



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Christopher T. Penny
Navy Technical Representative
Installation Restoration Section (South)
Environmental Program Branch
Environmental Division
Atlantic Division (LANTDIV), Code 182
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511-2699

Re: Naval Station Roosevelt Roads - EPA ID # PR2170027203

- 1) Revised Corrective Measures Study (CMS) Task 1 Report for Tow Way Fuel Farm (SWMUs #7 & #8), dated January 21, 2000;
- 2) Revised Corrective Measures Study (CMS) Workplans for SWMUs #1 & #2, and SWMU #45, dated March 10, 2000;
- 3) Revised RCRA Facility Investigation (RFI) Final Report for SWMU #9, dated March 10, 2000;
- 4) Revised Corrective Measures Study (CMS) Final Report for SWMUs #31/32, dated April 17, 2000.

Dear Mr. Penny:

The United States Environmental Protection Agency (EPA) Region II has completed its review of the above documents transmitted on behalf of the Navy by Baker Environmental Inc., on January 21, 2000, March 10, 2000, and April 17, 2000, as well as Baker Environmental's letter of January 21, 2000 regarding Responses to EPA's letter of June 30, 1999 on the CMS Task 1 Report for Tow Way Fuel Farm. EPA's comments on the above documents are given below.

Revised CMS Task 1 Report for Tow Way Fuel Farm

EPA requested our contractor, Booz Allen & Hamilton to review the revised CMS Task 1 Report as well as Baker Environmental's letter of January 21, 2000 regarding Responses to EPA's letter of June 30, 1999 on the CMS Task 1 Report. Based on those reviews and reviews by EPA Region 2 staff, EPA finds the responses in Baker Environmental's January 21, 2000 letter to generally be adequate, but not in all cases. Although Booz Allen in its review concluded that the CMS Task 1 report "identifies an appropriate technical approach to address releases to soil and groundwater at the Tow Way Fuel Farm site"; they had deficiency comments on the Task 1 report, as well as on Baker Environmental's January 21, 2000 letter. Based on those comments, which are given in the enclosed March 15, 2000 Technical Review (Enclosure 1), and reviews by EPA Region 2 staff, EPA cannot fully approve the submitted Task 1 report.

Rather than submitting a revised Task 1 report at this stage, EPA requests that, within 45 days of your receipt of this letter, the Navy submit a "response to comments" letter discussing how the Navy proposes to address the comments given in the enclosed March 15th Technical Review (Enclosure 1). If acceptable to EPA, those responses [to comments given in the enclosed March 15th Technical Review] would then be incorporated/reflected in the draft CMS Final report for Tow Way Fuel Farm, when submitted. However, since pilot-testing of several remedial alternatives for cleaning-up Tow Way Fuel Farm is still on-going, a firm date for submission of the draft CMS Final report has not yet been set.

Corrective Measures Study (CMS) Workplans for SWMU #1 & #2 (Army Cremator disposal site and Langley Drive disposal site, respectively) and SWMU #45 (outside areas of old Power Plant, including cooling water tunnels)

The revised CMS workplans for these three SWMUs were submitted on March 10, 2000 by Baker Environmental on the Navy's behalf, to address comments given in my letter of January 20, 2000. Due to their geographic proximity and similar disposal/site history (long abandoned, unlined landfills, on flanks of Ensenada Honda bay) a unified CMS workplan was submitted for SWMUs #1 & #2. A separate CMS workplan was submitted for SWMU #45. These two revised CMS workplans have been reviewed by EPA's contractor, Booz Allen. Although the two revised workplans, especially their proposals for implementing Screening-Level Ecological Risk Assessment are much improved, several deficiencies were noted, and are discussed in the enclosed March 30, 2000 Technical Review (Enclosure 2). In addition, neither workplan contains a schedule for implementation. Therefore, based on Booz Allen's comments, and reviews by EPA Region 2 staff, neither workplan is fully acceptable.

