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DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
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IN REPLY REFER TO:
5090
1822:JFH:srw

Certified Mail - Return Receipt Requested
U.S. Environmental Protection Agency
Attn: Ms. Linda Holden
Mail Code: 3HW690
Region III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

AUG 29 1997

Re: Response to Comments on the RCRA Facility Investigation Final Report-Phase I (December 1993), the RCRA Facility Investigation Draft Final Report-Phase II (February 1995), the Final Corrective Measures Study for Petroleum Contaminated Sites (October 1994) and the Excavation, Transportation and Disposal of Petroleum Contaminated Soils Report (April 26, 1995) for the Naval Air Station Oceana

Dear Ms. Holden:

Attached please find the Navy response to comments on the above subject documents. This response includes attachments containing the updated tables, figures and errata sheets as discussed in the April 29-30, 1997 meeting held at your office.

The Work Plan for remaining fieldwork at the SWMUs was submitted July 21, 1997. To date, we have not received EPA comments on that Work Plan. In accordance with Section XI.2 of the RCRA 3008(h) Consent Order at NAS Oceana, the Navy is giving notice of out intent to perform the additional fieldwork in October in accordance with the Work Plan. We would like to meet prior to mobilization to discuss EPA comments and obtain approval of the Work Plan submittal. Mr. Jim Harris, RPM, will call you to discus a convenient meeting time.

In the meantime, please call Mr. Harris at (757) 322-4776 if you have questions or need additional information with regards to this or any other submittal.

Sincerely,

N. M. Johnson

N. M. JOHNSON, P.E.
Head
Installation Restoration Section
North
Environmental Programs Branch
Environmental Division
By direction of the Commander

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Response to Comments on the RCRA Facility Investigation Final Report-Phase I (December 1993), the RCRA Facility Investigation Draft Final Report-Phase II (February 1995), the Final Corrective Measures Study for Petroleum Contaminated Sites (October 1994) and the Excavation, Transportation and Disposal of Petroleum Contaminated Soils Report (April 26, 1995) for the Naval Air Station Oceana.

Attachment 1 - Tables or figures related to specific comment responses
Attachment 2 - Errata sheets with text, tables, or figures for the RCRA Facility Investigation Final Report-Phase I or RCRA Facility Investigation Draft Final Report-Phase II
Attachment 3 - Errata sheets with text, tables, or figures for the Final Corrective Measures Study for Petroleum Contaminated Sites
Attachment 4 - Errata sheets with text, tables, or figures for the Excavation, Transportation and Disposal of Petroleum Contaminated Soils Report

Comment 1: Specific sample quantitation limits are a required element in data tables. The Department of Navy must comply with this requirement for future reports submitted unless otherwise requested specifically in the following comments.

In the meeting on April 29, 1997, the Navy agreed to indicate detection limits in all future reports. Linda confirmed that it was not necessary to alter the Phase I RFI tables. Detection limits are essential to assessing risk, especially in cases where the detection limit is greater than the screening level. Note that two large binders containing all analytical Form I data sheets from all analyses done during the RFI and CMS work have been forwarded to the EPA and the state. These allow for quick reference to detection limits for each past sample.

Comment 2: Revise the RFI-Phase I Report to include background information on the use of groundwater at the Facility in response to the general comment 5 of the September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy, from Erica S. Dameron, VADEQ. Further discussions regarding which standards are applicable, Virginia Surface Water Standards for the protection of aquatic life, MCL or Risk Based Concentrations (RBC) will be held during the CMS phase of the corrective action project.

In the meeting on April 29, 1997, the Navy agreed to photocopy pages out of the November 1995 Final CMS for SWMUs 1/2B2C appendix and put them in an addendum appendix to the December 1993 Phase I RFI report. This was done.

Comment 3: The RFI-Phase I Report should be revised to incorporate the Department of Navy's response to the specific comment 3a in the January 10, 1994 letter addressed to Erica Dameron, VADEQ, from N.M. Johnson, Department of Navy. Revise the report to incorporate the definitions for PD-680 and agitine.

An errata definitions sheet was added to the front of the Phase I RFI.

Comment 4: The RFI-Phase I Report should be revised to incorporate the following correction to the Department of Navy's response to the specific comment 3d in the January 10, 1994 letter addressed to Erica Dameron, VADEQ, from N.M. Johnson, Department of Navy. The text should read, RBC for Arsenic (cancer risk) is 0.045 ppb and the MCL for Arsenic is 50 ppb.

The Navy has added an errata sheet that indicates the limits on arsenic.

Comment 5: Throughout the RFI-Phase I Report, the Tables representing the results for the metals analysis performed on samples collected should be revised to incorporate the estimated values (qualified with a "j" symbol) instead of "<" symbol, if the specific data are available.

Response: The "<" symbol in the tables representing the results for the metals analysis has been used to indicate a metal that has not been detected at the designated concentration, as noted in the table footnotes. The concentration given represents the instrument detection level and is not an estimated concentration present in the sample. An equivalent to the < qualifier is a U which designates not detected at the designated detection limit (<0.26 = 0.26 U).

Concentrations detected in the sample in concentrations below the method detection limits (MDLs) but above the instrument detection limits (IDLs) are qualified by the laboratory as estimated. Estimated organic results are reported by the laboratory with a "J" qualifier, and inorganic (metals) results are qualified by the laboratory with a "B" flag. This becomes very confusing because the "B" qualifier is used in organic results to indicate possible blank contamination. In order to avoid confusing the metals laboratory "B" with an organic laboratory "B," the Phase I Report uses a superscript "b" to designate estimated concentrations detected between the MDL and the IDL (see footnote).

"J" qualifiers do not appear on the Phase I Report metals tables because the Phase I data were not validated, and in a metals analysis, a "J" flag is a data validation qualifier only. It is inappropriate to apply data validation qualifiers when the data have not been validated.

Comment 6: In the RFI-Phase I and Phase II Reports, references to Groundwater Monitoring List (40 CFR Part 264 Appendix IX or alternately Virginia Hazardous Waste Management Regulations (VHWMR) Appendix 10.6 (9 VAC 20-60-10 et seq., Appendix 10.6)) are made, but no mention in the texts appears of the Hazardous Constituent List (40 CFR Part 261 Appendix VIII or alternately VHWMR Appendix 3.6 (9 VAC 20-60-10 et seq., Appendix 3.6)) during the dissertations of the determination of the hazardous constituents of concern (HCOC). It is the present understanding that Appendix VIII is especially relevant when considering HCOCs in soil. Please explain the rationale for the determination of the HCOCs (selecting and eliminating) and specifically for not including a reference to Appendix VIII in the methodology for the determination of HCOCs in the various environmental media.

As we discussed in the meeting on April 29, 1997, Appendix VIII is obsolete and is not used in the environmental industry because it costs about $30,000 per sample and is technically infeasible. The Appendix IX series was formulated as a replacement. Appendix IX was analyzed for a subset of the samples during the RFI because the EPA RPM agreed that it would be acceptable to sample for a number of specific analyses in most cases (e.g., VOCs, SVOCs, Pesticides/PCBs, Metals) and Appendix IX at a few locations where contamination was the most likely. Implicit to this was the assumption that Appendix IX was not necessary at the other locations if nothing unique to Appendix IX was detected at the most contaminated location.

SWMU 1 West Woods Oil Disposal Pit

Preliminary Risk Management Decision: Residential

Comments on the RFI-Phase I Report

Comment 7: The concentration reported for furans (hexachlorinated-dibenzo furans) in soil in table 4-1-4 (Organic Compounds in Soils at Site I) is inconsistent with the concentration listed in table A-2 of the CMS Final Report for SWMUs 1, 2B and 2C. Please provide the furan/dioxin analysis to confirm which are the actual concentration of the contaminants detected.

At the meeting on April 29, 1997, the Navy agreed to resubmit Table A-2 and 4-1-4 with the corrected furan and dioxin concentrations, with a date in the footer. The Navy will also resubmit Table 4-1-6. Revised tables showing the corrected furan and dioxin concentrations and a date in the footer were prepared for this comment response and are attached. Betty Ann noted that the true concentration is above the industrial and residential RBCs for dioxins for soil.

As agreed to at the April 29, 1997 meeting, the Navy will conduct confirmatory sampling at this SWMU. Five soil samples will be collected from SWMU 1 and analyzed for dioxins and furans. Details are documented in the Phase III RFI work plan. The results of this sampling will be documented in a Phase III RFI report.

Comment 8: Provide the quantitation limits for the analytical results presented in Table 4-1-6, Organic Compounds In Groundwater At Site 1. For example, the quantitation limits are not provided for tetrachloro-dibenzo dioxin (TCDD).

A revised table showing the detection limits was prepared for this comment response.

Comment 9: Provide the dioxin analytical data or the sample specific quantitation limit for the Groundwater samples collected at 1-MW4 and 1-MW4LN in Table 4-1-6.

