

NAVY RESPONSE TO EPA COMMENT LETTER DATED JANUARY 22, 2010

EPA AND PREQB COMMENTS ON THE DRAFT PHASE I CORRECTIVE MEASURES STUDY INVESTIGATION FOR SWMU 74 - FUEL PIPELINE AND HYDRANT PITS DATED NOVEMBER 19, 2009

EPA COMMENTS DATED DECEMBER 21, 2009

(EPA and PREQB comments are provided in italics while the Navy responses are provided in regular print.)

GENERAL COMMENTS

1. *The Report does not provide a discussion regarding performance of decontamination activities associated with this investigation. According to Section 3.3.3 of the approved Work Plan, “[t]he drill rig, including all reusable (non-dedicated and non-disposable) soil sampling equipment (i.e. augers, bits, DPT probe, split-spoon samplers, etc.), will be decontaminated between each sampling location in accordance with SOPs F501 and F502 in Baker, 1995.” The drill rigs were to be decontaminated before arriving at the Site and before leaving the Site. Revise the Report to include a discussion of decontamination activities that were undertaken during this investigation in order to document that the field procedures were performed in accordance with the Work Plan.*

Navy Response to EPA General Comment 1: The drill rigs and all reusable sampling equipment were decontaminated before arriving at the site, before leaving the site and between each sample location, as specified in the Work Plan. Section 3.4 will be re-titled from “Investigation Derived Waste” to “Decontamination and Investigation Derived Waste” and revised to include a discussion of the decontamination activities performed for this investigation.

SPECIFIC COMMENTS

1. *Section 2.2, SWMU 74 Description, Page 2-2: In the second-to-last sentence of the fourth paragraph in this section, the word “fuel” in the phrase “these tanks reportedly stored DFM fuel” is redundant and inconsistent with the usage of the acronym for “diesel fuel marine” (DFM) throughout the rest of the report. Please revise accordingly.*

Navy Response to EPA Specific Comment 1: The referenced sentence will be revised as indicated by this comment.

2. *Section 3.2, Monitoring Well Installation and Groundwater Sampling, Page 3-5: The last paragraph of this section states that “monitoring well development typically consisted of low flow pumping until water production ceased”. However, according to the approved Work Plan (Section 3.1.2), temporary monitoring wells were not to be developed. Clarify what the rationale was for deciding to develop the temporary monitoring wells and whether or not all the temporary monitoring wells were developed in this way. If not, provide the decision logic used to determine when to develop the temporary wells and when not to. Further, clarify that if the temporary monitoring wells are converted to permanent monitoring wells in the future, that they will need to be re-developed using the pumping and surging technique outlined in the Work Plan. In the alternative, justify the use of the*

low flow development technique as the Work Plan calls for all permanent monitoring wells to be developed using the pumping and surging method (see Section 3.2, Page 3-6 of the Work Plan).

Navy Response to EPA Specific Comment 2: Many of the wells installed for the Phase I investigation exhibited very low groundwater yields. These wells were developed in an attempt to increase communication with the aquifer and improve groundwater production. This field change will be identified in Section 3.10 – Deviations from the Work Plan. Note that the temporary wells are 1.5 inch in diameter and will not be converted to permanent monitoring wells. Wells installed for the Phase II investigation will be 2-inches in diameter and will be developed using the pumping and surging method.

- 3. Section 3.3, Groundwater Level Measurements, Page 3-7: A groundwater contour map for the Airfield Area (Figure 3-6) is referenced in Section 3.3. Review of Figure 3-6 indicates 74SB10 and 74SB11 as groundwater sample locations, however there is no groundwater elevation data associated with these two points on the map. In addition, Section 3.2 (Airfield Area) does not indicate that there were groundwater samples collected from these two locations, or that the borings were converted into groundwater monitoring wells. Additionally, there are no groundwater analytical results for these two locations listed in Table 5-3 (Summary of Detected Results – Airfield - Groundwater). If the sample locations appear on Figure 3-6 in error, then they should be removed. However, if groundwater samples were in fact collected from these two locations, discuss the results in Section 3.2; add groundwater elevation data to Figure 3-6; and add the analytical results to Table 5-3.*

Navy Response to EPA Specific Comment 3: 74SB10 and 74SB11 are soil borings and not monitoring wells. 74SB10 and 74SB11 will be removed from Figure 3-6.

- 4. Section 3.3, Groundwater Level Measurements, Page 3-7: This section indicates that the only groundwater contour map that could be created for the entire site was the one for the Airfield Area. It is stated that other contour maps were not created because of “a lack of coincident elevation measurements.” Elaborate on what the criterion was for determining if the data was “coincident”. Also, in the Recommendations for Phase II Sections (Section 6.9, Page 6-6; Section 7.9, Page 7-6; Section 8.9, Page 8-4; and Section 9.9, Page 9-5), discuss what steps will be taken during the Phase II to ensure that accurate and comprehensive groundwater contour maps will be created for the entire site following the second phase of the CMS. Specifically, ensure that water level measurements are collected from all monitoring wells sampled as part of the Phase II effort. A clear understanding of groundwater flow direction and localized impacts to groundwater flow is crucial for a through understanding of constituent migration.*

Navy Response to EPA Specific Comment 4: The Navy concurs that a clear understanding of groundwater flow at a site is important in evaluating potential contaminant occurrence and movement. Groundwater elevation measurements for the entire Airfield Area, as shown on Figure 3-6, were all collected on July 22, 2007. This included not only information from SWMU 74, but also groundwater elevations from wells installed at SWMUs 56 and 69. The sentence referencing coincident groundwater elevation measurements will be deleted from the text of Section 3.3.

The recommendations in Sections 5.9, 6.9, 7.9, 8.9 and 9.9 include provisions for measuring groundwater elevations at each area with a groundwater impact. Site specific groundwater elevation contour maps will be developed for those areas investigated during Phase II that have three or more groundwater monitoring wells.

- 5. Section 3.7.1, Field Duplicates, Page 3-9: The Work Plan indicates that field duplicates should be collected at a rate of ten percent of primary environmental samples. However, only four groundwater field duplicates were collected corresponding to 52 primary groundwater samples (note, the Work*

Plan specified that six should have been collected). Although this deviation is acknowledged in Section 3.10 (Deviations from the Work Plan), an adequate explanation as to why the samples were not collected is not included. Provide additional details as to why the requisite number of field duplicates was not collected and outline the steps to be taken in the future to ensure it does not happen again.

Navy Response to EPA Specific Comment 5: As indicated in Section 3.10, the frequency for collection of the groundwater field duplicates was less than the 10 percent frequency specified in the Work Plan because of difficulty in collecting enough volume of water from the 1.5-inch diameter monitoring wells. In future sampling events, duplicates will be collected from the higher yielding monitoring wells to assure that the specified number of duplicates is collected. No revisions to the text are proposed.

6. *Section 6.9, Recommendations for Phase II, Page 6-6: The first sentence of this section is confusing and should be revised. A suggested revision includes the following: "At each location where fuel related contamination is noted above screening, trigger, or background levels, additional soil borings will be installed in order to delineate the contamination. For subsurface fuel contamination, one surface soil, two subsurface soil, and one groundwater sample will be taken from each of these locations."*

Navy Response to EPA Specific Comment 6: The referenced sentences will be revised as indicated by this comment.