Within 60 days of your receipt of this letter, please submit revised CMS workplans for these three SWMUs, which address the following:

- 1) All comments given in the enclosed March 30th Technical Review (Enclosure 2) are to be acceptably addressed and/or reflected in the revised CMS workplans for these three SWMUs.
- 2) The workplans must contain complete schedules for implementation.
- 3) Pursuant to Condition III.E.6 of the 1994 Final RCRA Permit for the facility, the schedules in the revised CMS workplans shall reflect that implementation of Section 3.2 (Screening-Level Ecological Risk Assessment) of both workplans, shall commence within 30 days of receipt of EPA's written approval of the workplan.
- 4) Also, pursuant to Condition III.E.7 of the 1994 Final RCRA Permit, the schedules in the revised workplans shall reflect that draft CMS Final reports for the three SWMUs shall be submitted within 45 days of completion of all tasks in their respective approved workplans.

Revised RCRA Facility Investigation draft (RFI) Final Report for SWMU #9 (fuel storage tanks 212 through 217 and the associated sludge burial pits)

The revised RFI Final Report for SWMU #9 includes results from additional soil and groundwater sampling implemented in June 1999, as well as surface water and sediment sampling and background sampling of those media to assess ecological impacts, if any, from releases from fuel storage tanks 212 through 217 and the associated sludge burial pits. EPA requested our contractor, Booz Allen & Hamilton to review the ecological risk evaluation given in Section 7.0 of the revised RFI report. Based on that review, and reviews by EPA Region 2 staff, EPA concludes that the ecological evaluation is not fully acceptable. The deficiencies are discussed in the enclosed Technical Review dated April 21, 2000 (Enclosure 3).

However, those deficiencies may be addressed in the CMS workplan for SWMU #9, which is discussed below, and EPA approves the RFI Final Report, transmitted on behalf of the Navy by Baker Environmental's letter of March 10, 2000, as completing the RFI stage for SWMU #9.

EPA's approval is conditioned on the following being acceptably met:

- 1) All comments given in the enclosed Technical Review dated April 21, 2000 (Enclosure 3) must be acceptably addressed and/or reflected in the CMS workplan for SWMU #9, when submitted.

2) The CMS work plan, when submitted, must contain a proposal, including the implementation schedule, to carry-out the recommendations, given in Section 8.0 (Conclusions and Recommendations) of the RFI report, that additional surface water sampling be performed for total and dissolved metals (including analysis to determine if methylated forms of mercury and selenium are present) at all three areas (A, B, and C) of this SWMU, as well as additional surface water background sampling for total and dissolved metals.

3) Pursuant to Condition III.E.6 of the 1994 Final RCRA Permit for the facility, the schedule in the CMS workplan shall reflect that implementation must commence within 30 days of receipt of EPA's written approval of the workplan.

4) Also, pursuant to Condition III.E.7 of the 1994 Final RCRA Permit, the schedule in the CMS workplan shall reflect that the draft CMS Final report must be submitted within 45 days of completion of all tasks in the approved workplan.

Although additional environmental sampling is to be performed, it may be implemented as part of the CMS for this SWMU, since the purpose of that additional sampling is to determine whether or not environmental impacts have occurred to such a degree that remedial measures are warranted.

This letter shall constitute notification that a CMS is required for SWMU #9. Pursuant to Condition III.E.5.(d) of the 1994 RCRA permit, within 60 days of your receipt of this letter, please submit a CMS workplan, covering all three areas of SWMU #9, which includes a proposal and implementation schedule for the additional surface water sampling (including background sampling) recommended in Section 8.0 of the RFI Final report.

CMS Final Report for SWMUs #31/32 (Public Works Department Storage yard outside buildings 31 and 2022)

EPA approves the revised CMS Final Report dated April 17, 2000, which was submitted to address EPA comments given in my letter of March 15, 2000. Since engineering and institutional controls are recommended in Section 4.0 of the CMS Final Report, a corrective measures implementation (CMI) workplan is required for SWMUs #31/32 to document how the proposed remedial measures [involving: a) covering approximately 5400 square feet of soil with asphalt cap, b) institutional controls requiring that the asphalt plus existing paved areas be maintained, and c) institutional controls precluding residential usage] will be implemented.