A revised table showing the dioxin analytical data and the sample specific quantitation limit for the groundwater samples collected at 1-MW4 and 1-MW4LN the was prepared for this comment response.

10: The RFI-Phase I Report should be revised to incorporate a response to comment 3 paragraph 4 of the VADEQ's September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy, from Erica Dameron, VADEQ. The arsenic and beryllium results should be specified in the narrative of the report on page 4-20 with a discussion stating that the residential RBCs were exceeded and the impact of these screening concentrations being exceeded.

Two inorganics, arsenic and beryllium, exceed EPA region III risk-based concentrations for the ingestion of residential soil. Arsenic as a carcinogen has a residential soil RBC of 0.43 mg/kg. Detections of arsenic range from 0.44 to 3.5 mg/kg. Although arsenic concentrations exceed residential RBC screening levels they do not exceed industrial RBC screening levels. Beryllium has a residential soil RBC of 0.15 mg/kg. Detections of beryllium range from non detect to 0.74. However, all detections of beryllium were between the instrument detection level and the contract required detection level. The mean concentration of beryllium in the eastern United States is 0.55 ppm.

This area is remote and wooded. Trespassers might traverse the area on a very infrequent basis. The risk for exposure under a residential scenario for "ingestion" of soil is minimal under current land use. The Navy feels that this SWMU should have an industrial exposure scenario.

Comment 11: EPA agrees with the recommendation to conduct further investigation of the soil and groundwater to characterize the extent of organic contamination and the need to begin the CMS phase of the corrective action project to evaluate remediation options for both media.

These recommended actions were done after the Phase I RFI report was finalized. These activities and the results are presented in the Final 1/2B/2C CMS (CH2M HILL, November 1995).

SWMU 2B Line Shack 130-131 Disposal Area

Preliminary Risk Management Decision: Industrial

Comments on the RFI-Phase I Report

Comment 12: The RFI-Phase I Report should be revised to incorporate the Department of Navy's response to the specific comment 4a in the January 10, 1994 letter addressed to Erica Dameron, VADEQ, from N.M. Johnson, Department of Navy. In particular, the report should provide the definition for turco in the text of the report on page 4-42.

This definition was added to an errata definition page to be inserted at the beginning of the Phase I RFI.

Comment 13: Describe the two sources of contamination and provide a discussion describing how they are believed to have created the two contaminant groundwater plumes identified in the RFI-Phase I Report.

As agreed to at the April 29-30, 1997 meeting, the Navy will prepare an errata sheet that states that the two sources have never been located in-situ, despite three rounds of soil sampling.

The Navy has prepared a figure and tables presenting soil data. The will be added to the Phase I RFI with an errata sheet. However, it should be understood that some of the sampling was done after the Final Phase I RFI report was completed. Included are soil sample data from the 1993 RFI, the results from two soil samples sent to an offsite lab as part of the CMS, and soil sample data from the 1988 Line Shack Study.

Comment 14: Quantitation limits were not provided for the PAH analysis. Please provide this information.

The only groundwater sampled for PAHs at Site 2B was a full 8270 semivolatile sample from well 2B-MW1. No semivolatiles were detected in this well at detection limits of 10 or 50 ppb. Revised tables of sediment (Table 4-2-6) and surface water (Table 4-2-5) data with detection limits are provided in response to this comment.

Comment 15: The data for the in-situ soil sampling is not provided in Appendix C of the RFI-Phase I report. Provide the analytical results for this in-situ soil sampling and a discussion on the findings of these sampling results.

The statement was that the OVA (e.g. vapor monitoring) results from screening of the soils in the split spoons were collected during drilling are listed in Appendix C. They are shown in Table C-3. Table 4-2-4B, which shows the in-situ soil sampling results for chlorinated volatiles, will be added to the Phase I report.

Comment 16: Specify the reason for the blank data entries in Table 4-2-5 Organic Analysis for Surface Water Samples.

The Navy has prepared a revised table. These were nondetects.

Comment 17: EPA agrees with the Department of Navy's recommendation that the remediation of sediments and groundwater is required. However, without having had the opportunity to review the analytical data for the in-situ soil sampling, at this time, EPA cannot provide recommendations for soil remediation, determine the source of the Polynuclear Aromatic Hydrocarbon (PAH) contamination in the sediments and/or whether the PAH contamination has migrated to the groundwater. After a review of the in-situ soil sampling, EPA will provide additional recommendations for either further investigation and/or remediation of the soil at this SWMU.

There are no in-situ soil samples collected from SWMU 2B that were analyzed for PAHs. However, there were two soil boring samples collected in 1988 as part of the Line Shack Study. Results are reported in the Line Shack Study report, July, 1989. A figure illustrating the locations of the samples and the data sheets that document non-detects for PAH compounds, are included as an attachment to this response to comment document.

SWMU 2C Line Shack 400 Disposal Area

Preliminary Risk Management Decision: Residential

Comments on the RFI-Phase I Report

Comment 18: The RFI-Phase I Report should be revised to incorporate a response to comment 5 paragraph 3 of the VADEQ's September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy, from Erica Dameron, VADEQ. Provide an explanation stating the reason for not collecting surface water samples of the potentially contaminated ditch referenced on page 4-70 of the report.

This ditch contains surface water only during extreme rainfall events; so surface water is not an important exposure pathway. The absence of surface water is the primary reason it was not sampled.

Comment 19: The RFI-Phase I Report should be revised to incorporate a response to comment 5 paragraph 4 of the VADEQ's September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy, from Erica Dameron, VADEQ. Provide a more detailed rationale for only analyzing

the soil samples collected from the vegetated ditched area referred to on page 4-70 for chlorinated volatiles.

As agreed to at the April 29-30, 1997 meeting, the Navy will conduct confirmatory sampling at this SWMU. Two sediment samples will be collected from locations previously sampled and analyzed for SVOCs and total organic carbon. The results of this sampling will be documented in a Phase III RFI report. The soil will be sampled and analyzed for semi-volatiles and total organic carbon during future sampling as part of this comment response.

Comment 20: The RFI-Phase I Report should be revised to incorporate a response to comment 5 paragraph 5 of the VADEQ's September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy from Erica Dameron, VADEQ. Provide a detailed discussion on the findings of the surface water investigation to support the recommendations referred to on page 4-88 of the report.

The surface water at Site 2C is stormwater runoff and is present for only a short period of time after a significant rainfall event. Phase 1 characterization of surface water was deemed sufficient because surface water is present only during rainfall events or occasionally in the ditch at the intersection of B Avenue and 4th St. This latter area is small and is 1,000 feet southwest of the main area of groundwater contamination.

Comment 21: Specify why PAH analysis was not performed on the samples collected at this SWMU, although the waste management practices were similar to SWMU 2B. PAH analysis was performed on and PAHs were detected in the samples collected at SWMU 2B.

PAHs were not considered a contaminant of concern at SWMU 2C or SWMU 2B. At SWMU 2B, PAHs were only detected in sediments in the ditch. These PAHs probably did not originate at SWMU 2B because there is no evidence of POL contamination in groundwater adjacent to the ditch. However, the proposed soil sampling includes PAHs.

Comment 22: Specify why soil samples were not collected at this SWMU although elevated levels of TCE contamination was detected in the groundwater sample(s) collected from monitoring well 2C-MW9 in the concrete and wooded areas of this SWMU. Therefore, EPA cannot determine whether migration from the soil to the groundwater is occurring. EPA will provide additional comments on the RFI/CMS investigation at this SWMU when providing toxicological comments on the CMS Final Report for SWMUs 1, 2B and 2C.

The Navy has collected soils three times at SWMU 2C—during the Phase I RFI, Phase II RFI, and during the CMS (Building 301 investigation). These data are all listed in the CMS and do not show significant contamination. These data would not support the hypothesis that chlorinated volatiles are leaching to groundwater from soils.

Comment 23: Since 1,1-DCE was detected in the Geoprobe sampling, but not in the monitoring well, it must still be included as a constituent of concern and analyzed for in subsequent sampling performed at this SWMU.

The plan is to sample only the ditch soils at SWMU 2C for SVOCs. 1,1-DCE was included in past sampling from this ditch. The Navy will consider 1,1-DCE as a constituent of concern as

appropriate; however, remedial action has already been proposed on the basis of other contaminants.

SWMU 2D Line Shack 125 Disposal Area

Preliminary Risk Management Decision: Industrial

Comments on the RFI-Phase I and RFI-Phase II Reports

Comment 24: Provide a description and the specific location of the soil contamination detected in the previous studies referenced in the Site Location and History Section of the RFI-Phase I Report. Provide a map and a narrative description showing where the oil saturated soil area was located in relation to the contamination being detected. Specify the clean up level for the approximate six feet of soil that was excavated and the methods used to determine that the cleanup level was not exceeded in the excavated area.