7. *Section 8.9, Recommendations for Phase II, Page 8-5: The final bullet point in this section recommends sampling groundwater monitoring wells 74VP6Aa and 74VP6Ab if there is a sufficient volume of water. These wells were not sampled during Phase I activities because they did not produce an adequate amount of groundwater to collect a sample. If these wells continue to produce insufficient water to be sampled during Phase II activities, then two replacement wells should be installed within a more productive water-bearing zone to allow for collection of groundwater samples. Without groundwater samples from these locations, there will be insufficient data to determine whether or not groundwater has been impacted by the nearby valve pit (VP-6A).*

Navy Response to EPA Specific Comment 7: The final bullet in the referenced section will be revised to indicate that if there is not sufficient water in the monitoring wells for sample collection, then a new well or wells will be installed in a more productive water bearing zone:

- Groundwater samples will be collected from existing groundwater monitoring wells 74VP6Aa and 74VP6Ab, if there is a sufficient volume of water for sampling. If there is not sufficient water in one or both wells, then replacement monitoring wells will be installed in a more productive water bearing zone.
8. *Figure 5.1, Organic Exceedances of Background and Screening Criteria in Soil – Airfield: There are two total petroleum hydrocarbons (TPH) values on this figure (03 Total TPH 320J and 04 Total TPH 400J) which are placed close to the location of soil boring 74SB34 (note these two locations are located to the southwest of 74SB34). It is not clear which boring these values are associated with. Revise the figure to indicate which boring these values are associated with.*

Navy Response to EPA Specific Comment 8: The total petroleum hydrocarbon results shown on Figure 5-1 southwest of 74SB34 are a copy of the results for soil boring 74SB30. Figure 5-1 will be revised to remove the referenced results.

9. **Section 10.0, Summary of Conclusions and Recommendations; Fueling Pier Area, Page 10-3:** *Although TPH impacted soil was detected at sampling locations 74SB221 and 74SB231, further sampling to delineate the extent of contamination was not recommended for location 74SB221. Provide justification as to why additional sampling is not required.*

Navy Response to EPA Specific Comment 9: The last bullet in Section 9.9 - Recommendations for Phase II indicates that 74SB221, as well as 14 other locations are within the boundary of SWMU 7/8 and will be addressed under SWMU 7/8. No revisions to the text are proposed.

MINOR COMMENTS:

1. *Several typographical, spelling, and formatting errors were identified throughout the report and its appendices, which when combined together start to impact the effectiveness of the report. For example, the word "xylenes" is misspelled twice in Section 7.6, Groundwater Results, page 7-5; the page justification is should be corrected for Section 2.5.3.2, Regional Hydrology, page 2-7 and for Section 5.5, Subsurface Soil Results, page 5-3. Conduct a thorough review of this document, including figures and tables, and appendices, to ensure its readability, integrity, and consistency.*

Navy Response to EPA Minor Comment 1: A thorough review of the document, including text, figures and tables and appendices will be conducted to assure the document's readability, integrity and consistency. Appropriate revisions based on this review will be incorporated into the final report.

PREQB COMMENTS DATED JANUARY 19, 2010

GENERAL COMMENTS

1. There were constituents detected in samples collected from various areas (e.g., PCE in the ground water near boring 74SB05, chloroform in the upper SWMU 9 Area A/B, vinyl chloride in the ground water in SWMU 9 Area C and elevated select metals in all areas) that have not been identified as being associated with fuel releases (and are not necessarily attributed to nearby AOCs). As the proposed Phase II work focuses on the petroleum-related impacts only, please clarify how these other apparent releases/impacts will be addressed as part of future endeavors.

Navy Response to PREQB General Comment 1: This investigation focused on potential releases from the SWMU 74 fuel pipeline and associated value pits and used TPH as the primary screening criterion to determine whether a potential release may have occurred from SWMU 74. The correlation between TPH and PAHs was evaluated and the overall results indicate that detections of PAHs in soil and groundwater are not necessarily the result of a release from SWMU 74. A similar evaluation was conducted for metals in soil with an overall result that the presence of a metal in the soil is not necessarily the result of a release from SWMU 74. Consequently, the proposed Phase II work focuses only on those areas identified as potential releases from SWMU 74.

For samples collected from locations in the vicinity of other SWMUs (i.e., SWMU 9 Area A/B and Area C, SWMU 7/8, etc.), the applicable data from Phase I of the CMS Investigation for SWMU 74 will be evaluated as part of the ongoing investigations at these other SWMUs. For the other detections (primarily metals) in excess of human health or ecological screening criteria, no specific source area, release or release mechanism has been identified. In these instances, no further actions are proposed under RCRA. No revisions to the text are proposed.

2. *PREQB acknowledges that there were impacts that were identified as part of this investigation that are being attributed to other AOCs (specifically, impacts in the JP-5 Hill / DFM area) and concurs that these impacts will be addressed as part of investigations of other areas (e.g., the impacts at the Fueling Piers Area are noted to be investigated as part of the SWMU 7/8 work).*

Navy Response to PREQB General Comment 2: The Navy concurs that impacts that were identified as part of the SWMU 74 investigations that are attributable to other AOCs or SWMUs will be addressed as part of the investigations for those other areas. No revisions to the text are proposed.

PAGE-SPECIFIC COMMENTS

1. *Minor Editorial Comments:*
 - a. *Page 2-3, Paragraph 4, Sentence 2: Please change the word “value” to “valve”.*
 - b. *Page 2-5, Paragraph 2, Sentence 4: Please change the text to reflect that the findings of the ECP formed the basis for the CMS investigation (not the work plan at this point).*
 - c. *Page 2-7, Paragraph 2, Sentence 1: Please insert the word “the” between the words “of” and “NAPR”.*
 - d. *Page 7-6, Paragraph 7, Sentence 3: Please change the word “detectors” in the last sentence to “detections”.*
 - e. *Global: Please perform a global search of the text and replace the acronym “SMWU” with “SWMU”.*

Navy Response to PREQB Page-Specific Comment 1.a. through 1.d.: Editorial corrections to the text will be made as indicated by this comment.

2. *Page 3-2, Section 3.1:*
 - a. *This section should clarify how surface and subsurface soil samples were collected for VOCs and GRO since these samples were not placed directly into laboratory containers, as stated in the text.*
 - b. *The text states that soil samples were placed directly into laboratory containers. Please clarify if homogenization was performed prior to this occurring for the non-VOC parameters.*

Navy Response to PREQB Page-Specific Comment 2a and 2b: Section 3.1 will be revised to indicate that soil samples collected for VOCs and GRO were placed directly into laboratory supplied sample containers and field preserved, as appropriate. Samples for VOCs and GRO were not homogenized prior to collection. Soil samples collected for other laboratory analyses (e.g., DRO, LLPAHs, metals) were homogenized prior to placement in the appropriate laboratory supplied samples containers.

3. *Page 3-4, Section 3.1, Paragraph 1:* *Please clarify why soil samples were only collected from one of the two soil borings drilled in association with each pit. (Note that the same comment applies for other areas in which valve pits were encountered.)*

Navy Response to PREQB Page-Specific Comment 3: The valve pit soil borings were installed in close proximity to each other and in many cases in close proximity to the pipeline borings. During boring installation, soil from both borings was screened with a PID and examined for visual or olfactory signs of

contamination. If no indications of contamination were noted, a soil sample from only one valve pit boring location was collected. Note that groundwater samples were collected from each valve pit boring location if there was sufficient yield to support sample collection.

4. *Page 3-5, Section 3.2: Please clarify the type of tubing used for groundwater sampling.*

Navy Response to PREQB Page-Specific Comment 4: Polyethylene tubing was used for the collection of groundwater samples. The equipment rinsate samples did not indicate the addition of organic compounds to the sample results from the tubing. However, Teflon or Teflon-lined tubing will be used for future sampling events. Tubing information will be included in Section 3.2

5. *Page 3-5, Section 3.2, Paragraph 1: Please clarify why screens longer than 10 feet were utilized at some locations. The use of ten feet of screen is an industry standard and the concern in using longer screen lengths revolves around the affects of averaging.*

Navy Response to PREQB Page-Specific Comment 5: Fifteen foot screen lengths were used in three wells: 74SB145, 74VP05a and 74VP11b/JP5. A moist silt clay with no distinct water bearing zones was encountered at these locations. A longer screened interval was used to maximize potential groundwater production from the silty clay. No revisions to the text are proposed.

