CLEAN

Contract No. N62474-88-D-5086

Contract Task Order 0030

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NAVAL AIR STATION MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

SITE 14 FUEL STORAGE AREA
DRAFT ACTION MEMORANDUM

NAVY'S RESPONSE TO COMMENTS FROM EPA AND DHS

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1.0 INTRODUCTION

PRC Environmental Management, Inc., (PRC) received Contract Task Order (CTO) 0030 from the Department of the Navy, Western Division, Naval Facilities Engineering Command (WESTDIV), under Contract No. N62474-88-D-5086. CTO 0030 calls for PRC to perform several tasks at Naval Air Station (NAS) Moffett Field, including designing and implementing source control measures at Site 14 (Tanks 19 and 20).

In June 1990, PRC wrote and submitted for regulatory review the Draft Action Memorandum for Site 14. On August 1, 1990, WESTDIV received comments from the U.S. Environmental Protection Agency (EPA). On August 8, 1990, WESTDIV received comments from the California Department of Health Services (DHS). This document responds to the agencies' comments and describes how the comments were incorporated into the Action Memorandum.

2.0 INCORPORATION OF COMMENTS FROM EPA

Incorporation of EPA's comments into the Site 14 Action Memorandum is described below. The comment numbers correspond to those provided to WESTDIV by EPA. EPA provided both general and specific comments; this distinction has been maintained below in the following responses.

GENERAL COMMENTS

General Comment 1

Heavy Metals: The report does not address the elevated levels of arsenic, chromium, and zinc in the soil at Site 14 (see Table 5-2 IT Quarterly Report by IT Corp, March 1989). Since no background soil levels have been established for NAS Moffett, it is unknown if these levels are background or due to anthropocentric sources.

Navy's Response

Baseline ranges for inorganic constituents were established in IT's Phase I Characterization Report (August 1990). Based on statistical analyses of inorganic soil data, the Characterization Report states that only arsenic, barium, and selenium were found at Site 14 at levels significantly above baselines. The "elevated levels" of chromium and zinc noted in EPA's review, therefore, will be considered within baseline levels.

Section 2.3.2, "Soil Contamination," was revised to state that (1) arsenic, barium, and selenium were found at levels significantly above baseline during the Phase I Characterization, and (2) there are no known anthropocentric sources for these inorganics at Site 14. In addition, Table 1 and Appendix C were revised to include these three metals. The removal action does not address remediation of these inorganics, since it is intended to contain and control migration of fuel contaminants. However, inorganic compounds that may be present in the extracted ground water will be addressed in terms of meeting disposal requirements.

General Comment 2

Regional Plume: The "regional MEW plume" and its relationship to Site 14 should be clearly described.

Navy's Response

Section 1.2.5, "Middlefield-Ellis-Whisman RI/FS," was added to describe the MEW RI/FS. This section summarizes analytical data from the MEW RI/FS and discusses its relationship to NAS Moffett Field contamination.

General Comment 3

Volatile Organic Compound (VOC) Contaminated Ground Water: The report should explain why the VOC contaminated ground water in the "A" wells and "B1" wells located within the vicinity of Site 14 aquifer are not being addressed by this removal action.

Navy's Response

The last paragraph of Section 2.3.3, "Ground-Water Contamination," which stated that VOC contamination would not be addressed in this removal action, was deleted. The objective of the removal action is to contain known contaminant sources at Site 14 and to prevent further migration of contaminants, as discussed in Sections 1.2.4, 2.4.2, and 3.2. The known contaminant at Site 14 is fuel and the source is the previously removed fuel tanks. There is no known source for chlorinated VOCs at Site 14.

It is anticipated that the ground-water treatment technology selected for Site 14 will be appropriate for treating organics other than benzene, toluene, ethylbenzene, and xylenes (BTEX) that have been detected in the ground water. Treated ground water will be monitored for organics and metals prior to discharge, as discussed in Section 2.4.2.

General Comment 4

No Need for Remedial Action: The report states that once the removal action is performed at Site 14, no further remedial measures will be necessary. Does this mean that soil contamination will be remediated? The report should clarify this point. At the very least, the site will have to be revisited in the risk assessment portion of the remedial investigation report through the Record of Decision (ROD).