As in the past, Will Bullard of Oceana Base Civil Engineering attempted to determine more about the past sampling, but was unable to find out more because the work was performed at least 10 years ago and there are no records of it. He was able to confirm the possibility that contamination was discovered during an expansion of the line shack. Mr. Bullard spoke with MC Kennon who was at NAS Oceana when there was some soil excavation in the area of Line Shack 125. He stated that he remembered the Station excavating an area approximately 10 ft by 10 ft. He was unsure of the depth and remembered it was not shallow but maybe 3-4 ft deep. The excavation was on the southwest side of the building away from the flight line. He thought that the reason for this particular excavation was fuel oil spillage from a can. He thought that he remembered the can being only several gallons at most.

The proposed re-sampling of the wells should help determine if the groundwater has been contaminated by existing soil contamination.

Comment 25: Specify the reason for performing a limited semi-volatile analysis for the groundwater sample collected at 2D-MW1 and 2D-MW3 and a full semi-volatile analysis on samples collected at 2D-MW2 in the *Phase II* investigation.

As stated above, more complete analyses were performed at the most contaminated location as a screening approach. No additional constituents were detected at the most contaminated location.

Comment 26: In the RFI-Phase II Report (on page 2-6) in the last paragraph, it is indicated that the total (Benzene, Ethylbenzene, Toluene and Xylene (BETX) concentration in the mobile laboratory sample from 2D-GS2 at SWMU 2D was 1,960 ppb versus 6 ppb in the split sample sent to the off site laboratory. This large difference in the concentrations of the BETX analytical results could conceivably warrant a close scrutiny of the various factors that might cause such a large discrepancy in the BETX soil concentrations.

It may be due to the heterogeneity of soil contamination, that is, the possibility that two close soil samples can have substantially different contaminant concentrations.

Comment 27: EPA agrees with the Department of Navy's recommendation to install and sample

additional monitoring wells.

This additional work is described in the Phase II RFI report.

Comment 28: EPA recommends collecting an additional round of samples of the groundwater and analyzing them for TPH, VOA and semivolatiles to verify the previous results from the August 1990, January 1993 and March 1994 sampling investigations.

As agreed to at the April 29-30, 1997 meeting, the Navy will conduct confirmatory sampling at this SWMU. Five groundwater samples will be collected from site monitoring wells and analyzed for SVOCs and VOCs. The results of this sampling will be documented in a Phase III RFI report.

SWMU 2E Line Shack 109 Disposal Area

Preliminary Risk Management Decision: Industrial

Comments on the RFI-Phase I and RFI-Phase II Reports

Comment 29: Quantitation limits were not provided for the analytical data presented in Table 4-4-5 - Organic Compounds in Soils at Site 2E in the RFI-Phase I Report and Table 2-2-4 - Organic Compounds in Soils at Site 2E in the RFI-Phase II Report. The lack of quantitation limits precludes a final determination of contaminants of concern for this SWMU. These quantitation limits were, however, provided in the CMS Draft Final Report for SWMUs 2E, 15 and 24. Further comment for this SWMU will be addressed in the forthcoming toxicological comments for the CMS Draft Final Report for SWMUs 2E, 15 and 24 within two weeks of the Navy's receipt of this letter.

As agreed at the meeting on April 29-30, 1997, the Navy will not alter these tables to show the quantitation limits since this work was done in later reports.

SWMU 11 Fire-Training Area

Preliminary Risk Management Decision: Residential

Comments on the RFI-Phase I/CMS POL/Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Reports

Comment 30: The Department of Navy must either confirm the Beryllium soil analytical results and/or provide an explanation for the high levels of this constituent being detected at this SWMU in response to comment 8 paragraph 4 of the VADEQ's September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy from Erica Dameron, VADEQ. Revise the RFI-Phase I report accordingly.

We collected background beryllium samples as part of the background metals sampling performed in early 1994. These data are in Appendix F of the Phase II RFI report. The beryllium concentrations in the two background samples were 0.67 and 0.69 ppm versus a mean concentration in the eastern United States of 0.55 ppm. The February 1993 beryllium concentrations in soils at Site 11 were from 0.29 to 0.63 ppm. All are below both background samples suggesting that the background concentrations of beryllium in soil at Oceana are

considerably above risk-based concentrations or Proposed RCRA action levels. For this reason, risk analysis and "cleanup" considerations are not appropriate.

Comment 31: Table 4-6-2 of the RFI-Phase I Report show elevations for five monitoring wells, but only groundwater elevation data for four wells was used to determine the groundwater flow direction for this SWMU. It appears that only elevation data from four monitoring wells was used to verify the groundwater flow direction in the CMS POL Report. Specify the reason for not using the groundwater elevation data from the five monitoring wells to determine the groundwater flow direction.

The memo describing the results of the final well installation and sampling at Site 11 (dated June 21. 1995) shows water levels with six wells. The figure and data table from this memo are included as an errata sheet for the Phase I RFI in response to this comment.

Comment 32: The rationale for selecting the monitoring well and sampling locations is not provided in the RFI-Phase I Report, CMS POL Report, or the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report. For example, it is not apparent from a review of the analytical data, the narrative or the figures in either of these reports, if the rationale for selecting the monitoring well and sampling locations were determined from identifying areas of stressed vegetation, stained soil or in-situ readings.

The wells were positioned to be downgradient of the firefighting training rings. The soil samples were collected from the southeast side of the rings because there was no soil on the other side of the rings, only concrete. The number of soils samples near the southern ring is quite high. The distribution of soil contamination near the northern ring was confirmed during the excavation work.

Comment 33: The depth of the soil samples collected was not provided in Table 1-3 of the CMS POL Report. Please provide this information.

The depth of soil samples at SWMU 11, the fire training area, is provided on a revised Table 1-3.

Comment 34: A review of the October 26, 1994 letter addressed to Mr. David Toth, EPA, from N.M. Johnson, Department of Navy and the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report indicated that the Department of Navy has not adequately addressed comments 16, 17 and 18 of EPA's August 25, 1994 comments letter to date. Specifically, it appears that the Department of Navy failed to conduct: confirmatory sampling for PAHs and other applicable parameters as a last step after the Total Petroleum Hydrocarbon (TPH)-based excavation work was completed, collect samples of the side wall soil of the areas of excavated (at least, in areas underlying asphalt or concrete) and discuss and reach an agreement with EPA regarding the procedures for sampling during the excavation before the remediation work was conducted. EPA recommends scheduling a meeting with the Department of Navy to discuss options for establishing clean up levels for the soil at the POL SWMUs and performing confirmatory sampling.

No additional PAH sampling is required as per the decision reached between the EPA and the Navy at the April 29-30, 1997, meeting.

Comment 35: The review of the Excavation, Transportation and Disposal of Petroleum-Contaminated

Soils Report also indicated that: 1) the approach used to determine the area of soil to be excavated and sampled was not provided and 2) the selected clean up level of 100 ppm of TPH clean up level was not attained for the excavated soil (analytical data show that the soil samples collected from several excavated areas contained concentrations of TPH above 100 ppm). EPA recommends scheduling a meeting with the Department of Navy to discuss options for establishing clean up levels for the soil at the POL SWMUs and performing confirmatory sampling for constituents detected above screening levels. Revise the report to include this additional background field investigation information and sampling plan.

As agreed to at the April 29-30, 1997, meeting the Navy will submit a more detailed explanation of the locations and a more detailed rationale for soil sampling during the removal action. This clarification is added to the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report.

Comment 36: In a March 7, 1995 phone conversation between Ms. Elizabeth Quinn, Toxicologist, EPA and Mr. James Harris, Project Manager, Department of Navy, documented in a memorandum (Enclosure I), Mr. Harris stated that the Department of Navy intended to install an additional groundwater monitoring well immediately southwest of the fireman practice area (SWMU 11) and sample it for volatile organic contaminants, total petroleum hydrocarbons, and metals; including arsenic. Provide the date of the well installation, specify the location of this well, provide all the well elevation and analytical data collected from this well since the date of installation and any additional interpretations and/or conclusion developed by the Department of Navy based on this data. Specify whether the additional interpretations and/or conclusions confirm or alter previous interpretations and/or conclusions made by the Department of Navy regarding the groundwater flow direction and/or the extent of contamination. Further comments and/or recommendations will be forthcoming after EPA has had the opportunity to review this additional information.

The Navy actually installed two wells. They are 11-MW4 and 11-MW5. Well 11-MW4 is located approximately 250 feet west/ southwest (hydraulically downgradient) of the southern training pit and well 11-MW5 is located directly southwest (hydraulically downgradient) of the southern training pit. A figure that depicts the locations of the wells and a table that contains the measuring point and water table elevations are provided as a response to Comment 33. The locations were reviewed and approved by Joel Hennessy/EPA Region III, prior to installation. The groundwater flow direction is to the west-southwest, generally consistent with previously determined flow patterns.

The wells were sampled. The results of sampling are tabulated on tables that accompany the figures. In summary, the results yielded no notable detections of VOCs, SVOCs, or TPH. Therefore, the Navy recommends that SWMU 11 be removed from the RCRA Corrective Action Program at Oceana.