6. *Page 3-7, Section 3.3, Paragraph 1: Please clarify why the elevations of the ground water monitoring points in the areas outside of the airfield area were not surveyed to allow for the generation of ground water elevation contour maps. The work plan called for surveying of all sample locations, including monitoring wells, and Section 3.6 indicates that each monitoring well location was surveyed using the RTK GPS methods which were highlighted to be able to provide vertical accuracy to within 0.02 feet.*

Navy Response to PREQB Page-Specific Comment 6: As discussed in Section 3.6, monitoring wells were surveyed for location and elevation using the RTK GPS, as specified in the Work Plan. No revisions to the text are proposed.

7. *Page 3-10, Section 3.7, Paragraph 1: Please clarify why the equipment rinsate samples were analyzed for Appendix IX pesticides/PCBs, as these analytes were not part of the sampling regimen.*

Navy Response to PREQB Page-Specific Comment 7: The equipment rinsate samples were collected as part of a multi-site investigation; consequently, some of the rinsate samples were analyzed for suites of parameters beyond that which was specified for SWMU 74. No revisions to the text are proposed.

8. *Page 3-15, Section 3.10, Last Bullet: The text states that two of the monitoring wells in SWMU 9 Area C failed to produce enough water for collection resulting in a data gap associated with valve pit VP-6A. However, there is no discussion in the SWMU 9 section (Section 6) about how this data gap will be addressed in the future. Please address.*

Navy Response to PREQB Page-Specific Comment 8: SMWU 9 Area C is discussed in Section 8.0 of the report. The final bullet in Section 8.9 – Recommendations for Phase II indicates that: “Groundwater samples will be collected from existing groundwater monitoring wells 74VP6Aa and 74VP6Ab, if there is sufficient volume of water for sampling.” According to the Navy Response to EPA Specific Comment 7, this recommendation will be further revised to read: “If there is not sufficient water in one or both wells, then replacement monitoring wells will be installed in a more productive water bearing zone.”

9. *Page 3-15, Section 3.10: According to the field notes, in many instances the same wells were sampled on different days due to problems noted with recovery in the wells. This section should include a summary of these issues, the wells affected, and the parameters affected since these are deviations from the Work Plan and the Region II Low Flow SOP included in the Work Plan. Any wells which could not be purged due to recovery issues should also be summarized in this section.*

Navy Response to PREQB Page-Specific Comment 9: The Work Plan indicates that recovery may be an issue in some wells and that the low flow sampling will only be applied to the extent that the actual recovery rate at each location allows. Consequently, this is not considered a deviation from the Work Plan and is documented in the field notes. No changes to the text are proposed.

10. *Page 4-1, Section 4.1, Paragraph 2 and Page 4-2, Section 4.1.1, Paragraph 2: Please explain why detections of VOCs and PAHs, in particular (although metals are also mentioned) in the samples may not be indicative of a release from SWMU 74 and why they are considered on a case-by-case basis as it relates to determining if additional work is necessary. Also, please provide the criteria upon which the decision will be made to attribute VOCs and/or PAHs to SWMU 74 releases and conduct further investigation.*

Navy Response to PREQB Page-Specific Comment 10: As discussed in Section 4.1 and in the EPA approved Final Corrective Measures Study Work Plan for SWMU 74 (Baker, 2007), total TPH was selected as the indicator of a release from SWMU 74 pipelines and/or valve pits. To provide a measure of conservatism, a screening level of 25 percent of the current PREQB screening criterion for TPH in soil and groundwater was used. A statistical evaluation exploring the relationship between TPH DRO and PAHs was conducted. The results of this evaluation indicated that the detection of PAHs in soil and groundwater samples is not necessarily the result off a release from SWMU 74. A similar evaluation was conducted to explore the relationship between TPH and metals. Similar to the PAH results, the results of the TPH verses metals evaluation indicated that the detection of metals in soil in not necessarily the result of a release from SWMU 74. Consequently, TPH was used as the primary screening criteria. However, as discussed in the recommendations section for each area, the occurrence of VOC, low-level SVOCs, metals TPH DRO and TPH GRO in the areas identified by this screening investigation will be further evaluated in Phase II. No revisions to the text are proposed.

11. *Page 4-3, Section 4.3.1 and Table 5-1. Please update the Regional Screening Levels (RSLs) used for screening data to the December 2009 version of the RSL table. Also, consistent with other NAPR investigations, please ensure that if the noncarcinogenic RSL is less than 10 times the carcinogenic-based RSL, 10% of the noncarcinogenic RSL is used for screening. Please add this information to footnote 2 of Table 5-1.*

Navy Response to PREQB Page-Specific Comment 11: The Draft Report (November 2009) was released prior to the December 2009 version of the RSL table; consequently, no revisions to the RSLs are proposed.

12. *Page 4-4, Section 4.4.1 Soil and Table 5-1. As stated here and in Section 5.2.1.1 of the December 2007 Work Plan, "USEPA ecological soil screening levels (Eco-SSLs) for terrestrial plants and invertebrates were preferentially used as soil screening values." The approved Work Plan prescribed this approach to identify contaminants of concern (COCs) for plants and invertebrates in addition to separately identifying COCs for potential food chain exposures of birds. However, the identification of avian food chain COCs appears to be absent from the report. As noted in prior EQB reviews of ERAs at other NAPR sites, USEPA's original intent for the Eco-SSLs was for the lowest available of all Eco-SSLs for plants, soil invertebrates, birds, and mammals to be used in soil COC selection. Avian and mammalian Eco-SSLs are often lower than plant and soil*

invertebrate EcoSSLs and no screening evaluations were performed for food chain exposures of birds and mammals using ingestion-based screening values and estimated dietary doses. Please revise the selection of soil criteria used to apply the lowest of all available EcoSSLs to identify COCs to be evaluated further in a SLERA and in Step 3a of the BERA. This will assure that no soil COCs that pose a screening-level risk to wildlife receptors are omitted prematurely during Steps 2 and 3a of the ERA.

Navy Response to PREQB Page-Specific Comment 12: The Navy partially agrees with this comment. Eco-SSLs have been developed for eight receptor groups: plants, soil invertebrates, avian herbivores, avian ground insectivores, avian carnivores, mammalian herbivores, mammalian ground insectivores, and mammalian carnivores. For a given chemical, the lowest Eco-SSL value for plants, soil invertebrates, avian herbivores, avian ground insectivores, avian carnivores, mammalian herbivores will be selected as the soil screening value. Eco-SSLs for mammalian ground insectivores will not be considered for soil screening value development because there are no mammalian ground insectivores in Puerto Rico (mammalian insectivores are limited to aerial insectivores [i.e., bats]). As discussed in Guidelines for Developing Ecological Soil Screening Levels (USEPA, 2005), aerial and arboreal insectivorous birds and mammals were excluded from Eco-SSL development because they are considered inappropriate (i.e., they do not have a clear or indirect exposure pathway link to soil [indirect exposure pathways involve ingestion of prey that have direct contact with soil]). Eco-SSLs for mammalian carnivores also were not considered for soil screening value development because there are no carnivorous mammals on Puerto Rico. With the exception of bats, the terrestrial mammals represented by potentially complete exposure pathways are limited to nonindigenous, nuisance species (i.e., Norway rat, black rat, and mongoose) that have been implicated in the decline of native reptilian and bird populations (Mac et al., 1998 and United States Fish and Wildlife Service [USFWS], 1996). Eco-SSLs for mammalian herbivores are considered appropriate for soil screening value development based on the presence of fruit-eating and nectivorous bats in Puerto Rico. Section 4.4.1 of the Draft Phase I of the Corrective Measures Study (CMS) Investigation Report will be revised to reflect this approach to soil screening value development. Appropriate soil and subsurface soil comparison tables (i.e., tables comparing detected concentrations at each location to human health, ecological, and background screening criteria) also will be revised to include the revised ecological soil screening values.

It is noted that the approach presented above has been accepted by the PREQB for a Full RCRA facility Investigation (RFI) at SWMU 9 (see PREQB comments dated August 27, 2009, Navy responses dated November 19, 2009, and PREQB comments on Navy responses dated December 23, 2009). It is also noted that the work plan did not indicate or state that analytical data generated during Phase I of the CMS Investigation would be evaluated for terrestrial avian food web exposures (see Section 4.3 of the final work plan). Therefore, the Draft Phase I CMS Investigation Report did not include this evaluation. However, identification of avian food web COCs will be performed as part of an ecological risk assessment (ERA) conducted as part of the Phase II CMS report.