Navy's Response

The statement "it is anticipated that no further remedial action will be needed at the site to remediate site-specific contamination" was deleted from Section 3.2, "Determination of Removal Scope." The removal action is designed to prevent further migration of the fuel contaminant plume and is not intended to remediate the site.

As noted previously, levels of arsenic, barium, and selenium in soils that are significantly above baseline are not addressed in this removal action (see Navy's response to general comment 1). This fact is now stated in Section 3.4, "Determination of Contaminants of Concern."

Site 14 will be included in the risk assessment for NAS Moffett Field, as discussed in the Phase I Characterization Report.

General Comment 5

Site Characterization: Throughout the report, reference is made that additional site characterization of Site 14 is required prior to the initiation of this removal action. It is unclear if this activity will be performed under this removal action or some other remedial response. The report should clarify this point.

Navy's Response

Site characterization activities are currently being conducted to support the design of the selected removal action. This field work includes performing soil-gas surveys, soil borings, well installations, and soil and ground-water sampling. The regulatory agencies will be kept apprised of the characterization activities and the results will be included in the basis of design. Site-specific data generated from this field work will be summarized in the 35 Percent Design and will be used to establish design parameters.

References in the report that additional site characterization is needed were deleted since field work is currently being conducted to further characterize Site 14. Specifically, Section 2.4.2, "Ground-Water Contamination;" Section 2.4.3, "Conclusion"; Section 6.2.1, "Description"; and Section 8.0, "Conclusions and Recommendations," were revised to delete references that additional site characterization is needed. These sections now state that additional field work is being conducted to further characterize Site 14.

General Comment 6

Engineering Evaluation/Cost Analysis (EE/CA) Guidance: If EPA's EE/CA guidance is strictly followed the initial screening criteria consists of the following:

Public Health and the Environment
Timeliness
Feasibility
Acceptability

Screening criteria for the final evaluation of removal alternatives consist of the following:

Technical Feasibility
Reasonable Cost
Institutional Considerations
Environmental Impacts

The document should be revised to follow guidance or an explanation should be added.

Navy's Response

The above-referenced selection criteria from EPA's EE/CA guidance apply to nontime-critical removal actions. This removal action has been defined as time-critical (see Section 1.0, "Introduction"). Since there is no guidance for time-critical removal action screening criteria, the screening criteria used in the Draft Action Memorandum were determined to be appropriate. A paragraph was added to Section 5.1 to emphasize (1) this is a time-critical removal action, (2) there are no established screening criteria for time-critical removal actions, and (3) the screening criteria used in the Draft Action Memorandum were determined to be appropriate.

General Comment 7	**New Aquifer Designation: Under the new aquifer designation, does this removal action at Site 14 intend to address both the "A1" and "A2" aquifers or just the "A1" aquifer. This item needs to be clarified.**
Navy's Response	Under IT's new aquifer designation, this removal action will generally address only the "A1" aquifer. The Action Memorandum, however, refers to Harding Lawson Associate's "A" and "B1" aquifer designations, as described in Section 2.2.4, "Hydrogeology." The objective of the source control is to prevent further migration of fuel contaminants, which are predominantly present in the upper portion of the "A" aquifer (A1 by IT designation).