SWMU 15 Abandoned Tank Farm

Preliminary Risk Management Decision: Residential

Comments on the RFI-Phase I and RFI-Phase II

Comment 37: On page 4-136 of the RFI-Phase I Report, the Department of Navy should revise the report

to incorporate a detailed response for the specific comment 9b. in the January 10, 1994 letter addressed to Erica Dameron, VADEQ, from N.M. Johnson, Department of Navy (free product thickness in MW-3 at SWMU 15 was not measured during this 1992 investigation).

The Navy has prepared an errata sheet for the Phase I RFI Report to address this comment. The Navy was uncertain of the specific context of this comment with respect to text found on Page 4-136 of the RFI-Phase I Report. We prepared an errata sheet to insert the following text on Page 4-128, end of the 1st paragraph: Free product thickness was not measured in MW-3 at SWMU 15 in during the Phase I RFI field investigation. This comment could refer to an earlier draft of the report.

Comment 38: Many conclusions were made regarding the extent of soil contamination at this SWMU that cannot adequately be supported by the limited analytical data collected during the phase I and II RFI investigations. Revise applicable sections of the report to include further discussion and assumption drawn to develop the conclusions regarding the source(s), fate and transport via soil as a pathway and the extent of soil contamination at this SWMU in these reports.

As agreed at the meeting on April 29-30, 1997, the Navy has provided a tabulation of past soil sampling results at SWMU 15, including results from the March, 1996 sampling completed to identify the full extent of soil to be excavated for remediation. These data are incorporated as an attachment to these comment responses.

Comment 39: It is not clear from reviewing the Site Location and History and Past Investigations and RFI Site Actions Sections of the RFI-Phase I Report and the Site Conditions and Investigation Activities Sections of the RFI-Phase II Report or from viewing the figures in either report where three of the six tanks were located or whether all possible sources of the contamination at this SWMU have been identified and/or fully investigated. For example, has the aviation fuel pump house equipment been removed?

The Phase 1 RFI report shows the six tanks in Figures 4-7-1 and 4-7-2. They have a hatchured pattern. Three large round concrete tanks are labeled G-5, G-6, and G-9. The three smaller tanks are connected to the buried pipeline (labeled) and are located at the south end of the site. During the Phase 1 RFI the Navy collected 12 in-situ groundwater samples (GP1 to GP12). During the Phase II RFI the Navy collected an additional 17 in-situ groundwater samples (GP13 to GP29), collected 15 in-situ soil samples (GP13 to GP20), installed and sampled 11 monitoring wells (MW5 to MW15), installed and measured six piezometers (PZ1 to PZ6), and installed six test pits (TP1 to TP6). Coverage of the site is deemed adequate to determine the probable sources of hydrocarbon contamination as illustrated in RFI Phase II figures 2-3-2 through 2-3-9.

During the CMS the Navy collected 5 surface soils (SS1 to SS5), collected 3 subsurface soil samples (TT1 to TT3), collected 5 in-situ groundwater samples (GP30 to GP34), and installed and sampled 2 shallow monitoring wells (MW16 and MW17). These data were collected to fill a data gap at the south end of the site and assess treatability parameters. Coverage of the site is extensive as illustrated in RFI Phase II figures 2-3-2 through 2-3-9 and CMS figures A-15 to A-26. No areas that could represent data gaps that might lead to the identification of additional sources of hydrocarbon contamination have been identified.

As stated in the RFI, the aviation fuel pump house and all storage tanks were removed in the 1980s.

Comment 40: A review of both RFI reports show that PAH compounds were either not analyzed for in soils (Phase I Report) or were only analyzed in **one** subsurface soil (2-4 ft.) sample (15-GS14) but was not detected above the detection limit of <67,000 ppb (see Table 2-3-3 in Phase II Report). It may also possibly mean that PAHs are present at a concentration below 67,000 ppb in the subsurface soils. Therefore, EPA recommends scheduling a meeting to discuss the need for performing confirmatory sampling for PAHs and BTEX compounds in the surficial and subsurface soil and/or groundwater at this SWMU. Further comments and/or recommendations will be forthcoming as the CMS phase of this project proceeds and EPA has had the opportunity to review the final comprehensive bioremediation project proposal and project status reports for the soil bioremediation project currently being undertaken at this SWMU.

As agreed at the meeting on April 29-30, 1997, the Navy has provided a tabulation of past soil sampling results at SWMU 15, including results from the March, 1996 sampling completed to identify the full extent of soil to be excavated for remediation. These data are incorporated as an attachment to these comment responses. A figure accompanies the table. A long-term monitoring plan for groundwater sampling is being prepared for SWMU 15 that will include the analysis for BTEX. All remediated soil will be confirmatory sampled for PAHs.

Comment 41: At this juncture, it is worth noting that chlorinated volatile hydrocarbons were detected in the groundwater at SWMU 15, according to the second to last paragraph on page 2-26 of the RFI-Phase II Report. The Department of Navy has not provided any recommendations in this report that address the chlorinated organic compounds at this SWMU. Revise the report to incorporate a proposal for addressing the chlorinated hydrocarbon contamination detected at this SWMU by either conducting further investigation or remediation or the rationale for not addressing this contamination.

As part of the Phase II RFI for SWMU 15, isomers of 1,2-DCE were detected in in-situ groundwater in the northwestern part of site at sample locations GP8 (11 µg/L), GP27 (4.2 µg/L), and GP28 (2.4µg/L). As part of the CMS for SWMU 15, at in-situ groundwater sample location GP30 in the southern portion of site an isomer of 1,2-DCE was detected at 2.5 µg/L and vinyl chloride was detected in at 5.5 µg/L. The EPA Region III RBCs for isomers of 1,2-DCE are 61µg/L or 120 µg/L. Therefore the 1,2-DCE is not deemed to be a problem. The EPA Region III RBC for vinyl chloride is 0.019 µg/L. The MCL for vinyl chloride is 2.0 µg/L.

The vinyl chloride concentration at the site exceeds the MCL by less than an order of magnitude. Vinyl chloride was only detected at one location in-situ (GP30). Vinyl chloride has not been detected at any other in-situ or permanent monitoring points. Under the prevailing groundwater gradient, this location is at the up-gradient edge of the site and sources of hydrocarbon contamination have been identified proximal to this sampling location. A long-term monitoring plan for groundwater sampling is being prepared for SWMU 15 that will include the analysis for vinyl chloride. If vinyl chloride is detected in site monitoring wells at a similar concentration for two or more sampling rounds an additional site investigation for vinyl chloride might be necessary.

Comment 42: Based on the discussion on page 2-29 of the RFI-Phase II Report, for SWMU 15 it may be deduced that the groundwater flow direction varies significantly over time and that the sources of the releases are unknown, in some cases, with a high degree of certainty. Revise the RFI-Phase II Report to state that uncertainty exist regarding the groundwater flow direction and will be further evaluated during the CMS phase of the project and the development and review of the groundwater monitoring plan for SWMU 15. Also, future remediation options should take these factors into account. Further comments on the variable groundwater flow direction will be provided by EPA during the review of the groundwater monitoring plan for SWMU 15.

The Navy addressed the uncertainty in the groundwater flow in the CMS for SWMU 15. CMS results demonstrated a local groundwater flow reversal that was also noted during one round of water table monitoring during the Phase II RFI. Continued long-term monitoring of groundwater at this SWMU will provide additional delineation of variations in the groundwater flow direction.

Comment 43: Additional comments may be forthcoming within two weeks of the Navy's receipt of this letter which will address concerns related to the emergent wetland discussed in the Environmental Setting Section of the RFI-Phase I Report (page 4-128).

No comments have been received that address concerns related to the emergent wetland.

SWMU 16 Pesticide Storage Area

Preliminary Risk Management Decision: Residential

Comments on the RFI-Phase I

Comment 44: The findings of the RFI-Phase I investigation, presented in the Fate and Transport Section (page 4-149) of the RFI-Phase I report, indicates that the soil from a depth of 0 to 1.0 foot may be contaminated and may possibly erode; especially during periods of heavy precipitation there is a potential for soil to erode and flow into the ditch in this area. In addition, it is further stated that infiltration through the unsaturated zone to the water table could act as a transport mechanism for these contaminants. However, it is concluded, based on assumptions, that erosion may not be a significant transport mechanism because much of the ditch is covered with grass and the drainage feature is not strong. Therefore, the Department of Navy isn't recommending any future RFI or CMS activities at this SWMU.

However, based on the preliminary screening results from the RFI-Phase I investigation and data gaps in background and site specific information, EPA is unable to agree with the Navy's recommendation to not conduct additional RFI or CMS activities. Sufficient site specific information is not available to conclude that the contaminants will not migrate via the soil erosion and/or the vertical migration pathways identified in the RFI-Phase I investigation.