13. *Page 4-4, Section 4.4.1 Soil and Table 5-1. Numerous species of bats native to Puerto Rico do forage in upland and estuarine habitats similar to those of the study area and some of these are known to inhabit abandoned military buildings. Since Navy recently agreed that possible local occurrences of native bats should be considered for each conceptual site model (CSM), please revise the soil screening criteria to include the mammalian EcoSSLs, when they are the lowest available wildlife EcoSSLs, to assure that COCs that may pose risk to any local populations of native bats are not overlooked and thus excluded from the SLERA.*

Navy Response to PREQB Page-Specific Comment 13: Please see the Navy response to PREQB Page-Specific Comment No. 12.

14. Page 4-4, Section 4.4.1 Soil and Table 5-1.

- a. *Several soil criteria applied in Table 5-1 of this report deviated from the lower criteria specified in Table 5-1 of the approved Work Plan, including those for several analytes lacking EcoSSLs. For example: (a) an earthworm (*Eisenia andrei*) reproduction Maximum Acceptable Toxicant Concentration (MATC) of 57 mg/kg was used for chromium instead of the earthworm toxicological threshold of 0.4 mg/kg (Efroymson et al. 1997a) in the Work Plan; and (b) a LOAEC-based vanadium value of 10 mg/kg for broccoli growth was used instead of the plant toxicological threshold of 2 mg/kg (Efroymson et al. 1997b) in the Work Plan. Please restore the use of the more conservative soil criteria listed in the Work Plan.*

Navy Response to PREQB Page-Specific Comment 14a: In accordance with the procedure presented in the Navy response to PREQB Page-Specific Comment No. 12, the soil screening values used for chromium and vanadium will be Eco-SSLs for avian ground insectivores (26 mg/kg and 7.8 mg/kg, respectively).

- b. *The nickel, selenium, and zinc criteria prescribed in the Work Plan were appropriately replaced by more recently published EcoSSLs for plants or invertebrates (USEPA, 2007). Please discuss this Work Plan update in the text of Section 4.4.1.*

Navy Response to PREQB Page-Specific Comment 14c: In accordance with the procedure presented in the Navy response to PREQB Page-Specific Comment No. 12, the soil screening values used for nickel and selenium will remain Eco-SSLs for plants. However, the soil screening value for zinc will be revised to the Eco-SSL for avian ground insectivores (46 mg/kg). Section 4.4.1 will be revised to include the revised approach to soil screening value selection. As discussed in the Navy response to PREQB Page-Specific Comment No. 12, the text in Section 4.4.1 of the Draft Phase I CMS Investigation Report will be revised to reflect the approach used for soil screening value development.

- c. *Please apply the EcoSSLs for LMW and HMW PAHs available in the recent updates to the published Eco SSLs to subtotal concentrations of LMW and HMW PAHs; and (c) for chromium and vanadium.*

Navy Response to PREQB Page-Specific Comment 14c: Eco SSLs for low molecular weight (LMW) and high molecular weight (HMW) PAHs will be used as soil screening values. Appropriate soil and subsurface soil comparison tables (i.e., tables comparing detected concentrations at each location to human health, ecological, and background screening criteria) also will be revised to reflect the use of LMW and HMW PAH Eco-SSLs as ecological soil screening values. With regard to chromium and zinc, please see the Navy response to PREQB Page-Specific Comment No. 14a.

15. Section 4.4.2 Groundwater, Page 4-5. *It is stated that: "Chronic saltwater National Ambient Water Quality Criteria (NAWQC) (USEPA, 2006) were selected for use as surface water screening values. USEPA NAWQC for cadmium, copper, chromium, lead, mercury, selenium, and zinc are expressed as dissolved concentrations. As a measure of conservatism in this screening, they were converted to total recoverable concentrations using the appropriate conversion factors (USEPA, 2006)." However, Table 3-1 indicates that ground water samples were analyzed both for total and dissolved metals. Therefore, both sets of AWQC need to be applied, each to their respective total or dissolved dataset rather than only evaluating total metals concentrations.*

Navy Response to PREQB Page-Specific Comment 15: The Navy agrees with this comment. Groundwater comparison tables (i.e., tables comparing detected groundwater concentrations at each location to human health, ecological, and background screening criteria) will be revised to show comparisons of total recoverable and dissolved metals analytical data to total recoverable and dissolved

screening values, respectively. It is noted that for metals lacking literature-based screening values expressed as dissolved concentrations, screening values expressed as total recoverable concentrations will be used in the comparison to dissolved ground water data.

16. Sections 5 to 9 Tables & Appendix B. *The laboratory reported all nondetect results down to the method detection limit (MDL) instead of the reporting limit. Typically, the MDL is a statistically derived value that is not accurately verified by the laboratory analysis. The reporting limits (or quantitation limits) are accurately verified by laboratory analyses of standards at the unadjusted reporting limit. Table 3-2 of the December 6, 2007 Corrective Measures Study Work Plan and Table 3-3 of this report present the required reporting limits for this program, not the MDLs. It should be noted that reporting limits are typically 3-5 times higher than MDLs prior to adjustment for sample-specific parameters, etc. Please revise all data tables in Sections 5 through 9 of the report as well as the tables of sample results presented in Appendix B to reflect the reporting of nondetect results down to the reporting limit instead of the MDL. The use of the reporting limit would be in accordance with the approved Work Plan. It should also be noted that Sections 5.3.1, 5.3.2, and 5.4.1 of the Work Plan specifically call for the use of reporting limits for the ecological risk assessment process.*

Navy Response to PREQB Page-Specific Comment 16: This issue is currently awaiting resolution pending the outcome of the Response to Comment Letter for the Draft Phase I RFI for SWMU 60 (Former Landfill at the Marina) dated September 25, 2009. Once this issue is resolved, the final response will be applied to this document. The Navy position is that no revisions to the text or tables are proposed.

17. Page 5-2, Section 5.4, Paragraph 2: *Based on Table 5-1, please revise the upper acetone concentration to 830 µg/kg.*

Navy Response to PREQB Page-Specific Comment 17: The referenced upper acetone concentration will be revised, as indicated by this comment from 850 J ug/kg to 830 J ug/kg.

18. Page 5-2, Section 5.4, Paragraph 5: *The text currently states that only two metals (arsenic and vanadium) were detected above background screening values and one other screening value. However, selenium was also detected above the background screening value and the ecological screening value in sample 74SB34. Please revise the text accordingly.*

Navy Response to PREQB Page-Specific Comment 18: The referenced section will be revised to indicate that selenium exceeded the NAPR basewide background screening value and the ecological screening value at one surface soil sample location, 74SB34.

19. Page 5-3, Section 5.5, Paragraph 3: *Please revise the text to reflect that benzo(k)fluoranthene is not above the residential screening criteria in the duplicate sample collected at 74SB22. The current text is based on an incorrect residential screening value in the associated table (Table 5-2). Please revise the text and table accordingly.*

Navy Response to PREQB Page-Specific Comment 19: The Regional Screening Levels for Residential and Industrial Soil shown on Tables 5-2, 7-2 and 8-2 for benzo(k)fluoranthene will be revised from 15 ug/kg and 2,100 ug/kg to 15,000 ug/kg and 21,000 ug/kg, respectively. The text in Sections 5.5, 5.8 (refer to PREQB Page-Specific Comment 20), 7.5 (refer to PREQB Page-Specific Comment 39) and 8.5 (Refer to PREQB Page-Specific Comment 45) will be revised to reflect this change.

20. Page 5-5, Section 5.8, Paragraph 2: *Please revise the text to reflect that benzo(k)fluoranthene is not above the residential screening criteria in the duplicate sample collected at 74SB22. The*

current text is based on an incorrect residential screening value in the associated table (Table 5-2). Revise the text and table accordingly.

