius).
- SOP F104,
Page 10,
Items 6
and 7,
§5.4.1
- The EPA Region II Quality Assurance Manual (1989) specifies that well purging continue until monitoring parameters (e.g., pH, conductance) stabilize and vary by less than 10 percent. The SOP needs to incorporate this statement to comply with EPA policy.
- SOP F202,
Page 4,
¶4, §5.2
- The proposed SOP does not discuss procedures for measuring dense non-aqueous phase liquids (DNAPLs) which was listed as an item of interest in Section 5.0 of this SOP. Therefore, the SOP needs to provide details on the procedures for measuring DNAPL.
- The Navy also needs to measure the top of the air-product interface for light non-aqueous phase liquids (LNAPLs), and top of the water-product interface for DNAPLs. These measurements are needed to develop contour maps of product distributions.
- SOP F202,
Page 5,
¶3, §5.4
- The proposed sequence for decontaminating measuring devices may not be effective in stripping oil and other products which may transfer contamination to uncontaminated wells. It is recommended that the proposed decontamination procedure also consist of an initial detergent wash. In addition, a less water soluble solvent (e.g., hexane) may be necessary to dissolve oil from the measuring device. The proposed solvents are extremely water soluble and share little in common with the substance that they are intended to dissolve.

Page 3-14 of the Project Management Plan. The limits of the disposal area must be incorporated into Figure 4-2 to determine the adequacy of the proposed new wells and soil samples.

4.2.4 DCQAP - Appendix C Tables

Table 1-1 The RCRA Corrective Measures Permit requirements presented in Table 1-1 of the DCQAP are inconsistent with those listed in Tables 1-1 of the Project Management Plan (PMP) and Data Management Plan (DMP). For example, the DCQAP indicates surface water and sediment sampling is not required at SWMUs 7 and 8, but the PMP and DMP both indicate that such sampling is contingent on other ongoing investigations. Any inconsistencies need to be corrected and an explanation also needs to be offered (see Table 1).

Table 4-2 Assuming the DCQAP text is correct, Table 4-2 provides only a partial summary of proposed sample collection. For example, the text states that a number of soil, ground water, and sediment samples will be collected from SWMU 1. However Table 4-2 indicates collection of only ground water samples. Since the table is intended for field implementation as a means of guiding sample collection, it should be comprehensive.

The table has not defined the parameters of interest sufficiently. Terms such as volatiles and semivolatiles are generic and do not sufficiently define what volatile and semivolatile organic compounds are to be analyzed. Section 4 of this DCQAP has referenced Appendix IX as the program analyte list. Appendix IX contains many more analytes than what is presented in this table. This table must be revised to include all (or as many as analytically possible) of the Appendix IX analytes as well as explosives, asbestos and hardness analyses, plus TPH by modified Methods 8015 and 8100.

Table 7-1 All of the proposed parameters of interest must be presented in this table. Based on the comparison of Table 4-2 and this table, the parameters TOC, COD, and Total Suspended Solids have not been included in the water sample summary. This table must also include the container, preservation and holding time requirements of all (or as many as

ATTACHMENT

TABLE 1. SAMPLING STRATEGY PROPOSED FOR NAVAL STATION ROOSEVELT RO/

SWMU	Matrix	Number of Samples Proposed for Collection		
		Proposed in Text	Proposed in Appendix C Table 4-2	Proposed in Appendix C Figures
1	Surface Soil	8	0	5
	Subsurface Soil	0	0	0
	Ground Water	5	5	5
	Surface Water	0	0	0
	Sediment	3	0	3
2	Surface Soil	5	0	2
	Subsurface Soil	0	0	0
	Ground Water	4	3	4
	Surface Water	0	0	0
	Sediment	2	0	2
3	Surface Soil	15	0	9
	Subsurface Soil	18	0	6
	Ground Water	8	0	8
	Surface Water	8	0	0
	Sediment	22	17	17
7	Surface Soil	0	0	0
	Subsurface Soil	0	0	0
	Ground Water	0	0	0
	Surface Water	0	0	0
	Sediment	0	0	0
8	Surface Soil	0	0	0
	Subsurface Soil	Unspecified	0	7
	Ground Water	0	0	3
	Surface Water	0	0	0
	Sediment	0	0	5
9	Surface Soil	0	0	0
	Subsurface Soil	Unspecified	22	23
	Ground Water	14	0	14
	Surface Water	0	0	0
	Sediment	0	0	0

Enclosure 2

Additional comments regarding the investigation work plans for those SWMUs/AOCs requiring a First Phase RFI investigation, and additional comments on the DCQAP and Project Management Plan (PMP):