Therefore, EPA recommends conducting a limited record review and investigation to collect additional background and site specific data, such as, the type of visual contamination noted during the RFI investigation, the locations of the visual contamination in this area, sampling the soil and groundwater in the grossly contaminated areas of the golf course and pesticide storage area (Building), and sample the sediments in the area of the shallow swale that flows into the ditch (that is the potential receptor of the

erosion) in the direction of Eighth Street. The Department of Navy shall revise the report to include this additional background and site specific data and a sampling plan.

The Navy has submitted additional details on the site characteristics below. This is the only information available. Detection limits from previous sampling are attached. Provided these details are as stated in the April 29-30, 1997, meeting discussion, the EPA does not see the need for additional sampling as per the decision reached between the EPA and the Navy at the meeting.

As noted in the RFI, the alleged site of the pesticide disposal at the golf course support facility is a dirt area currently under the roof of an equipment storage structure. The structure is open on one side. Although the dirt area is protected from direct rainfall, runoff from some portion of the facility yard drains through a low point at the end of the support structure. A grassed drainage swale begins at the outside of the support structure opposite to the low point. The grassy drainage swale has a gentle slope, precluding serious erosion.

SWMU 18 Hazardous Waste Storage Area, Building 200

Preliminary Risk Management Decision: Industrial

Comments on the RFI-Phase I, CMS POL and Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Reports

Comment 45: Revise the Health and Environmental Assessment Section of the RFI-Phase I Report (page 4-152-154) to include a discussion stating that benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene exceed the industrial RBC as a response to comment 11 paragraph 3 of the VADEQ's September 10, 1993 letter addressed to Captain J.W. Craine, Jr., from Erica S. Dameron, VADEQ. In addition, this discussion should describe the potential impact to human health and the environment resulting from such exceedences of the industrial RBC levels.

PAHs were detected at SWMU 18 in soil during both the Phase 1 RFI and the CMS.

For the RFI:

Benzo(a)pyrene exceeded the industrial soil screening level in Sample 18-SS2. The detection was 4.8 mg/kg and the screening level is 0.78 mg/kg.

For the CMS:

Benzo(b)fluoranthene exceeded the industrial soil screening level in Sample 18-SS4-1. The detection was 13 mg/kg and the screening level is 7.8 mg/kg.

Benzo(a)pyrene exceeded the industrial soil screening level in Sample 18-SS4-1 and 18-SS6. The detections were 13 mg/kg and 2.2 mg/kg, respectively, and the screening level is 0.78 mg/kg.

Indeno(1,2,3-cd)pyrene exceeded the industrial soil screening level in Sample 18-SS4-1. The detection was 13 mg/kg and the screening level is 7.8 mg/kg.

Dibenz(a,h)anthracene exceeded the industrial soil screening level in Sample 18-SS4-1. The detection was 2.3 mg/kg and the screening level is 0.78 mg/kg.

The areas where these detections occurred have subsequently been excavated. Confirmatory sampling for is scheduled as part of the Phase III RFI investigation. Samples will be collected and analyzed for VOCs, PAHs, and PCBs. Sampling results will be documented in the Phase III RFI report.

Comment 46: Based on a review of the above referenced reports, the August 25, 1994 letter addressed to Mr. James F. Harris, Department of Navy, from David L. Toth, EPA and the October 26, 1994 letter addressed to David Toth, EPA, from N.M. Johnson, Department of Navy, it appears that the groundwater flow direction has not been determined for this SWMU to date. Consequently, as it is stated in the Comment 10b. of the August 25, 1994 letter, the extent of contamination cannot be determined for this SWMU with data from only **one** in-situ groundwater sample without determining the groundwater flow direction. The Department of Navy responded to this comment in it's October 26, 1994 letter by stating that a "well was installed on September 21, 1994 as part of the characterization work for SWMU 2E and would be analyzed for VOCs, PAHs, and TPH". Provide a figure identifying the location of this well installed in relations to SWMU 18. In addition, provide a narrative description of this location and the findings of the additional investigation and analytical data collected. For example, specify the groundwater flow direction and the extent of contamination. If analytical data is not available, collect an additional in-situ sample at this 2E well location as confirmation of the findings of the existing data.

The Navy has provided a figure that shows the groundwater flow direction at SWMU 2E in relations to SWMU 18 as agreed in the April 29-30, 1997, meeting. Analytical data for well 2E-MW9 is tabulated on an errata sheet. Vinyl chloride was detected in groundwater at well 2E-MW9 at a level of 13 ug/L in October, 1994 and 14 ug/L in March 1995. The EPA Region III RBC for vinyl chloride is 0.019 µg/L. This is a contaminant level which challenges analytical detection. The MCL for vinyl chloride is 2.0 µg/L.

Comment 47: Table 1-8 of the CMS POL Report shows that PCBs were detected in samples at concentrations above residential RBC at 91 and 110 ppb. Also, PAHs were detected in samples at concentrations above the industrial RBC. Furthermore, a review of the October 26, 1994 letter addressed to Mr. David Toth, EPA, from N.M. Johnson, Department of Navy, and the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report also indicated that the Department of Navy has not adequately addressed comments 16, 17 and 18 of EPA's August 25, 1994 comments letter to date. Specifically, it appears that the Department failed to conduct: confirmatory sampling for PAHs and other applicable parameters as a last step after the TPH-based excavation work was completed, collect samples of the side wall soil of the areas excavated (at least, in areas underlying asphalt or concrete), and discuss and reach an agreement with EPA regarding the procedures for sampling during the excavation before the remediation work was conducted. EPA recommends scheduling a meeting with the Department of Navy to discuss options for establishing clean up levels for the soil at the POL SWMUs and performing confirmatory sampling for constituents detected above health-based screening levels.

As agreed to at the April 29-30, 1997 meeting, the Navy will conduct confirmatory sampling at this SWMU. Six subsurface soil samples will be collected from a depth of 1.0 foot and analyzed for VOCs, PAHs, and PCBs. The results of this sampling will be documented in a Phase III RFI report. The Navy has provided a figure to the EPA that shows the locations of the samples collected during the excavation work as an attachment to these comments.

Comment 48: The review of the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report also indicated that: 1) the approach used to determine the area of soil to be excavated and sampled was not provided and 2) the selected clean up level of 100 ppm of TPH was not attained for the excavated soil (analytical data show that several of the soil samples collected from the excavated areas contained concentrations of TPH above 100 ppm). Therefore, as mentioned in the above comment, EPA recommends scheduling a meeting with the Department of Navy to discuss options for establishing clean up levels for the soil at the POL SWMUs and performing confirmatory sampling for constituents detected above screening levels. Revise the report to include this additional background field investigation information and submit a confirmatory sampling plan.

As agreed to at the April 29-30, 1997 meeting, the Navy will conduct confirmatory sampling at this SWMU. Six subsurface soil samples will be collected from a depth of 1.0 foot and analyzed for VOCs, PAHs, and PCBs. The results of this sampling will be documented in a Phase III RFI report.

Comment 49: In addition, the review of the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report identified that the limits of excavation are not clearly defined for the initial or additional extended areas of soil removed and locations where the soil samples were collected. Provide a figure and narrative description that clearly delineates the areas of excavated soil and identifies the location where the samples were collected.

The Navy has provided a figure to the EPA that shows the locations of the samples collected during the excavation work as an attachment to these comments.

SWMU 19 Waste Oil Storage Area, Building 541

Preliminary Risk Management Decision: Industrial

Comments on the RFI-Phase I, CMS POL and Excavation, Transportation and Disposal of Petroleum Contaminated Soils Reports

Comment 50: The RFI-Phase I Report should be revised to incorporate a response to comment 12 paragraph 2 of the VADEQ's September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy, from Erica Dameron, VADEQ, as also requested during the preparation of the January 30, 1997 project meeting held in the EPA Region III Office. Provide a map showing all recreational, residential (family and adult) wetland and SWMUs (approximate extent of ground water plumes and areas of soil excavations) on and surrounding the Facility.

Appendix I of the CMS for SWMUs 1/2B/2C provides the requested information in Figures 1, 2, 4, and 6.

Comment 51: Based on a review of the above referenced reports, the August 25, 1994 letter addressed to Mr. James F. Harris, Department of Navy, from David L. Toth, EPA and the October 26, 1994 letter addressed to David Toth, EPA, from N.M. Johnson, Department of Navy, it appears that the groundwater flow direction has not be determined for this SWMU to date. Consequently, as it is stated in Comment 11 of the August 24, 1994 letter, the extent of contamination cannot be determined for this SWMU with data from only one in-situ groundwater sample without determining the groundwater flow direction. The

Department of Navy stated in the October 26, 1994 letter that the location of this in-situ groundwater sample was beneath the most contaminated area. EPA reserves final comment on this issue pending the review of the findings of the confirmatory sample referenced in the next comment.