EPA requests that the draft CMI workplan, fully describing the details of the proposed engineering and institutional controls, be submitted within 90 days of your receipt of this letter. However, as noted in previous correspondence, the proposed remedial measures/final remedy for SWMUs #31/32 cannot be considered fully approved, until it undergoes public notice and public comment, either pursuant to permit modification procedures given at 40 CFR § 270.42, or as part of the public notice and public comment for the Draft renewed RCRA permit for the facility, when implemented.

Please telephone Mr. Tim Gordon, of my staff, at (212) 637- 4167 if you have questions regarding any of the above.

Sincerely yours,



Nicoletta DiForte
Chief, Caribbean Section
RCRA Programs Branch

Enclosures (3)

cc: Mr. Israel Torres, Attn. Ms. Luz Muriel-Diaz, PREQB, w/encl.
Ms. Madeline Rivera, NAVSTA Roosevelt Roads, w/encl.
Mr. Paul Rakowski, LANTDIV, w/o encl.
Mr. Mark Kimes, Baker Environmental, w/encl. ✓
Mr. John Tomik, CH2M Hill, w/encl.
Ms. Connie Crossley, Booz Allen, w/encl.

TECHNICAL REVIEW

**CORRECTIVE MEASURES STUDY
TASK 1 REPORT
TOW WAY FUEL FARM
NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO
JANUARY 21, 2000**

**REPA2-0203-015,
Review dated March 15, 2000
[Revised by EPA April 17, 2000]**

GENERAL COMMENTS

1. Overall, the Revised Draft Corrective Measures Study Task 1 Report for Tow Way Fuel Farm (CMS Task 1 Report) identifies an appropriate technical approach to address releases to soil and groundwater at the Two Way Fuel Farm site. The CMS Task 1 Report provides sufficient documentation to support the selection of soil cleanup levels based on the protection of commercial/industrial workers, and sufficient documentation to support selection of groundwater cleanup levels (except for benzene) based on the protection of construction workers involved in excavation activities, given that institutional controls will be in place to prohibit future military residential property development at the site. However, despite the overall acceptability of the approach proposed in the CMS Task 1 Report, the CMS Task 1 Report still lacks certain details necessary to verify the adequacy of all selected cleanup levels. For example, the text on page 3-11 states that cleanup goals based on construction worker exposures to groundwater are more conservative than those based on residential exposures to nonpotable groundwater, although Table 3-9 shows a more conservative groundwater residential cleanup goal for benzene. In addition, the text does not discuss how institutional controls will be used to prevent future residential exposures to contaminants in groundwater during nonpotable groundwater use, if any. In addition, the CMS Task 1 Report does not adequately support the limited evaluation of construction worker exposures to only subsurface soil, rather than exposures to combined surface soil and subsurface soil. Finally, several deficiencies were identified in the equations, parameters, and toxicity criteria used to calculate the proposed cleanup goals. These and other issues further discussed in the comments below must be addressed before the CMS Task 1 Report can be deemed acceptable.
2. The CMS Task 1 Report does not provide a discussion of data quality or validation as indicated in the Navy's [Baker Environmental's] January 21, 2000 Response to EPA's [and Booz Allen enclosure] June 30, 1999 Comments (specifically the response to Booz Allen's general comment 2A). A discussion of sample quantitation limits (SQLs) and treatment of elevated detection limits is still not provided in Section 3.0. Without an

effective discussion of the data treatment it is not possible to determine whether contaminants of potential concern (COPCs) have been adequately and accurately identified.