1) SWMU #6 (Building 145): Text (page 4-21) states that at 3 locations, 1 surface and 1 subsurface soil sample are to be collected. Figure 4-9 shows 3 proposed soil boring locations adjacent to building 145, plus 1 proposed monitor well, which is actually part of the AOC B investigation. The text (pgs. 4-21 & 22) should be modified to indicate that soil samples (1 surface and 1 subsurface) will also be collected from the proposed monitor well installed on the north side of building 145, as part of the AOC B investigations. The soil samples from this monitor well should be analyzed for the same parameters as the other SWMU #6 soil samples. In addition, since Figure 4-9 does not show topography, it is impossible to determine the direction or magnitude of the surface slope. However, on the downslope side of the structure, 1 sample location along the approximately 160 foot length of the structure is not adequate. Therefore, EPA requires that along the downslope long axis of the building, surface and subsurface soils be sampled at 2 equally spaced locations, instead of at just 1 location, as proposed.

2) SWMU #13 (former Pest Control Shop/Building 258): Text (pg. 4-22 and 23) states that 5 surface soil and 5 sediment samples to be collected and analyzed for all (40 CFR §264) Appendix IX analytes, which is acceptable. Figure 4-11 shows the above program at acceptable locations. However, Table 4-2 has no listing for SWMU #13, and must be modified to reflect the above investigation program. Furthermore, since soil sample 18SS176 (location 18SS103 on Figure 4-11) measured Arsenic at a concentration of 79.1 mg/kg, which is almost at the draft Subpart S action level of 80 mg/kg for soils, EPA requires that the RFI include additional soil samples to delineate possible arsenic contamination detected by sample 18SS176 (location 18SS103). These additional soil samples must be collected south, west, and north of sample 18SS176 (location 18SS103). The proposed 5 surface soil samples shown on Figure 4-11, while needed to characterize other parts of the site, are not sufficient to delineate the possible arsenic contamination detected by sample 18SS176 (location 18SS103). Also, it is unclear whether all past soil samples are shown on Figure 4-11.

3. SWMU #14 (Fire Training Pit area): The text states (p.4-23 & 24) that "a minimum of five soil sampling locations will be selected (a possible array of sampling points is shown on Figure 4-10)". Figure 4-10 does not show the 5 sample points as indicated, and must be revised accordingly.

4. SWMU #25 (DRMO Storage Yard): The proposed sample collection program consisting of 4 soil samples around the perimeter of Building 2009 is not adequate. The 1993 report prepared by TRC Environmental "Technical Evaluation Review of Work Performed", which included a re-inspection of all SWMUs/AOCs, recommended (pg. 57 of document) that 10 surface soil samples be collected in the area of the shelves and storage cabinets located in the DRMO yard. This should include the material storage racks identified on Figure 4-13. Also, during 1988 RFA inspection, a large stain area was described and photographed (see photo #21 of 1988 RFA) in the same area. The draft RFI workplans must be modified to include investigation of these areas.

5. SWMU #26: As photographed during the 1988 RFA, the SWMU was an area of heavy vegetation (see photo #22 from the 1988 RFA), and though described as located behind building 544, the exact location is not well documented. Though the RFI text states (pg 4-25) that a "slam bar soil survey will be performed in the area where the drums were, the area between the building and the present site of the storage area soils and in the soil piles originating from the drum storage area", EPA requests that:

a) the area of the slam bar soil gas survey be expanded to cover more of the area of the "contractors yard", since the actual disposal site is not definitively known,

b) that the expanded area for the soil gas survey be shown on Figure 4-14 with the grid of "slam bar" points included, and

c) the text of the work plan (and Figure 4-14) be modified to state that 5 or more soil samples will be collected at the slam bar points yielding the highest soil gas readings (in lieu of the 5 locations designated on Figure 4-14).

6. SWMU #30 (former incinerator): Even though the text states (pg. 4-26) that 4 surface soil samples and 2 groundwater samples will be collected, Table 4-2 lists no sample or analytical program for this SWMU. Also, Figure 4-15 does not show the proposed soil and groundwater sampling points. Both Figure 4-15 and Table 4-2 must be modified to reflect them. Likewise, the existing groundwater investigation wells installed as part of the 1994 site characterization work performed by the firm of Blasland, Bouck & Lee must be shown on Figure 4-15, along with their water table elevations. EPA has just received (on May 23, 1995) the October 1994 report on the site characterization, prepared by the firm of Blasland, Bouck & Lee. Therefore, final EPA comments on the RFI proposals for this SWMU must await completion of our review of the above report.