> At the April 29-30, 1997, meeting between the Navy and the EPA, the Navy agreed to obtain water level data from monitoring wells located at the CITGO service station located adjacent to SWMU 19. These data, collected for a UST corrective action plan for the NEX station which is near SWMUs 19 and 20, show that the groundwater flow direction is to the southeast (figure attached). The one in-situ groundwater sample was collected at the down-gradient edge of the contaminated area. The groundwater sample did not contain any constituents above the MCL. Therefore, the Navy recommends that no additional sampling should be necessary.

Comment 52: A review of the October 26, 1994 letter addressed to Mr. David Toth, EPA, from N.M. Johnson, Department of Navy and the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report indicated that the Department of Navy has not adequately addressed comments 16, 17 and 18 of EPA's August 25, 1994 comments letter to date. Specifically, it appears that the Department failed to conduct: confirmatory sampling for PAHs and other applicable parameters as a last step after the TPH-based excavation work was completed, collect samples of the side wall soil of the areas excavated (at least, in areas underlying asphalt or concrete), and discuss and reach an agreement with EPA regarding the procedures for sampling during the excavation before the remediation work was conducted. In addition, a review of the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report shows that the quantitation limits for PAHs are set high or samples were not analyzed for PAH constituents. Thus, it is difficult to determine whether PAH constituents are present at concentrations below this high detection limit (<1,400 ppb) (Table 1-13 CMS POL Report) but above industrial RBCs for carcinogenic constituents. EPA recommends scheduling a meeting with the Department of Navy to discuss options for establishing clean up levels for the soils at the POL SWMUs and performing confirmatory sampling for the constituents detected above health-based screening levels. Following this meeting, the Department of Navy shall submit a plan for performing confirmatory sampling.

> At the April 29-30, 1997, meeting between the Navy and the EPA, the Navy reviewed the TPH and PAH results from soil sampling. The Navy and the EPA agreed that no confirmatory soil sampling is necessary.

Comment 53: The review of the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report also indicated that the approach used to determine the area of soil to be excavated and sampled was not provided. Revise the report to include this additional background field investigation information.

> The approach for delineating limits for excavation was based on analytical data from the RFIs and the POL CMS report. The limits of excavation were based on the TPH level of 100 mg/kg. Other limiting factors included physical constraints such as buildings, concrete pads, asphalt or concrete roads or the groundwater table. The approach, once mobilized in the field, was to excavate to the limits specified in the CMS and on the drawings. The limits of excavation were confirmed in the field with Ensys test kits for TPH. A management decision was then made based on the sampling results. For example, if a confirmatory sample was close to the soil guidance level of 100 mg/kg, or if a sample was isolated (i.e., in between two confirmatory samples that were below 100 mg/kg), then a management decision on that area would be made. Other management decisions

were made based on physical constraints such as high hits that butt up to buildings or roadways that would have made excavation not feasible either physically or monetarily. This information is also included on an errata sheet for the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report.

SWMU 20 Waste Oil Storage Area, Building 543

Preliminary Risk Management Decision: Industrial

Comments on the RFI-Phase I, CMS POL and Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Reports

Comment 54: The RFI-Phase I Report referred to "other solvent disposed of and/or used at the garage at this SWMU". List these other solvents in the narrative of the report and revise the text of the report if this specific background information alters the conclusions of the investigation as stated in this version of the report.

When the facility first opened in the late 1970s it provided several covered engine cleaning tanks. The tanks were set on wheels so they were mobile. According to facility personnel the tanks were primarily used inside the building where airlines were available for providing agitation to accelerate the cleaning process. Occasionally, some tanks may have been rolled outside and used there. PD680 was the engine cleaner. The tanks were only used for one to two years. Waste PD680 was disposed of in an onsite underground storage tank. In addition, there was, and still is, a parts cleaner supplied and managed by Safety Kleen.

Various cleaners have been used to clean floors and walls inside the building. These include formula 4500 degreaser and PD680. Floor and wall wash-down does to a floor drain that discharges to an oil/water separator. Separated oil then discharges to the underground storage tank and separator water flows to the sanitary sewer.

Comment 55: Based on a review of the above referenced reports, the August 25, 1994 letter addressed to Mr. James F. Harris, Department of Navy, from David L. Toth, EPA and the October 26, 1994 letter addressed to David Toth, EPA, from N.M. Johnson, Department of Navy, it appears that the groundwater flow direction has not been determined for this SWMU to date. Consequently, as it is stated in the Comment 12 of the August 24, 1994 letter, the extent of contamination cannot be determined for this SWMU with data from only **one** in-situ groundwater sample without determining the groundwater flow direction. The Department of Navy stated in the October 26, 1994 letter that the location of this in-situ groundwater sample was beneath the most contaminated area. EPA reserves final comment on this issue pending the review of the findings of the confirmatory sample referenced in the next comment.

At the April 29-30, 1997, meeting between the Navy and the EPA, the Navy agreed to obtain water level data from monitoring wells located at the CITGO service station located adjacent to SWMU 19. These data, collected for a UST corrective action plan for the NEX station which is near SWMUs 19 and 20, show that the groundwater flow direction is to the southeast (figure attached for comment 51). Sample 20-SS9 was removed during the CMS, therefore, The Navy recommends that no additional soil sampling should be required.

Comment 56: A review of the October 26, 1994 letter addressed to Mr. David Toth, EPA, from N.M. Johnson, Department of Navy and the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report indicated that the Department of Navy has not adequately addressed comments 16, 17 and 18 of EPA's August 25, 1994 comments letter to date. Specifically, it appears that the Department failed to conduct confirmatory sampling for PAHs and other applicable parameters as a last step after the TPH-based excavation work was completed, collect samples of the side wall soil of the areas excavated (at least, in areas underlying asphalt or concrete), and discuss and reach an agreement with EPA regarding the procedures for sampling during the excavation before the remediation work was conducted. EPA recommends scheduling a meeting with the Department of Navy to discuss options for establishing clean up levels for the soil at the POL SWMUs and performing confirmatory sampling for the constituents detected above health-based screening levels. Following this meeting, the Department of Navy shall submit a plan for performing confirmatory sampling.

At the April 29-30, 1997, meeting between the Navy and the EPA, the Navy agreed to obtain water level data from monitoring wells located at the CITGO service station located adjacent to SWMU 19. These data, collected for a UST corrective action plan for the NEX station which is near SWMUs 19 and 20, show that the groundwater flow direction is to the southeast (figure attached for comment 51). Sample 20-SS9 was removed during the CMS, therefore, no additional soil sampling will be required.

Comment 57: The review of the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report also indicated that the approach used to determine the area of soil to be excavated and sampled was not provided. Revise the report to include this additional background field investigation information.

The approach for delineating limits for excavation was based on analytical data from the RFIs and the POL CMS report. The limits of excavation were based on the TPH level of 100 mg/kg. Other limiting factors included physical constraints such as buildings, concrete pads, asphalt or concrete roads or the groundwater table. The approach, once mobilized in the field, was to excavate to the limits specified in the CMS and on the drawings. The limits of excavation were confirmed in the field with Ensys test kits for TPH. A management decision was then made based on the sampling results. For example, if a confirmatory sample was close to the soil guidance level of 100 mg/kg, or if a sample was isolated (ie., in between two confirmatory samples that were below 100 mg/kg), then a management decision on that area would be made. Other management decisions were made based on physical constraints such as high hits that butt up to buildings or roadways that would have made excavation not feasible either physically or monetarily. This information is also included on an errata sheet for the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report.

SWMU 21 Transformer Storage Yard

Preliminary Risk Management Decision: Industrial

Comment on the RFI-Phase I Report

Comment 58: Specify the current use of this area.

Empty and clean dumpsters are now stored in a portion of the area where transformers were previously stored.

Comment 59: EPA agrees with the Department of Navy that based on the evaluation of the analytical Polychlorinated Biphenyls (PCB) data in this report that PCB contamination is not a concern. However, EPA is in agreement with VADEQ's recommendation that the TPH contamination requires further evaluation (See September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy from Erica S. Dameron, VADEQ and January 10, 1994 letter addressed to Ms. Erica Dameron, VADEQ from N. M. Johnson, Department of Navy). EPA is therefore not in agreement with the Department of Navy's recommendation to not conduct additional RFI or CMS activities because this recommendation is based on a 50% confirmation (TPH was detected at a concentration above Virginia guidelines in 1 of 2 samples analyzed for TPH). Therefore, EPA recommends further characterization of the soil and groundwater in this area to evaluate the extent of TPH contamination initially detected at a high concentration of 242,000 ppb at soil sample location 21-SS6. The Department of Navy shall revise the RFI-Phase I Report appropriately and submit a plan for performing confirmatory sampling for TPH and PAH compounds. Further RFI and/or CMS activities may be warranted if the results of this additional analysis reveals TPH and/or PAH contamination exceeding Virginia guidelines for TPH or RBC industrial standards PAH constituents.