SPECIFIC COMMENTS

Section 3.2 Identification of Media of Concern / Contaminants of Concern (COCs) as Determined by the Human Health Risk Assessment, page 3-4

1. This section does not include an evaluation of total (unfiltered) and dissolved inorganic groundwater concentrations. In addition, data for total and dissolved inorganics are not provided in the CMS Task 1 Report as indicated in the Navy's June 30, 1999, Response to Comments (specifically the response to Booz Allen's Specific Comment 1). Finally, the text does not discuss the use of total groundwater data preferentially in the assessment of risk and cleanup goal calculations. EPA has clearly recommended the use of unfiltered groundwater data for the evaluation of inorganics in risk assessment (*Draft Guidance on Selecting Analytical Metal Results from Monitoring Well Samples for the Quantitative Assessment of Risk, August 1992*).

Section 3.3 Exposure Routes and Receptors, page 3-4

2. The CMS Task 1 Report should reevaluate the sole use of subsurface soil data to assess construction worker exposures. The use of subsurface soil data is based upon the assumption that contaminant concentrations "appear to be more significant at depth" (Navy's June 30, 1999 Response to Comments). While it may be true that most soil contaminant concentrations increase with depth, it is not universally true. Particularly noteworthy are the concentrations of the carcinogenic poly aromatic hydrocarbon (cPAH) compounds benzo(a)pyrene and benzo(a)anthracene, which are much greater at the surface (17 and 23 mg/kg, respectively) than at depth. For example, the concentration of benzo(a)anthracene is approximately 23 times greater in surface soils than in subsurface soils (Section 3.2, page 3). These concentrations are potentially significant considering that the EPA Region III risk-based levels for these two compounds (based upon industrial exposure) are 0.78 and 7.8 mg/kg.

Future construction activities would likely lead to exposure to both surface and subsurface soils. Consequently, a reevaluation of the construction worker scenario based upon exposure to a composite of surface and subsurface soils should be provided.

Section 3.4.2 Human Health Risk-Based Cleanup Goals, page 3-9

3. The text does not discuss the inhalation of particulates from surface and subsurface soil by military residents, construction workers, and commercial workers. If these exposures were determined to be insignificant, then the methodology used and the results of this

determination should be included. If these exposures were not evaluated, they need to be. EPA's *Risk Assessment Guidance for Superfund, Volume I, Part B (USEPA, 1991)* describes the current methodology used to assess these exposures.

4. The text does not explain why the inhalation of volatiles from soil and groundwater pathways for military residents, commercial workers, and construction workers was evaluated using only benzene data. The CMS Task 1 Report should include text explaining why ethylbenzene, toluene, and xylene were excluded from the evaluation, or they should be included.
5. The reference used for the volatilization model for sorbed contaminants from soil and shallow groundwater (USEPA, 1986) is not located in the reference section. This document should be included to aid in independent verification of the model.

Section 3.4.3 Selection of Cleanup Levels, page 3-10

6. The text of the CMS Task 1 Report does not specifically address or clarify the selection of the benzene groundwater cleanup goal as indicated in the Navy's [Baker Environmental's] January 21, 2000, Response to EPA's June 30, 1999 Comments (i.e., specifically the response to EPA Comment 1b). Although a deed restriction prohibiting future residential development of the property is mentioned, this restriction is not discussed in relation to potential health risks from exposure to benzene in groundwater during nonpotable use (e.g., lawn watering, car washing).

Section 3.4.3 Selection of Cleanup Levels, page 3-11

7. The CMS Task 1 Report maintains that the future residual risk to military residents (2×10^{-6}) is not significantly increased when exposure to benzene through volatilization and inhalation is considered. However, the text does not provide the risk values for the inhalation pathway and, therefore, the validity of that statement is not known.
8. The CMS Task 1 Report indicates that the proposed cleanup levels for groundwater were developed based on construction worker exposures to groundwater while performing excavation activities. In addition, the text on page 3-11 states, "construction worker cleanup goals are more conservative than residential, nonpotable groundwater use cleanup goals. This is not completely true. Instead it is reflective of the modeled length of potential exposures by construction workers (180 days per year for a 1-year period) and the duration of potential exposure to contaminated groundwater (1 hour per day)." However, in Table 3-9, the cleanup goal for benzene based on residential exposure to nonpotable groundwater (800 ug/L) is more conservative than the cleanup goal for benzene based on construction worker exposures to groundwater (2,100 ug/L). Therefore, the CMS must be revised to explain/justify why the less conservative construction worker cleanup goal for benzene in Table 3-10 was selected as the proposed cleanup goal for benzene at the site.