Navy Response to PREQB Page-Specific Comment 20: Refer to the Navy Response to PREQB Page-Specific Comment 19.

21. *Sections 5.9, 6.9, 7.9, 8.9 and 9.9.* Please evaluate the soil profile down to the water table using field screening methods even if the water table is below 10 feet below ground surface (bgs). The collection of a soil sample at 10 feet meets data quality objectives for human health risk assessment, but does not meet data quality objectives for evaluating the nature and extent of contamination. Please revise the subsurface sampling methodology to screen soil down to the water table in areas where the water table is below 10 feet bgs. Should no visual, olfactory or PID evidence of contamination exists below 10 feet bgs, and then collect the deepest sample at 10 feet bgs.

Navy Response to PREQB Page-Specific Comment 21: The text for the referenced sections will be revised to allow for evaluation of the soil profile below 10 feet below ground surface (bgs). Specifically, for conditions where groundwater is greater than 10 feet bgs, if PID measurements or visual or olfactory screening indicates potential contamination between 10 feet bgs and the water table, an additional subsurface soil sample may be collected at the discretion of the field geologist.

22. *Page 5-6, Section 5.9, Paragraph 3:* Please provide an indication as to why the ground water level measurements will be recorded after the ground water samples are collected. A more appropriate approach may be to allow the wells to equilibrate for a period of one to two weeks following development and to record the water levels in the wells located within an area prior to the collection of ground water samples. (Note that this comment also applies to the other areas in which ground water sampling is proposed.)

Navy Response to PREQB Page-Specific Comment 22: As part of the groundwater sampling procedure, groundwater elevations are to be recorded in each well immediately prior to sample collection. Groundwater elevations also will be recorded in association with the slug tests. An additional round of synoptic groundwater level measurements will be collected at each area after allowing the wells to remain undisturbed for at least 48 hours. The actual timing of the synoptic groundwater level measurements (i.e., either before or after groundwater sample collection) will be determined in the field as the field activities schedule permits. The text in Section 5.9, 6.9, 7.9, 8.9 and 9.9 will be revised to reflect this modification.

23. *Page 5-6, Section 5.9, Paragraph 6:* Please provide a provision for determining the vertical as well as the horizontal extent of the TPH impact in the shallow subsurface. The initial sampling did not allow for a determination as to whether there were impacts at the 1 to 3-foot depth interval at this location, as the first subsurface soil sample was collected from 3 to 5 feet deep.

Navy Response to PREQB Page-Specific Comment 23: The proposed Phase II activities for location 74SB01 will be revised to include the shallow subsurface soil:

- Three surface (0 to 1 foot bgs) and shallow subsurface (1 to 3 feet bgs) soil sample locations are proposed around 74SB01 to further delineate the TPH impacts horizontally and to a depth of three feet. These surface and shallow subsurface soil samples will be analyzed for VOCs, LLPAHs, metals, and TPH GRO/DRO. If PID measurements indicate potential contamination, up to an additional four shallow soil borings (to a depth of three feet) may be installed in this area.

24. *Page 5-7, Section 5.9, Paragraph 1:* Please provide an explanation as to why coring through the concrete apron will not be conducted to allow for the collection of soil samples. It appears that better distribution of soil samples may be obtained if drilling were to be conducted through the apron.

Navy Response to PREQB Page-Specific Comment 24: The airfield is currently in active use. Sampling through the apron or runways areas would potentially disrupt current operations. No revisions to the text are proposed.

25. *Page 5-7, Section 5.9, Paragraph 3:* Please provide the rationale for the distribution of the proposed Phase II soil borings. The proposed soil boring scheme appears to provide dense coverage in some areas (e.g., to the south/southeast of 74SB16) and not enough coverage in other areas (e.g., to the west of 74SB22 and SB27). In addition, the proposed coverage around soil boring 74SB30 does not allow for delineation along the pipeline in the northwestern/southeastern directions.

Navy Response to PREQB Page-Specific Comment 25: The referenced sections and Figure 5-5 will be revised to include additional borings as follows to enhance contaminant delineation in the Day Tank Area: four additional borings generally west of locations 74SB22 and 74SB27 and two additional borings along the pipeline (one northwest and one southeast) in the vicinity of 74SB30. This will result in a total of 22 proposed borings for the Day Tank Area. No additional groundwater monitoring wells are proposed.

26. *Page 5-7, Section 5.9, Paragraph 6:* Please include a provision for the collection of subsurface soil samples should field observations indicate the need. Although the original data set showed that the impacts did not extend into the 1 to 3-foot depth interval at soil boring location 74BS34, it would be practical to plan for the collection of subsurface soil samples should evidence of a pocket of greater contamination be encountered as part of the delineation activities.

Navy Response to PREQB Page-Specific Comment 26: DRO was not detected in the subsurface soil samples collected from the 1 to 3 foot or 3 to 5 foot depth intervals for 74SB34. Additionally, the surface soil detection of DRO was relatively low (28 J mg/kg). Therefore, the focus of the proposed additional investigation will be limited to surface soil. However, the text for the contingency samples will be revised to include the possibility of collecting shallow subsurface soil samples.

27. *Table 5-1.* This table indicates that values for TPH-GRO and TPH-DRO have not been established. Please revise the tables to include the criteria for TPH-GRO and TPH-DRO. PREQB's Underground Storage Tank Regulations lists a value for each TPH fraction (i.e., 100 ppm for TPH-GRO and TPH-DRO in soil, and 50 ppm for these fractions in groundwater).

Navy Response to PREQB Page-Specific Comment 27: Tables 5-1 through 9-3 will be revised to list the PREQB TPH criterion separately for TPH GRO and TPH DRO as well as for Total TPH. Note that 25 percent of the PREQB soil screening criterion of 100 mg/kg (25 mg/kg) will be listed as the soil screening value and 25 percent of the PREQB groundwater screening criterion of 50 mg/L (12.5 mg/L) will be listed as the groundwater screening value on the tables. Note also that the text in Section 4.1 will be revised to indicate this distinction.

28. *Tables 5-2, 7-2 and 8-2.* Please revise these tables to reflect the correct screening values for benzo(k)fluoranthene.

Navy Response to PREQB Page-Specific Comment 28: Refer to the Navy Response to PREQB Page-Specific Comment 19.

29. *Table 5-3. Please include the Regional Tap Water screening level for 2-methylnaphthalene on this table; currently the table states that this screening value does not exist (NE).*

Navy Response to PREQB Page-Specific Comment 29: Table 5-3 will be revised to include the Regional Tap Water Screening Level for 2-methylnaphthalene of 15 ug/L.

30. *Pages 6-2 and 6-3, Section 6.4, Paragraph 3: It is unclear why this section includes a discussion on metals (cobalt, copper, selenium, vanadium), which were above screening criteria but not above background. This is inconsistent with the other sections of the document where results are explained. Typically, a discussion is provided only when metals results exceed background as well as one other screening criterion. Please clarify.*

Navy Response to PREQB Page-Specific Comment 30: The referenced section will be revised to remove the discussion of cobalt, copper, selenium, lead and vanadium. Arsenic was the only metal detected above both the screening criteria and background in the surface soil.

31. *Page 6-3, Section 6.5, Paragraph 2: The text states that the acrolein exceedance in sample 74SB113 may be a result of laboratory interference because many other acrolein results were rejected during validation. The acrolein results were rejected due to the low response factor of this compound which would not cause a positive interference. Please explain the rationale for attributing the acrolein result to laboratory interference.*

Navy Response to PREQB Page-Specific Comment 31: The reference to laboratory interference will be removed from the cited paragraph.

32. *Page 6-5, Section 6.6:*

- a. *Please revise the discussion on the total and dissolved lead exceedances to also note that the concentrations were above the MCL.*
- b. *Please revise the discussion on the dissolved vanadium exceedances to also note that the concentrations were above the MCL in 74VP3b and 74SB74.*

Navy Response to PREQB Page-Specific Comment 32:

a. The discussion on the total lead exceedances will be revised to indicate that:

- Total lead exceeded the MCL, the ecological screening level and background at locations 74VP1Ca/9 and 74VP1Cb/9 with concentrations of 36 and 81 ug/L.