7. SWMU #46 (Pole storage yard): The text states (pg. 4-19) that 9 surface soil samples will be collected and analyzed for full Appendix IX. Yet, Table 4-2 lists only 6 soil samples and the analytical program is for volatiles, semi-volatiles, and PCBs, not the full Appendix IX. Furthermore, Figure 4-19 shows 9 soil samples at the covered pad and 2 at an adjoining area designated "former contaminated soil area", for a total of 11 sample points. As required, modify the text, Table 4-2, and Figure 4-19 to agree. Also, 1 surface soil sample is not sufficient to characterize as large an area as shown for the "former contaminated soil area". EPA requires that at 2 locations within the "former contaminated soil area", both surface and subsurface soil samples be obtained. This is in addition to the 1 surface sample location shown on Figure 4-19 just outside the postulated limits of the "former contaminated soil area". In addition, since the contents of what was managed at the drum storage pads, and the "former contaminated soil area" is not clear, EPA requires that half (or more) of the soil samples from both areas are to be analyzed for full Appendix IX constituents.

8. AOC C (Transformer Storage Pad): The text (pg. 4-30) states that 12 surface soil samples are to be collected. Figure 4-19 shows 11 soil sample points at AOC C itself, and 2 in the adjacent SWMU #46 area designated "former contaminated soil area". The text and Figure 4-19 must conform. Also, Table 4-2 lists volatiles, semivolatiles, and PCBs as the analytes for this AOC; however, the text (pg. 4-30) states that "only TPH and PCBs are being addressed since only transformers and similar electrical materials have been stored in the areas". EPA does not consider it adequate to analyze for only TPH and PCBs, since the contents of what has been historically managed at this area is not fully clear. Furthermore, EPA cannot see the justification for doing Appendix IX at the adjacent SWMU #46, but only a limited range of analytes at this AOC. Therefore, at least 25% of the soil samples for AOC C should be analyzed for full Appendix IX constituents. The text and Table 4-2 must be revised accordingly.

9. AOC D (Ensenada Honda sediments): One figure/map showing the entire Ensenada Honda shoreline, and the approximate locations of all proposed sediment samples, along with the location of all past sediment samples previously obtained in the Ensenada Honda, should be included with the DCQAP.

Also, in addition to those given in the enclosed Technical Review, EPA has the following additional comments on the DCQAP, and the Project Management Plan (PMP):

10. Table 4-1 of the DCQAP, "SWMUs/AOC Media Subject to Corrective Action Requirements" must be modified to include SWMU #30 and AOC D, which are missing, yet are subject to corrective action requirements of the 1994 RCRA/HSWA Permit.

11. SWMU #1 (Army Cremator disposal site): The text (pg.4-7 and 4-8) states that up to 8 surface soil samples, and 3 sediment samples will be collected and analyzed for full Appendix IX. In addition, up to 4 new groundwater wells are to be installed and sampled, along with the existing background well already present. However, Table 4-2 only lists 5 groundwater samples, but no soil or sediment samples. Also, Figure 4-1 shows only 5 locations as proposed soil sampling points. In addition, as this site is an abandoned landfill, collecting surface soil samples only is not sufficient to characterize the site. Therefore, to help define the vertical extent of any possible contamination, continuous soil samples, gathered on a discrete basis every 1 to 2 feet, are to be collected from each of the proposed new groundwater wells from surface to the water table. Figure 4-1 and Table 4-2 must be modified to conform with the sampling program proposed in the text, as amended by the above requirement for continuous soil sampling as the new groundwater wells are bored.

12. SWMU #2 (Langley Drive disposal site): The text (pg.4-9) states that 5 surface soil samples and 2 sediment samples will be collected and analyzed for full Appendix IX, and that 3 new groundwater wells will be installed and sampled, along with the existing upgradient well. However, Table 4-2 does not list any soil or sediment samples for this SWMU, and lists only three groundwater samples, not 4 as the text implies. In addition, as this site is an abandoned landfill, collecting surface soil samples only is not sufficient to characterize the site. Therefore, to help define the vertical extent of any possible contamination, continuous soil samples, gathered on a discrete basis every 1 to 2 feet, are to be collected from each of the proposed new groundwater wells from surface to the water table. Table 4-2 should be modified to conform with the sampling program proposed in the text, as amended by the above requirement for continuous soil sampling as the new groundwater wells are bored.

13. SWMU #7 Tow Way Fuel Farm: The text (pg. 4-13) states that 5 sediment samples will be obtained and analyzed for full Appendix IX constituents. Figure 4-4 shows approximate locations for these 5 sediment samples. However, Table 4-2 contains no sampling or analytical program for SWMU #7, and must be revised to conform with the investigation program discussed in the text.