As discussed in Comment No. 6, if a deed restriction prohibiting future residential development of the property is intended to prevent residential exposures to nonpotable groundwater, this restriction should be noted in the cleanup level discussion. The CMS Task 1 Report should clearly indicate that the residential use of either potable or nonpotable groundwater will be prevented by some type of institutional control.

Table 3-1

9. The total hazard index (HI) for future construction workers is presented as "029." This should be corrected with the appropriate decimal place.

Tables 3-2 and 3-3

10. Table 3-2 presents the incremental lifetime cancer risks (ILCRs) and HIs for "current on-site workers." This population description does not agree with the text and it is not clear whether these are the totals for construction workers or commercial/industrial workers. Further, only two summary risk tables are presented (i.e., Table 3-2 for current onsite workers and Table 3-3 for future residents). Consequently, one exposure population's summary ILCRs and HIs are not presented (i.e., either construction workers or commercial workers).
11. The population description in Table 3-3, "future residents," should be changed to read "future military residents" in order to agree with the text and emphasize that these risk values were based upon a modified four year residential scenario and not the standard 30 year resident. This distinction is significant in that the ILCRs and HIs for even this modified, short-term "military resident" exceeded EPA's upper limits for carcinogenic and noncarcinogenic risks (i.e., 1×10^{-4} and 1.0, respectively), and therefore, institutional controls are required even under that limited duration exposure scenario.

Table 3-5

12. The term "Ingestion Rate" on Table 3-5 should be modified to reflect that this is an "accidental" ingestion rate associated with groundwater used for nonpotable purposes, such as watering lawns and washing cars, rather than a drinking water ingestion rate.

Table 3-6

13. Table 3-6 lists only one outdated and nonconservative respiration rate ($1.25 \text{ m}^3/\text{hr}$) for two very different exposure populations. The inhalation of soil vapors and particulates should be reevaluated for construction workers and commercial/industrial workers using current guidance found in EPA's *Exposure Factors Handbook, Volume I: General Factors (USEPA 1997)*. The current respiration rate recommended for outdoor workers engaged in heavy activities (i.e., construction workers) is $2.5 \text{ m}^3/\text{hour}$. The indoor respiration rate for adult males age 19 to 65 years (i.e., a conservative estimate of commercial/industrial workers) is $15 \text{ m}^3/\text{day}$.

Table 3-7

14. Table 3-7 lists the exposure frequency for construction workers as 108 days/year instead of the 180 days/year listed in Table 3-6. The exposure frequency of construction workers should be consistent for both soil and groundwater media (i.e., 180 days/year). In addition, the respiration rate listed in Table 3-7 is antiquated and nonconservative. As previously stated, the current recommended value is 2.5 m³/hour (see Specific Comment 12).

Table 3-8

15. Table 3-8 presents the toxicity criteria used in the calculating cleanup levels. This table also presents the absolute oral absorption factors used to modify oral toxicity criteria to evaluate the dermal route of exposure. Table 3-8 and the associated text should be modified to cite the source of the absolute oral absorption factors used to adjust the oral toxicity criteria for each COPC. In cases where these factors were obtained from sources other than ATSDR or NCEA, the CMS Task 1 Report should indicate why the selected source was used. If adequate justification can not be provided for the selection of alternative absolute oral absorption factors, the following values should be used in the CMS report:

Benzene – ATSDR 1995; Absolute Oral Absorption Factor = 100%
Ethylbenzene – ATSDR 1990; Absolute Oral Absorption factor = 92%
Toluene – NCEA 1991; Absolute Oral Absorption factor = 99%
Total Xylene – ATSDR 1990; Absolute Oral Absorption factor = 92%
Benzo(a)pyrene – Default Value 100%