SPECIFIC COMMENTS

Specific Comment 1	**Page 5, Top Paragraph, Last Sentence: This paragraph should briefly describe each phase of the ongoing RI/FS being performed by IT Corporation.**
Navy's Response	Section 1.2.3, "Remedial Investigation/Feasibility Study," was revised to incorporate a description of each phase of the ongoing RI/FS.
Specific Comment 2	**Page 5, Paragraph 3: This paragraph should state the purpose of the source control activities.**
Navy's Response	Section 1.2.4, "Source Control Activities," was revised to state that the purpose of the source control activities is to prevent further vertical and lateral migration of fuel contaminants from the site. Fuel components that may have migrated vertically into the lower aquifer ("A2" or "B1" aquifer designations) will not be addressed since fuel contamination is primarily confined to the "A" aquifer.
Specific Comment 3	**Figure 3: Boring B3 should be shown as a monitoring well. Boring GB-28 is not discussed in the text. Direction of ground-water flow should be indicated on Figure 3. In addition, MEW monitoring wells 72(A) and 76(A) should be located on Figure 3.**
Navy's Response	Figure 3 was revised to (1) show Boring B3 as a monitoring well; (2) indicate general ground-water flow; and (3) show the locations of MEW 72(A) and 76(A). In addition, Section 2.3.1, "Boreholes and Monitoring Wells," was revised to state that GB-28 was a geophysical boring used for correlation with lithologic logs from W14-1(B1) and W14-2(A).
Specific Comment 4	**Tables 1 and 2: Tables 1 and 2 are confusing. What do the "0"s mean, are they non detects or detections below instrument detection limits. What do the slashes mean? Tables 1 and 2 needs a legend explaining the symbols.** **In addition, detection limits for constituents of concern and analytical methods need to be reported. Finally, Tables 1 and 2 should report other compounds in the ground water and soil at Site 14 which have potentially elevated concentrations. Table 1 and 2 need to be revised.**

Navy's Response

Tables 1 and 2 and Appendices C and D were revised to include contaminants of concern other than total petroleum hydrocarbons (TPH) and BTEX. These data summary tables were also revised to include a legend to show that "ND" indicates not detected, "NA" indicates not analyzed, and "NP" indicates not applicable. Since analytical methods and detection limits varied for each investigation, detection limits were not reported in the tables; instead, the appropriate investigation reports were referenced.

Specific Comment 5

Page 13, Paragraph 4: The number of samples collected from the ERM-West borings as indicated in Appendix A do not correspond with the analyses listed in Appendix C. The report should be revised to clearly indicate which intervals were sampled and analyzed.

Navy's Response

Section 2.3.2, "Soil Contamination," was revised to indicate that not all intervals sampled were analyzed, and to indicate that it appears that intervals at and below where a hydrocarbon odor was noted were analyzed. The Action Memorandum also references ERM-West's report, which details the exact intervals analyzed.

Specific Comment 6

Page 14, Paragraph 3: The text states that samples were analyzed for BTEX, VOCs, and TPH. The tables in Appendix C do not show VOC analyses. Also, metals are shown in Appendix C but not discussed in the text. The text and tables should be revised to show all data collected.

Navy's Response

The Action Memorandum was revised to summarize and discuss data for the significant contaminants, which include BTEX, TPH, VOCs, and metals. Instead of including all the analytical data generated for Site 14, the Action Memorandum references the investigation reports where complete analytical data are presented.

Specific Comment 7

Page 14, Paragraph 5, Last Sentence: The text states that maximum concentrations of BTEX were found in the 15- to 25-foot interval. The text and tables should show how many samples were collected below 25 feet.

Navy's Response

Section 2.3.2, "Soil Contamination," was revised to state that eight samples were collected below 25 feet. Information regarding the number of samples taken at each depth was not presented in a table in the Draft Action Memorandum, and, therefore, was not included in the Action Memorandum; instead, analytical data summary tables are presented in the Action Memorandum. These tables specify the maximum depths at each location where the highest concentrations of contaminants were detected in soil.

Specific Comment 8

Page 16, Paragraph 4, Sentence 4: This sentence should be rephrased to say that "TPH contamination is primarily confined to the "A" aquifer." Table 2 shows that monitoring well W14-1(B1) contained TPH at 3,900 ppb and monitoring well W14-2(A) contained TPH at 3,800 ppb. Although these values may have been switched as reported in the table, the values suggest that TPH compounds may have migrated into the "B" aquifer.

Navy's Response

This section was revised to state that TPH and BTEX contamination is primarily confined to the "A" aquifer. Note that TPH was detected only once in W14-1(B1), during the 9/18/89 sampling round; conversely, TPH was not detected in the 9/18/89 sampling round at W14-2(A), although it had consistently been detected in this well during previous sampling rounds. Section 2.3.3, "Ground-Water Contamination," was revised to emphasize that IT analytical data strongly indicate the values for W14-1(B1) and W14-2(A) were switched during the 9/18/89 sampling round.