As agreed to at the April 29-30, 1997 meeting, the Navy will conduct confirmatory sampling at this SWMU at two areas where the TPH contamination was the highest. Two soil samples will be collected from a depth of 0.5 to 1.0 feet and analyzed for SVOCs. A third surface soil sample, located at a drainage ditch will be analyzed for SVOCs and PCBs. The results of this sampling will be documented in a Phase III RFI report.

Comment 60: Explain the reason for not collecting any samples from the off-site drainage pathways described in the Site and History Section (Page 4-171) and the Ecology Section (Page 4-173) of the report.

As agreed to at the April 29-30, 1997 meeting, the Navy will conduct confirmatory sampling at this SWMU at two areas where the TPH contamination was the highest. Two soil samples will be collected from a depth of 0.5 to 1.0 feet and analyzed for SVOCs. A third surface soil sample, located at a drainage ditch will be analyzed for SVOCs and PCBs. The results of this sampling will be documented in a Phase III RFI report.

SWMU 22 Construction Debris Landfill

Preliminary Risk Management Decision: Industrial

Comments on the RFI-Phase I

Comment 61: The Health and Environmental Assessment Section of the RFI-Phase I Report (the last sentence of the first paragraph on this page 4-190) should be revised to provide a response to comment 15 paragraph 2 of the VADEQ's September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy from Erica Dameron, VADEQ. Provide further rationale for the increase in concentration of the contaminants detected downstream and any potential impact that may be caused.

As agreed to at the April 29-30, 1997 meeting, the Navy has prepared an explanation for the surface water data interpretation referenced above. If the EPA concurs they will close out the site.

The surface water in the drainage ditch is not tidally influenced.

Contaminants identified as exceeding human health criteria are arsenic, iron, and manganese. In surface water arsenic was detected at 1.1 ug/L in the downstream sample location. This detection is between the instrument detection level and the contract required detection level. The upstream level was less than the instrument detection limit of 0.68 ug/L. Iron was detected at 1250 ug/L downstream of the SWMU versus 1070 ug/L upstream. This is not a significant difference at these concentrations. Manganese was detected at 102 ug/L downstream of the SWMU versus 73.9 ug/L upstream. This also is not a significant difference at these concentrations.

This comparison of analytical detections at the sample location upstream hydraulically upgradient) and downstream (hydraulically downgradient) of the landfill indicate that the levels of arsenic, iron, and manganese detected upstream of SWMU 22 are similar to those detected downstream of SWMU 22. Therefore, SWMU 22 is not having an obvious deleterious effect on the surface water quality in the drainage ditch.

Common inorganics such as iron, aluminum, magnesium, and manganese were higher in the downstream sediment sample (22-SD1) than the upstream sample (22-SD2). Many trace metals were detected at levels between the contract required detection level and the instrument detection level. Many others were not detected at the instrument detection level.

Comment 62: The Health and Environmental Assessment Section of the RFI-Phase I Report (the last paragraph on this page 4-190) should be revised to clarify the Department of Navy's response to comment 15 paragraph 4 of the VADEQ's September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy from Erica Dameron, VADEQ. For instance, it is stated that no human health based standards or guidelines were exceeded. Later it is stated that the human health values were exceeded when applied to the protection of terrestrial organisms. Explain or correct this noted inconsistency.

The statement that no human health based standards or guidelines were exceeded is incorrect. An errata sheet has been prepared to effectively strike this statement from the report.

Comment 63: Specify the location of the "nearby land" that is treated with pesticides and considered the probable source of the DDT, DDE and DDD contamination detected at this SWMU.

The RFI Phase I report does not suggest that there is an agricultural or recreational field in the immediate area of SWMU 22. However, the RFI Phase I report does document that there is a nearby agricultural field at SWMU 25. Surface soil sampling for pesticides is proposed for this field. The results will be documented in the Phase III RFI report.

Comment 64: EPA is in agreement with the Department of Navy's recommendation to not conduct further RFI and/or CMS activities at this SWMU based on the review of the low concentration of pesticide and metal constituents detected in the samples collected at this SWMU and presented in this report.

SWMU 23 Bowser, Building 830

Preliminary Risk Management Decision: Industrial

Comment on the RFI-Phase I

Comment 65: Specify when the area was asphalted.

The area in the back of the building 830 has been asphalted for over 25 years. Photographs taken during the RFA show the bowser resting on asphalt

Comment 66: Revise the text of the report to include a detailed description explaining the surface water run off pattern (where surface water run off is likely to collect) for this SWMU. Has a sample been collected in the area where the surface water run off is likely to collect at this SWMU?

The Navy will insert an errata sheet to revise the text of the report to include a detailed description explaining the surface water run off pattern.

Surface water from the area drains to drop inlets in the pavement and then enters the station storm water sewers prior to discharge to a major drainage ditch. No samples have been collected in the drainage ditch.

Comment 67: It appears that the previous waste management practices described in the RFI-Phase I Report at this SWMU were similar to the waste management practices at SWMU 24 and therefore may have the same contamination. EPA is concerned that mobile soil contaminants may have migrated to the groundwater or that the soil contamination is not fully characterized at lower depths than the 0.5-1.0 foot depth that the three soils samples were collected at this SWMU. Therefore, EPA recommends conducting confirmatory in-situ sampling of the soil at lower depths and in-situ Geoprobe sampling of the groundwater in the locations of the soil samples and/or locations with visible signs of contamination. The Department of Navy shall submit a plan for performing this confirmatory sampling.

As agreed to at the April 29-30, 1997 meeting, the Navy has prepared an errata sheet that contains text to discriminate between and further describe the differences between Site 24 (a Navy facility) and SWMU 23 (a civilian facility).

SWMU 23 is a civilian-operated facility that conducts maintenance on light vehicles. They have generally generated less waste than has SWMU 24 and have used standard waste containment measures. For example, changing oil in an automobile involved the volume of oil contained in an automobile crank case and the oil was likely drained into a standard drum equipped with a collection neck and funnel apparatus. The civilian operation is likely to have operated using waste management practices that minimized exposure to the environment.

In comparison, SWMU 24 is a Navy-operated (CBs) facility that conducts maintenance on heavy equipment. They tear down and rebuild diesel equipment and have commonly utilized degreasers. They have generally generated more waste than has SWMU 23 in light of the massive equipment that is repaired. The Navy operation is likely to have operated with a higher degree of carelessness with respect to waste management practices that minimized exposure to the environment.

The Navy has provided the detection limits for previous PAH sampling.

If these two explanations are deemed satisfactory to the EPA, no additional sampling will be necessary.

SWMU 24 Bowser Building, Building 840

Preliminary Risk Management Decision: Industrial

Comments on the RFI-Phase I, RFI Phase II, CMS POL and Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Reports

Comment 68: Based on a review of the above referenced reports, the August 25, 1994 letter addressed to Mr. James F. Harris, Department of Navy from David L. Toth, EPA and the October 26, 1994 letter addressed to David Toth, EPA from N.M. Johnson, Department of Navy, it appears that the groundwater flow direction has not be determined for this SWMU to date. Consequently, as it is stated in Comment 11 of the August 24, 1994 letter, the extent of contamination cannot be determined for this SWMU with data from only **one** in-situ groundwater sample without determining the groundwater flow direction. The Department of Navy stated in the October 26, 1994 letter that the location of this in-situ groundwater sample was beneath the most contaminated area. EPA reserves final comment on this issue pending the review of the findings of the confirmatory sample referenced in the next comment.

As agreed to at the April 29-30, 1997 meeting the groundwater flow direction is well characterized because of later work during the CMS.

Comment 69: A review of the October 26, 1994 letter addressed to Mr. David Toth, EPA, from N.M. Johnson, Department of Navy and the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report indicated that the Department of Navy has not adequately addressed comments 16, 17 and 18 of EPA's August 25, 1994 comments letter to date. Specifically, it appears that the Department of Navy failed to conduct: confirmatory sampling for PAHs and other applicable parameters as a last step after the TPH-based excavation work was completed, collect samples of the side wall soil of the areas excavated (at least, in areas underlying asphalt or concrete), and discuss and reach an agreement with EPA regarding the procedures for sampling during the excavation before the remediation work was conducted. In addition, a review of the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report show that the quantitation limits for PAHs are set high or samples were not analyzed for PAH constituents. Thus, it is difficult to determine whether PAH constituents are present at concentrations below this high detection limit (ranging from <5,900 to <33,000 ppb) (Table 1-15 CMS POL Report) but above industrial RBCs for carcinogenic constituents. EPA recommends scheduling a meeting with the Department of Navy to discuss options for establishing clean up levels for the soil at the POL SWMUs and performing confirmatory sampling for the constituents detected above health-based screening levels. Following this meeting, the Department of Navy shall submit a plan for performing confirmatory sampling.

As agreed to at the April 29-30, 1997 meeting, the Navy will conduct confirmatory sampling at this SWMU. Ten soil samples will be collected and analyzed for VOCs and PAHs. The results of this sampling will be documented in a Phase III RFI report.