Table 3-9

16. Table 3-9 does not appear to incorporate the inhalation pathway into the cleanup levels calculated for soil and groundwater. Instead, a separate empty column is added for air [impacts based on soil clean-up concentrations], an approach which is not explained and is not acceptable. The purpose of assessing the indirect inhalation pathway is to ensure that the cleanup levels of sorbed or dissolved contaminants in other media (i.e., soil and groundwater) will be set low enough to protect receptors from the cumulative exposures possible from each media. Soil and groundwater clean-up levels should be based upon dermal contact with, inhalation of volatiles and particulates from, and incidental ingestion of both media.

TECHNICAL REVIEW

**MARCH 10, 2000,
CORRECTIVE MEASURES STUDY WORK PLAN - SWMU 45
AND
MARCH 10, 2000,
CORRECTIVE MEASURES STUDY WORK PLAN - SWMUS 1 AND 2
NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO**

**REPA2-0203-016
March 30, 2000**

GENERAL COMMENTS

1. The Corrective Measures Study Work Plan for SWMU 45 states (p. 3-15) that manatee risks will only "be evaluated if sea grass habitat is observed." On p. 3-8 the Corrective Measures Study Work Plan for SWMU 45 acknowledges that sea grass occurs "in the marine environment surrounding Naval Station Roosevelt Roads," but the locations are not specified. Ecological risks to manatees should be evaluated in the baseline risk assessment as the habitat assessment in the screening phase of the risk assessment may be too limited to adequately evaluate the presence of manatee habitat. Additionally, historical activities at the site may have limited sea grass development in areas contaminated with site contaminants (i.e., sea grass may develop in contaminated areas in the future). The spatial extent of sediment contamination in Puerca Bay is unclear, so it is inappropriate to exclude manatees based on the statement "if sea grass habitat is observed."

2. The Corrective Measures Study Work Plan for SWMUs 1 and 2 states (p. 3-16) that manatee risks will only be evaluated if there are indications that chemicals migrate to Ensenada Honda. The information summarized in the Corrective Measures Study Work Plan for SWMUs 1 and 2 is not adequate to determine the potential for chemical migration and bioaccumulation. Ecological risks to manatees should be evaluated in the baseline risk assessment as the information developed and evaluated in the screening phase of the risk assessment may be too limited to adequately determine chemical migration to Ensenada Honda.

SPECIFIC COMMENTS

1. Table 3-2 of the Corrective Measures Study Work Plan for SWMUs 1 and 2 and Table 3-2 of the Corrective Measures Study Work Plan for SWMU 45 both contain a few errors. Specifically, the assessment endpoint for benthic invertebrates references protection from surface water but should reference sediment. In addition, the risk hypothesis for the earthworms to robins pathway indicates earthworms are arthropods, when in actuality they are annelids. Finally, the assessment endpoint for soil lists "SWMU 9" surface soils, rather than the appropriate (e.g., 1, 2, or 45) SWMU under consideration.
2. The Corrective Measures Study Work Plan for SWMUs 1 and 2 states (p. 3-12) that bioaccumulation of chemicals migrating to Ensenada Honda is unlikely. However, based on the limited sampling data for this area, it does not appear there is sufficient information to evaluate chemical migration and bioaccumulation.
3. The preliminary conceptual models presented in both the Corrective Measures Study Work Plan for SWMU 45 and the Corrective Measures Study Work Plan for SWMUs 1 and 2 omit pathways to aquatic mammals (e.g., manatee). The conceptual models developed during the screening level assessment should contain this pathway unless the pathway can be shown to be incomplete. Furthermore, exposure to aquatic mammals should include incidental sediment ingestion unless literature information is available that indicates that sediment exposure is unlikely for manatees.
4. The preliminary conceptual model for SWMU 45 shows that the surface runoff to surface water pathway is incomplete. This pathway should be reevaluated during the screening level assessment.