Specific Comment 9

Page 16, Paragraph 5, Sentence 4: Benzene concentrations found in W14-2(A) also exceed maximum contaminant levels (MCL). Tables showing MCLs and DHS quality criteria for the constituents of concern should be reported in Section 2.

Navy's Response

Section 2.3.3, "Ground-Water Contamination," was revised to state that benzene concentrations in ERM-1, ERM-2, and W14-2(A) exceeded the MCL for benzene. In addition, Section 3.5.1, where chemical-specific ARARs are listed, was referenced in this section.

Specific Comment 10

Page 16, Last Paragraph: The first sentence is confusing. VOCs (BTEX) are reported in the "A" aquifer as described in the paragraph preceding this one. This discrepancy should be corrected. A table showing the results of VOC analyses should be included in the appendices.

Navy's Response

TPH and BTEX were detected in the "A1" aquifer. The text throughout the Action Memorandum was revised to specify that chlorinated VOCs were not detected in the "A1" aquifer, with the exception of two hits of 1,2-dichloroethane (1,2-DCA) in W14-2(A) and one hit of trichloroethylene in W14-04(A).

Specific Comment 11

Page 18, Top Paragraph, Last Sentence: VOCs were detected in the "A" aquifer at concentrations above MCLs. The February 1990 Moffett Quarterly report shows 160 ppb of 1,2-DCA in monitoring well W14-02(A). The MCL for DCA is 5 ppb.

Navy's Response

See Navy's response to specific comment 10.

Specific Comment 12

Page 18, Paragraph 4, Sentence 5: The "other potential contaminant release sources" for Site 14 should be described in this paragraph.

Navy's Response

Section 2.4, "Potential or Actual Release of Contaminants," was revised to state that other potential contaminant release sources in the vicinity of Site 14 may include the MEW plume and an upgradient fuel storage tank (Tank 21).

Specific Comment 13

Table 3: The use of TOC is not clear. Does TOC mean Top of Curbing, Top of Casing, or both? This discrepancy should be corrected.

Navy's Response

Table 3 was revised to clarify that TOC indicates Top of Casing.

Specific Comment 14	**Pages 18 and 22, Section 2.4.1: The discussion of soil contamination is incomplete and the conclusions are unsupported by data. The text states that most TPH and BTEX concentrations were detected in the 15- to 25-foot interval and that vertical contamination may not extend deeper than 25 feet. Only one sample was collected below 25 feet and it contained 340 ppm of TPH. The depth of contamination has not been defined. The text also compares a sample collected at a depth of 17 feet in B8 with a sample collected at 18 feet in B1 and concludes that contamination levels are decreasing significantly with distance from the tanks. The document should contain cross sections showing the areas of subsurface soil contamination related to the tanks. The lateral extent has not been defined.**
Navy's Response	Eight samples were collected below 25 feet. See revised discussion in Section 2.3.2, "Soil Contamination." This site has not been characterized to the extent that cross sections showing the areas of subsurface soil contamination can be developed. Instead, the following sentence was added to this section: "See the Phase I Characterization Report for cross sections of NAS Moffett Field."
Specific Comment 15	**Page 22, Paragraph 4, Sentence 2: If shallow boring data is available, it should be reported, including the interval sampled, in Appendix D.**
Navy's Response	See Navy's response to specific comment 6.
Specific Comment 16	**Page 22, Bottom Paragraph: Is the "assumed flow rate 1.47 to 2.38 feet per day the "nonincluded flow rate (1.5-2.4 feet per day) shown in the above paragraph? The numbers on the assumed flow rate need to be rounded off.**
Navy's Response	The text was revised to state that the assumed flow rate is 1.5 to 2.4 feet per day.
Specific Comment 17	**Page 23, Top Paragraph: Will the additional investigations required to define the vertical and lateral extent of contamination at Site 14 be performed under this removal action. If this is the case, the report needs to describe the objective, rationale, and approach of the characterization effort. If such activities are not within the scope of this removal action, how will the Navy ensure that appropriate characterization will be performed prior to commencement of the removal activities. This item needs further clarification.**
Navy's Response	The objective of this removal action is not to determine the areal and vertical extent of soil contamination, but to implement source control. The characterization activities needed for design of the removal action will be conducted independently of finalizing the Action Memorandum. The regulatory agencies will be kept apprised of the characterization activities and the results will be included in the basis of design of the selected removal action. Also, see Navy's response to general comment 5.