Comment 70: The review of the Excavation, Transportation and Disposal of Petroleum-Contaminated Soils Report also indicated that: 1) the approach used to determine the area of soil to be excavated and sampled was not provided and 2) the reason the excavation of soil to the selected clean up level of 100 ppm of TPH was not achieved (analytical data show that several of the soils samples collected from the excavated areas contained concentrations of TPH above 100 ppm). Therefore, confirmatory sampling must be performed at this SWMU to verify that established clean up levels have been achieved. Revise the report to include this additional background field investigation information and submit a confirmatory sampling plan as stated in the comment above.

As agreed to at the April 29-30, 1997 meeting, the Navy will conduct confirmatory sampling at this SWMU. Ten soil samples will be collected and analyzed for VOCs and PAHs. The results of this sampling will be documented in a Phase III RFI report.

SWMU 25 Inert Landfill

Preliminary Risk Management Decision: Residential/Industrial

Comments on the RFI-Phase I and RFI-Phase II Reports

Comment 71: Specify, in detail, whether the pond is used for recreational purposes, the boundary of the SWMU (especially the northern border) and the SWMU is accessible to personnel and non-personnel and if so, how is it accessible.

This information will be provided to the EPA as an errata sheet for the Phase II report.
A station license is required to fish on NAS Oceana. NAS Oceana ponds where fishing is allowed are discussed at the time of the license purchase. NAS Oceana does not allow fishing at the pond associated with SWMU 25. There are "No Trespassing" signs on the property. The areas are also patrolled periodically and any trespassers are removed. Trespassers have been caught fishing at both SWMUs. At SWMU 25 there is fencing across the access road off Potters Road. However, walkers can bypass the fence, or gain access by walking up the railroad tracks or through the woods. Additional fencing and signs are planned for SWMU 25 to further discourage trespassing.

Comment 72: The RFI-Phase I Report should be revised to incorporate the Department of Navy's response to the general comment 4 in the January 10, 1994 letter addressed to Erica Dameron, VADEQ from N.M. Johnson, Department of Navy. In particular, the report should state that White tail deer from various managed areas of the station are hunted and ingested. In addition, specify that fishing is not allowed near any of the RFI SWMUs, specifically not in the ponds at SWMUs 22 and 25. The report shall also specify how the public and personnel are notified of the prohibited recreational activities at the Facility and clarify whether the ponds are used for fishing or is fishing prohibited at the ponds. For example, are there signs posted, secured fencing restricting access and/or are the areas monitored by security personnel, etc. or that interest in fishing at the ponds has not been noted.

This information will be provided to the EPA as an errata sheet for the Phase I report.
White tail deer from various managed areas of the station are hunted and ingested.

A station license is required to fish on NAS Oceana. NAS Oceana ponds where fishing is allowed are discussed at the time of the license purchase. NAS Oceana does not allow fishing at the ponds

associated with SWMUs 22 or 25. There are "No Trespassing" signs on the property. The areas are also patrolled periodically and any trespassers are removed. Trespassers have been caught fishing at both SWMUs. There is fencing to restrict access to the pond at SWMU 22. At SWMU 25 there is fencing across the access road off Potters Road. However, walkers can bypass the fence, or gain access by walking up the railroad tracks or through the woods. Additional fencing and signs are planned for SWMU 25 to further discourage trespassing.

Comment 73: The concentrations for Dioxin/Furan listed in Table 4-16-2 in the RFI-Phase I Report and Table 2-5-1 in the RFI-Phase II are inconsistent. Please revise Table 4-16-2 to include quantitation limits.

This information has been provided to the EPA as an errata sheet for the Phase I report.

Comment 74: The rationale and assumptions given for recommending no further action at this SWMU is not sufficient. The Department of Navy must first: 1) verify that farming practices are the probable source of the pesticide concentrations detected in the soil samples collected at this SWMU by determining the mean background pesticide concentrations for this SWMU using methodologies as described in EPA 540/S-96/500 (December, 1995) or "Options for Addressing High Background Levels of Hazardous Substances at CERCLA Sites (June, 1992), 2) confirm that vertical migration of the landfill contaminants to groundwater is not occurring and 3) determine the possible extent of pesticide contamination exceeding screening concentrations, since the highest concentrations of pesticides may exist in the center of the inundated borrow pit (pond) which was not sampled. (Note: T-DDT concentrations of concern in the sediment may indicate the need for fish tissue samples.) Therefore, EPA recommends conducting confirmatory sampling of the groundwater and the pond sediment. At a minimum, the Department of Navy must perform in-situ Geoprobe sampling of the groundwater either down gradient or in the center of the landfill and collect one sample in the location of the in-situ sampling. This sample shall be analyzed for Appendix IX constituents. The Department of Navy shall submit a plan for performing this confirmatory sampling.

Confirmatory sampling will be conducted at this SWMU. Three sediment samples will be collected from the center of the borrow pit (pond) and analyzed for pesticides and total organic carbon and five surface soil samples will be collected from the field and analyzed for TCL pesticides. The five surface soil samples will be used to determine the mean background pesticide concentrations for this SWMU using statistical methods.

Comment 75: To evaluate potential ecological risks, the Department of the Navy shall use existing criteria and standards (such as EPA's Ambient Water Quality Criteria) and the Effects Range-Low (ERL) Concentrations provided in the National Oceanic and Atmospheric Administration (NOAA) Technical memorandum, "The Potential for Biological Effects of Sediment-Sorbed Contaminants Tested in the National Status and trends Program", and/or "Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario" (Enclosure J) It is not appropriate to use NOAA Effects Range-Median (ERM) values when screening data, ERL values should be used.

Sediment and surface water data for SWMU 25 were compared to EPA BTAG Effects Range-Low (ERL) Concentrations and EPA's Ambient Water Quality Criteria. Both organic and inorganic compounds exceeded BTAG ERLs for sediment. Only inorganics exceeded AWQC values and they were not detected at the instrument detection level.

In summary, the organic compounds in sediment 4,4' DDE and 4,4' DDT exceed BTAG ERL values. The inorganic compounds arsenic, cadmium chromium copper, iron, and zinc exceeded BTAG ERL values. However, arsenic was detected above the instrument detection level (IDL) but below the contract required detection level CRDL. The inorganic compounds in surface water cadmium, mercury, and silver exceeded AWQC values. However all were not detected at the site at the instrument detection limit.

SWMU 26 Fire-Fighting Training Area, Building 220

Preliminary Risk Management Decision: Industrial

Comments on the RFI-Phase I Report

Comment 76: Revise the RFI-Phase I Report to state that although the beryllium (Be) and arsenic (As) concentrations detected (See Table 4-17-2) exceed the residential RBC (Be) or industrial RBC (As) RBC standards, these concentrations are considered normal background concentrations in accordance with the mean background concentrations in the Eastern United States or Facility.

The Navy will prepare an errata sheet to state that although the beryllium (Be) and arsenic (As) concentrations detected (See Table 4-17-2) exceed the residential RBC (Be) or industrial RBC (As) RBC standards, these concentrations are considered normal background concentrations in accordance with the mean background concentrations in the Eastern United States or Facility.

Comment 77: Specify whether it has been determined if the long axis of the 55-gallon drum used for the fire fighting training ring was buried horizontally or vertically. Previously, EPA required the Department of Navy to collect an additional sample below 2.5 feet to confirm the extent of soil contamination. (See November 4, 1993 Meeting minutes: From: Steve Brown, CH2M Hill , Subject: Minutes for the Technical Review Committee meeting to discuss the Oceana RFI and RCRA process, October 21, 1993, page 4/last paragraph and October 21, 1993 letter addressed to Mr. James F. Harris, Department of Navy from Robert W. Stroud, EPA, comment 3).

Fire department personnel have confirmed that a partially buried tank was used in fire extinguisher training exercises in the past. The tank was approximately 8 feet in diameter and 6 feet tall. Four feet of the tank were buried in ground. There was a valved underdrain that allowed water removal from the tank to the adjacent ditch. Jet fuel and waste oil were used for the fires. The tank was usually ½ full of water with a 2-3 inch fuel mixture on top. The setup was used from the 1960s to the early 1980s.

Comment 78: EPA is in agreement with VADEQ's recommendation (See September 10, 1993 letter addressed to Captain J. W. Craine, Jr., Department of Navy, from Erica S. Dameron, VADEQ, comment 18) to evaluate the potential for contaminants to be brought to the surface during future maintenance or construction activities before concluding that no further action is required at this SWMU.

A soil sample was already collected from the site at a depth of 3 feet below ground surface. As agreed to at the April 29-30, 1997 meeting, the Navy has confirmed which way the drum was oriented (refer to comment 77 response). Therefore, the Navy agrees to collect three additional soil samples from a depth of 4-6 feet and analyze them for BTEX and PAHs. The results will be

documented in the Phase III RFI Report.