The discussion on the dissolved lead results will be revised to indicate that:

- Dissolved lead exceeded the MCL, the ecological screening level and background at locations 74VP1Ca/9, 74VP1Cb/9, and 74VP1Aa/9. Dissolved lead also exceeded only the ecological screening level and background at 74VP1Bb/9.

b. An MCL has not been established for dissolved vanadium. However, the discussion on the dissolved vanadium results will be revised to indicate that:

- Dissolved vanadium was detected above the ecological screening levels and background at locations 74VP1Ca/9, 74VP3a, 74VP3b, and 74SB74. Additionally, dissolved vanadium was detected above tap water SLs at locations 74VP3b and 74SB74.
33. *Page 6-5, Section 6.7, Paragraph 4: Please provide an explanation as to how pipeline impacts may be differentiated from other petroleum impacts related to nearby SWMUs / AOCs. This comment also applies to Section 7.7.*

Navy Response to PREQB Page-Specific Comment 33: A comparison of contaminant characteristics as well as the distribution and gradient of contaminants may provide some indication as to whether contamination is from the fuel pipeline or from another SWMU. No revisions to the text are proposed.

34. *Page 6-7, Section 6.9, Bullet 3: Please include the collection of subsurface soil samples as part of the delineation activities around soil boring 74SB91. The vertical extent of the surface impacts in this area were not truly identified as a result of the Phase I sampling. The data suggest that there are no impacts at the next sampled interval (5 to 7-foot depth), however, it is not clear if there are any impacts at the 1 to 3-foot interval.*

Navy Response to PREQB Page-Specific Comment 34: The proposed Phase II activities for location 74SB91 will be revised to include the shallow subsurface soil:

- Six surface (0 to 1 foot bgs) and shallow subsurface (1 to 3 feet bgs) soil sample locations are proposed around 74SB91 to further delineate the TPH impacts horizontally and to a depth of three feet. Samples collected from these locations will be analyzed for VOCs, LLPAHs, metals, TPH GRO and TPH DRO. Based on the results of the PID measurements and visual observations, up to an additional four shallow soil borings (to a depth of three feet) may be collected from this area to complete the delineation.
35. *Page 6-7, Section 6.9, Last bullet: There is a typographical error with one of the sample IDs. Please change 74VP1Bb/9 to 74VP1Ba/9.*

Navy Response to PREQB Page-Specific Comment 35: The referenced sample ID 74VP1Bb/9 will be changed to 74VP1Ba/9.

36. *Page 6-7, Section 6.9, Paragraph 4:*
- Please provide a provision for determining the vertical, as well as the horizontal extent of the TPH impact in the shallow subsurface. The initial sampling did not allow for a determination as to whether there were impacts at the 1 to 3-foot depth interval at this location, as the first subsurface soil sample was collected from 9 to 11-feet deep at the 74SB121 soil boring location.*
 - In addition, please provide an explanation as to why there are four proposed locations to delineate the horizontal extent of impacts in this area, as opposed to six at other locations within this area of SWMU 74.*

Navy Response to PREQB Page-Specific Comment 36 a and b: The proposed Phase II activities for location 74SB121 will be revised to include the shallow subsurface soil as well as six proposed locations:

- Six surface (0 to 1 foot bgs) and shallow subsurface (1 to 3 feet bgs) soil sample locations are proposed around 74SB121 to further delineate the TPH impacts horizontally and to a depth of three feet. Samples collected from these locations will be analyzed for VOCs, LLPAHs, metals,

and TPH GRO/DRO. Based on the results of the PID measurements and visual observations, up to an additional four shallow soil borings (to a depth of three feet) may be collected from this area to complete the delineation.

37. *Page 7-2, Section 7.2, Paragraph 1: Please clarify why there were no duplicate ground water samples collected as part of the sampling effort within the JP-5 Hill and DFM portion of SWMU 74.*

Navy Response to PREQB Page-Specific Comment 37: Duplicate samples were collected based on a percentage of the total number of samples. There is no requirement for the collection of a set number of duplicate samples from any given area. The statement that no duplicate groundwater samples were collected from the JP-5 Hill and DFM areas is included to provide a complete narrative description of the sampling program. No revisions are proposed.

38. *Page 7-3, Section 7.5, Paragraph 2: Revise the text as follows:*
- a. *Please revise the text to state that benzene exceeded the residential soil RSL at location 74SB269-05 instead of 74SB269-04.*
 - b. *Please revise the text to state that benzene exceeded the residential and industrial soil RSLs at location 74SB269-04 instead of 74SB269-05.*

Navy Response to PREQB Page-Specific Comment 38a and 38b: The referenced text will be revised to read as follows: "Benzene was reported in samples 74SB210-04, 74SB210-05, and 74SB269-05 above residential soil SLs, and in sample 74SB269-04 above both residential and industrial soil SLs."

39. *Page 7-3, Section 7.5, Paragraph 3: The text incorrectly states that benzo(k)fluoranthene is above the residential screening criteria in the duplicate sample collected at 74SB226. This error is based on an incorrect residential RSL value in the associated table (Table 7-2). Revise the text and table accordingly.*

Navy Response to PREQB Page-Specific Comment 39: Refer to the Navy Response to PREQB Page-Specific Comment 19.

40. *Page 7-5, Section 7.6, Paragraph 1: Revise the discussion on the VOC exceedances to also note that the concentrations were above the MCL.*

Navy Response to PREQB Page-Specific Comment 40: The referenced discussion on VOC exceedances will be revised to indicate that the detected concentration of benzene from location 74VP20 (5.3 ug/L) exceeded its MCL of 5 ug/L. The other VOC detections are below their respective MCLs.

41. *Page 7-5, Section 7.6, Paragraphs 3 and 4: Please revise the text to indicate that the concentrations of total barium (1600 µg/L) and dissolved barium (1900 µg/L) were not above the MCL (2000 µg/L) at 74VP1982.*

Navy Response to PREQB Page-Specific Comment 41: The referenced text will be revised to indicate that total and dissolved barium did not exceed the MCL in the groundwater sample from 74VP1982.

42. *Page 7-7, Section 7.9, Paragraph 7: There are five wells identified for sampling during Phase II of the investigation that were not able to be sampled during Phase I due to the lack of water. Please indicate if the presence of water in these wells has been confirmed since the time of the Phase I. If it has not been confirmed that water is present in these wells, it may be prudent to*

plan on re-installing all or a portion of the wells to deeper depths as part of the Phase II activities in order to ensure that ground water data can be obtained.

Navy Response to PREQB Page-Specific Comment 42: The presence of groundwater has been confirmed in wells 74VP9a/JP5, 74VP11a/JP5, 74VP11b/JP5 and 74SB273, although it has not been determined whether there is sufficient volume or yield for collection of groundwater samples. No groundwater has been noted in well 74SB285. A contingency will be included in the recommendations for the Phase II activities to reinstall one or more of these five wells in a more productive water bearing zone if there is not a sufficient volume of water present in the existing wells for sample collection. If a replacement well is deemed necessary, then the original monitoring well will be properly abandoned.

43. *Page 7-8, Section 7.9, Paragraph 2: Reference is made to the soil and ground water impacts in the areas of soil borings 74SB155 and 74SB156 being addressed as part of the AST 1995/AOC F work. Please clarify whether the PAH (benzo(a)pyrene) impact at location VP10b/DFM is also being further delineated and addressed as part of that effort.*

Navy Response to PREQB Page-Specific Comment 43: The occurrence of TPH contamination in the 7 to 11 foot bgs depth interval at 74SB155, 74SB156, and 74SB157 indicates that SWMU 74 is a likely source rather than the release from AST 1995 at AOC F. The conclusions in Section 7.8 will be revised to indicate that the TPH contamination at these three location is likely from SWMU 74. The first bullet in Section 7.9 – Recommendations for Phase II, Segment B – DFM Tank Area will be revised to read as follows:

- TPH DRO contamination was detected in the 9 to 11 foot bgs depth interval at locations 74SB155, 74SB156 and 74SB157 and in the 7 to 9 foot depth interval at 74SB156. Ten borings will be advanced in the vicinity of these three locations, of which three will be converted to monitoring wells. Surface and subsurface soil samples will be collected from each boring location and groundwater samples will be collected from the three new wells. These samples will be analyzed for VOCs, LLPAHs, metals, TPH GRO and TPH DRO. Based on the results of PID measurements and visual observations, an additional eight locations may be sampled to complete the delineation.