TECHNICAL REVIEW
ECOLOGICAL RISK ASSESSMENT PORTION
OF THE REVISED DRAFT
RCRA FACILITY INVESTIGATION REPORT FOR SWMU 9
NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO

REPA2-0203-019
April 21, 2000

GENERAL COMMENTS

1. Review of the Revised Draft RCRA Facility Investigation Report (RFI Report) has identified several concerns regarding the conclusions of potential ecological risks at SWMU 9. Specifically, the analytical detection limits used for some analytes appear to be higher than their respective toxicity benchmark, the background sampling locations do not appear appropriate or representative, and the number of samples used to eliminate specific contaminants as contaminants of potential concern (COPCs) appear to be low.

SPECIFIC COMMENTS

1. Review of the RFI Report indicates that potential site contaminants were excluded as COPCs if they were not detected (p. 7-8). Two concerns regarding this COPC screening process are: (1) only a relatively few samples were collected (1 to 4 samples in each area and media; Tables 7-1 to 7-3), and (2) detection limits of some potential site contaminants (e.g., polycyclic aromatic hydrocarbons (PAHs)) were higher than screening level benchmarks.

Potential site contaminants should not have been excluded as COPCs based on an absence of detections given the very limited number of samples collected. Additionally, potential contaminants should not have been excluded as COPCs if their analytical detection limits were greater than their protective ecological screening benchmarks. Because of the historical storage of petroleum in SWMU 9, and the huge mass of sludge disposed of in pits adjacent to the storage tanks, these issues are of particular concern for PAHs. PAHs have not been included as COPCs for SWMU 9, yet most of the PAH detection limits in sediment (Report Volume II, Appendix H.31) exceeded their sediment toxicity benchmarks (e.g., see <http://response.restoration.noaa.gov/cpr/sediment/squirt/squirt.html>). Additional justification should be provided to support the results of the COPC screening process.

2. Background sample results were used to conclude that several contaminants in site media (e.g., chromium, selenium, copper, mercury, lead) were not site related (p. 7-34).

However, the background samples were collected on site, in proximity to contaminated areas of SWMU 9 (p. 3-21; p. 5-2; Figures 5-1 to 5-28). Because the samples were collected proximal to the SWMU, and because only a relatively few background samples were collected, it is unclear whether the samples were representative of background conditions. Furthermore, it is unclear based on the existing background sample data whether contaminants of potential concern (COPC) have been appropriately excluded from further evaluation. Generally, background data used to exclude COPCs should be sufficient to allow a statistical comparison with assessment sample data. In addition, some of these background samples exhibited high potential risks (e.g., hazard quotient greater than 100 for avian predators). Despite these uncertainties associated with many of the background samples, the Navy is only proposing to collect additional surface water background samples (Section 8.3). Additional rationale and justification should be provided to support the selection and use of the background data.

3. The RFI Report concludes that several ecological risk assessment pathways are incomplete. However these conclusions are not adequately justified. For example, Table 7-51 shows the mercury pathway to earthworms and birds as incomplete; however, no data to support the elimination of this pathway is provided. Exposure pathways should be considered complete unless site-specific data show they are not complete. Furthermore, absence of a detection of an analyte in site media does not necessarily mean the exposure pathway is incomplete unless contamination has been adequately characterized (e.g., adequate number of samples, detection limits lower than protective benchmarks). Additional justification for the elimination of the ecological risk assessment pathways should be provided.
4. The conclusion that ecological risks have likely been overestimated (p. 7-50) is not fully supported. The ecological risks of site contaminants may be greater than estimated in the screening level risk assessment because of both the limited number of samples, and the fact that the detection limits for many potential site contaminants (e.g., PAHs) were greater than their respective toxicity benchmarks. These issues should be considered as additional sources of uncertainty (p. 7-37) in the RFI Report. Furthermore, it should be noted that the recommendations of the RFI Report to collect a limited number of additional surface water samples (Section 8.3) will not reduce the uncertainties and concerns associated with ecological risks in soil and sediment.