This recommended sampling will address the benzo(a)pyrene detection in 74SB156. However, because of a lack of elevated TPH concentrations at 74VP10b/DFM, the detected benzo(a)pyrene in the 7 to 9 foot depth interval at this location is not considered a release from SWMU 74 and will not be further addressed under SWMU 74.

44. *Page 8-2, Section 8.4, Paragraph 3: Please revise the text to reflect that the arsenic concentration in surface soil for sample 74SB181-00 did not exceed the industrial RSL.*

Navy Response to PREQB Page-Specific Comment 44: The text will be revised to indicate that arsenic was detected above residential SLs in each of the four surface soil samples (plus the duplicate sample) and above the industrial SL and background in three (plus the duplicate sample) of the four samples.

45. *Page 8-3, Section 8.5, Paragraph 1:*

- Please revise the text to include the fact that benzo(b)fluoranthene also exceeds the industrial soil RSL at 74SB174-04.*
- Please revise the text to reflect that benzo(k)fluoranthene is not above the residential and industrial soil RSLs in sample 74SB174-05. The current text is based on an incorrect*

residential screening value in the associated table (Table 8-2). Revise the text and table accordingly.

- c. Please revise the text to include the dibenzo(a,h)anthracene exceedance of the industrial soil RSL in sample 74SB174-05.*

Navy Response to PREQB Page-Specific Comment 45:

a. The referenced text will be revised to indicate that benzo(a)anthracene, benzo(a)pyrene and benzo(b)fluoranthene exceed both the residential and industrial soil SL in sample 74SM174-04.

b. Refer to the Navy Response to PREQB Page-Specific Comment 19.

c. The referenced text will be revised to indicate that dibenz(a,h)anthracene exceeds the industrial soil SL in sample 74SB174-05.

- 46. Page 8-3, Section 8.6, Paragraph 5: Revise the discussion on the dissolved lead exceedance to also note that the concentration was above the MCL.*

Navy Response to PREQB Page-Specific Comment 46: The discussion in the referenced section of the report will be revised to indicate that the dissolved lead detection from 74VP6Ca exceeds the MCL, the ecological screening value and background.

- 47. Page 8-5, Section 8.9, Paragraph 4: Please provide a provision for determining the vertical, as well as the horizontal extent of the TPH impact in the shallow subsurface. The initial sampling did not allow for a determination as to whether there were impacts at the 1 to 3-foot depth interval at this location, as the first subsurface soil sample was collected from 5 to 7-feet deep at the 74SB191 soil boring location.*

Navy Response to PREQB Page-Specific Comment 47: The proposed Phase II activities for location 74SB191 will be revised to include the shallow subsurface soil:

- Four surface (0 to 1 foot bgs) and shallow subsurface (1 to 3 feet bgs) soil sample locations are proposed around 74SB191 to further delineate the TPH impacts horizontally and to a depth of three feet. These surface and shallow subsurface soil samples will be analyzed for VOCs, LLPAHs, metals, and TPH GRO/DRO.

- 48. Figure 8-3: Please move the "RESAMPLE" designation to the appropriate locations in the vicinity of 74VP6Aa and 74VP6Ab to match what is stated in the text.*

Navy Response to PREQB Page-Specific Comment 48: The RESAMPLE identifier on Figure 8-3 will be moved to the vicinity of 74VP6Aa and 74VP6Ab.

- 49. Page 9-3, Section 9.5: Please revise the table on this page to correct the following error in regards to the fraction exceeding the screening value: Samples 74SB223-03, 74SB265-03D, 74SB265-04, and 74SB267-03: these should be DRO and not DRO/GRO.*

Navy Response to PREQB Page-Specific Comment 49: For the referenced table, a TPH screening criteria of 25 mg/kg was used. The detected concentrations of DRO and GRO in samples 74SB223-03, 74SB265-03D, 74SB265-04, and 74SB267-03 exceed the screening value. For example, for sample 74SB223-03 both TPH fractions exceed the screening criteria of 25 mg/kg with a DRO concentration of 2,500 mg/kg and a GRO concentration of 75 mg/kg. Consequently the fraction identified as exceeding screening values in the referenced table is DRO/GRO. No changes to the text are required.

50. *Page 9-5, Section 9.9, Paragraph 4:* Please provide a provision for determining the vertical as well as the horizontal extent of the TPH impact in the shallow subsurface. The initial sampling did not allow for a determination as to whether there were impacts at the 1 to 3-foot depth interval at this location, as the first subsurface soil sample was collected from 7 to 9-feet deep at the 74SB231 soil boring location.

Navy Response to PREQB Page-Specific Comment 50: The proposed Phase II activities for location 74SB231 will be revised to include the shallow subsurface soil:

- Six surface (0 to 1 foot bgs) and shallow subsurface (1 to 3 feet bgs) soil sample locations are proposed around 74SB231 to further delineate the TPH impacts horizontally and to a depth of three feet. These surface and shallow subsurface soil samples will be analyzed for VOCs, LLPAs, metals, TPH GRO and TPH DRO.

51. *Page 10-1, Airfield Area:* Based on Comment 20 above, please revise the text to remove the reference to the benzo(k)fluoranthene exceedance.

Navy Response to PREQB Page-Specific Comment 51: The reference to benzo(k)fluoranthene will be deleted from the discussion of subsurface soil exceedances in the Airfield Area of section 10.

Appendix A

1. *On Page 27 of the 5/4/08 notes from Darrin Hupe, there is a note that was added on 6/30/08 that it was verified that two wells were misidentified in the field logbook. In addition, the note states that lab will switch the identifications prior to sending the results. Please explain how this misidentification was noted 7-8 weeks after the samples were collected and why the laboratory results had not already been received at this point.*

Navy Response to Appendix A Comment 1: The misidentification of the two wells was noted during a review of the field data conducted in the office after completion of the field activities. Additionally, because of the large volume of samples collected for this investigation, the laboratory analysis was behind schedule in the analysis/reporting of these samples. No report revisions are proposed.

2. *None of the field notes related to groundwater sampling recorded the actual flow rates used during purging and sampling. In all cases, notes state “pumped ½ speed”, “pumped ½ or less speed”, “pump speed is ~ 2/3”, or “pump speed – full”. It is unclear what these notes signify and how they correlate with actual flow rates. Therefore, it is unclear if the samples were collected at a flow rate of 100-250 mL/minute, as required in the EPA Region II SOP. Please clarify.*

Navy Response to Appendix A Comment 2: As indicated by this comment, the field notes do not quantify the actual pumping flow rate. This information will be recorded for subsequent field events.

Appendix C

1. *The text discusses how the data validation guidelines were modified for blank contamination actions because the lab reported results down to the MDL instead of the reporting limit. The validation modification used causes positive results between the MDL and the reporting limit to be qualified as nondetect at the reported concentration. This is not consistent with the Region 2 validation guidelines which require that positive results between the MDL and reporting limit be qualified as nondetect at the reporting limit when affected by blank contamination. The methodology used in this report causes the blank-qualified nondetect results to have lower reporting limits which are not technically accurate. Please follow Region 2 guidelines for blank qualification. This comment affects VOC, PAH, TPH-GRO, and TPH-DRO, and metals sections in all data validation reports as well as associated data tables. Please revise accordingly.*

Navy Response to Appendix C Comment 1: This issue is currently awaiting resolution pending the outcome of the Response to Comment Letter for the Draft Phase I RFI for SWMU 60 (Former Landfill at the Marina) dated September 25, 2009. Once this issue is resolved, the final response will be applied to this document. The Navy position is that no revisions to the text or tables are proposed.

2. *SDG 36360-1:*
 - a. *Page 4 of the validation report states that samples were collected on 4/29/08 and received at the laboratory on 5/2/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*
 - b. *Page 7 of the validation report: Please explain why the results for barium were not rejected as the matrix spike recoveries were <30%.*

Navy Response to Appendix C Comment 2:

- a. This comment incorrectly assumes that the samples were collected using EnCore samplers. Soil samples for VOCs and GRO were collected using Terra Core samplers and were field preserved with sodium bisulfate. No report revisions are necessary.
- b. The laboratory QC limits were used to assess the MS recoveries since they were statistically developed. Also, Region II allows MS recoveries to go down to 10% before rejection for the soil matrix.

3. *SDG 36419-3:*
 - a. *Page 4 of the validation report states that samples were collected on 5/1/08 -5/2/08 and received at the laboratory on 5/5/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*
 - b. *Page 8 of the validation report: Please explain why the results for chromium were not rejected as the matrix spike recoveries were <30%.*

Navy Response to Appendix C Comment 3:

- a. Refer to the Navy Response to Appendix C comment 2.
 - b. The laboratory QC limits were used to assess the MS recoveries since they were statistically developed. Also, Region II allows MS recoveries to go down to 10% before rejection for the soil matrix.
4. *SDG 36419-4: Page 6 of the validation report states that select results in the reextraction of sample ER04 were rejected due to low internal standard recoveries. This page also states that the initial analysis of this sample had low surrogate recoveries. Please clarify if the low surrogate recoveries in the initial analysis would have resulted in rejected data. If not, it would be preferable to use the results of the initial analysis qualified as estimated due to the low surrogate recoveries.*

Navy Response to Appendix C Comment 4: The initial analysis of sample ER04 exhibited three surrogate recoveries with below 10% results that would have resulted in rejected data. The re-analysis exhibited compliant surrogate recoveries.

5. *SDG 36419-5: Page 3 of the validation report states that samples were collected on 5/2/08 and received at the laboratory on 5/5/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*

Navy Response to Appendix C Comment 5: See response to Appendix C Comment 2.

6. *SDG 36426-1: Page 4 of the validation report states that samples were collected on 5/2/08 - 5/3/08 and received at the laboratory on 5/6/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*

Navy Response to Appendix C Comment 6: See response to Appendix C Comment 2.

7. *SDG 36426-2: Page 3 of the validation report states that samples were collected on 5/3/08 and received at the laboratory on 5/6/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*

Navy Response to Appendix C Comment 7: See response to Appendix C Comment 2.

8. *SDG 36426-3: Page 3 of the validation report states that samples were collected on 5/3/08 and received at the laboratory on 5/6/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*

Navy Response to Appendix C Comment 8: See response to Appendix C Comment 2.

9. *SDG 36517-1: Page 4 of the validation report states that samples were collected on 5/5/08 - 5/6/08 and received at the laboratory on 5/8/08. The EnCore samples for VOC and GRO*

analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.

Navy Response to Appendix C Comment 9: See response to Appendix C Comment 2.

10. SDG 36806-2:

- a. *Page 3 of the validation report states that samples were collected on 5/13/08 and received at the laboratory on 5/16/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*
- b. *Page 6 of the validation report: Please clarify if the reporting limit or MDL was used in the determination of the cadmium exceedance in the serial dilution analysis. This evaluation should be performed with the reporting limit.*

Navy Response to Appendix C Comment 10:

a. See response to Appendix C Comment 2.

b. There were no exceedances for serial dilution in the metals in this SDG. This comment may be referring to the field duplicate assessment. In the field duplicate pair cadmium exhibited an absolute difference that was greater than 4X the analyte RL so the analyte was rejected in the field duplicate pair. The criteria for assessing the FD is when the original sample and/or the field duplicate sample are less than 5X RL an absolute difference is used rather than the RPD. The absolute difference in this case was $1.2 - 0.31 = 0.89$. This is $>4X$ RL ($0.1 * 4$) so the results were rejected.

11. SDG 36806-4: *Page 3 of the validation report states that samples were collected on 5/13/08 and received at the laboratory on 5/16/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*

Navy Response to Appendix C Comment 11: See response to Appendix C Comment 2.

12. SDG 36880-2: *Page 4 of the validation report states that samples were collected on 5/14/08 and received at the laboratory on 5/17/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*

Navy Response to Appendix C Comment 12: See response to Appendix C Comment 2.

13. SDG 36880-3: *Page 3 of the validation report states that samples were collected on 5/14/08 and received at the laboratory on 5/17/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.*

Navy Response to Appendix C Comment 13: See response to Appendix C Comment 2.

14. SDGs 36891-1: *Page 4 of the validation report states that samples were collected on 5/16/08 and received at the laboratory on 5/20/08. The EnCore samples for VOC and GRO analysis are*

required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.

Navy Response to Appendix C Comment 14: See response to Appendix C Comment 2.

15. SDG 36891-2: Page 4 of the validation report states that samples were collected on 5/16/08-5/17/08 and received at the laboratory on 5/20/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.

Navy Response to Appendix C Comment 15: See response to Appendix C Comment 2.

16. SDG 36891-3: Page 4 of the validation report states that samples were collected on 5/17/08 and received at the laboratory on 5/20/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.

Navy Response to Appendix C Comment 16: See response to Appendix C Comment 2.

17. SDGs 36978-1 and 36978-5: Page 4 of the validation report states that samples were collected on 5/19/08 and received at the laboratory on 5/22/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.

Navy Response to Appendix C Comment 17: See response to Appendix C Comment 2.

18. SDG 36978-2: Page 4 of the validation report states that samples were collected on 5/19/08 and received at the laboratory on 5/22/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.

Navy Response to Appendix C Comment 18: See response to Appendix C Comment 2.

19. SDG 37020-1: Page 4 of the validation report states that samples were collected on 5/20/08 and received at the laboratory on 5/23/08. The EnCore samples for VOC and GRO analysis are required to be preserved within 48 hours of collection. Therefore, these samples were received outside of the holding time. Please revise the report accordingly.

Navy Response to Appendix C Comment 19: See response to Appendix C Comment 2.

20. SDG 37226-4: Page 7 of the validation report: Please explain why the cobalt result in sample 74GW12VP56 was not rejected as the percent difference was greater than 50.

Navy Response to Appendix C Comment 20: The total and dissolved results for cobalt in sample 74GW12VP56 should have been rejected for %D >50%. Corrected report pages and Form I's will be included in the validation report in Appendix C. Appropriate corrections will also be made to the text, tables and figures.

Appendix D

General Comment: Section 4.1.1 states "...The regressions for these two compounds appear to be controlled by the co-location of the maximum PAH detection with the maximum DRO detection..." This is the type of behavior that would be expected if there is a linear relationship between the dependent and independent variables. However, a large independent variable value (in this case DRO concentrations) compared to all other independent variable values (indicative of a potential outlier) can make it appear as though there is a strong linear relationship when no such relationship exists, as is the case for phenanthrene (see figure D-17). Please re-examine the phenanthrene data removing the maximum DRO as an outlier to determine if there is evidence of a linear relationship in the remaining data. Unlike the phenanthrene results (figure D-14), there are intervening DRO concentration values between the low-end "cluster" and the maximum DRO concentration for fluorene that support a possible linear relationship. Please revise Section 4.1.1 to reflect the further data analysis for phenanthrene and the potential linear relationship for fluorine.

Navy Response to Appendix D Comment: As evidenced by the attached figure (Figure D-17a), a possible linear relationship is still evident following the removal of the maximum DRO concentration (7,400 mg/kg) and corresponding phenanthrene concentration (7,900 mg/kg) from the data set ($r^2 = 0.5$). Section 4.1.1 will be revised to reflect this additional analysis. Figure D-17a also will be incorporated into Appendix D.