Specific Comment 18	**Page 23, Paragraph 2, Sentence 2: Please show trendlines indicating that TPH contamination in well W14-1(B1) is not present.**
Navy's Response	TPH was detected only once in W14-1(B1); trendlines for TPH contamination in well W14-1(B1), therefore, are not necessary. Also, see Navy's response to specific comment 8.
Specific Comment 19	**Page 23, Section 2.4.3: The conclusions should be revised to indicate that depth and lateral extent of contamination has not been well defined. See also comment 14.**
Navy's Response	This section was revised to state that the vertical and lateral extent of contamination has not been quantitatively defined. Also see Navy's response to specific comment 14.
Specific Comment 20	**Page 23, Paragraph 5, Sentence 3: Although TPH contamination in the ground water at Site 14 appears to be primarily confined to the "A" aquifer, there is a potential for contamination in the "A" aquifer to migrate to the lower aquifers, which are potential drinking water sources. This report states that the "A" and "B1" aquifers are hydraulically connected. In addition, the data in Table 2 suggest migration may have already taken place since monitoring wells W14-01B(1) contains low levels of TPH. The potential to impact potential drinking water sources if no action is performed at Site 14 should be added to this paragraph.**
Navy's Response	The elevated TPH level detected in W14-1(B1) on 9/18/89 is most likely due to a switch in data values between wells (see Navy's response to specific comment 8). Section 2.5, "Potential or Actual Impacts on Surrounding Populations," was revised to state that ground-water contamination appears to be primarily confined to the "A" aquifer, although the potential for contamination of the "B1" aquifer exists due to the hydraulic connection between aquifers.
Specific Comment 21	**Page 23, Last Paragraph, Sentence 2: There are no MCLs for toluene, only an MCL goal of 2,000 ppb.**
Navy's Response	Section 2.6, "Site Conditions that Justify a Removal Action," was revised to state that concentrations of ethylbenzene and xylene in ground water from monitoring wells ERM-1, ERM-3, and W14-2(B1) are within the Federal MCLs for these constituents, and that the concentration of toluene in these wells was within the Federal MCL Goals. Table 4, which lists chemical-specific ARARs, was also referenced in this section.
Specific Comment 22	**Page 24, Paragraph 2, Last Sentence: The TPH contamination in the "B1" aquifer in monitoring well W141(B1) indicates that low levels of TPH compounds may have migrated into the "B1" aquifer. Sentence 2 should be rephrased to state that TPH contamination at Site 14 is primarily localized in the "A" aquifer. The data do not suggest that it is totally restricted to the "A" aquifer. Presence of TPH in W14-01(B1) reveals a removal action is appropriate.**

Navy's Response

The last sentence of Section 2.6, "Site Conditions that Justify a Removal Action," was revised to state that fuel contamination at Site 14 is primarily confined to the "A" aquifer. See also Navy's response to specific comment 18.

Specific Comment 23

Page 25, Last Paragraph, Sentences 3 and 4: The "regional ground-water contamination plume(s)" should be identified on a figure to show its relationship to Site 14.

Navy's Response

Graphical depictions of the regional ground-water contamination in the Site 14 area have not been developed and are not within the scope of this removal action. However, data from the MEW investigations are qualitatively discussed in Section 1.2.5.

Specific Comment 24

Page 25, Paragraph 1, Sentence 3: It appears that low levels of TPH have already migrated into the "B1" aquifer at monitoring well W14-01(B1), see Table 2.

Navy's Response

See Navy's response to specific comment 18.

Specific Comment 25

Page 25, Last Paragraph, Last Sentence: This statement implies that the removal action will sufficiently clean up Site 14 so that "no further remedial action will be needed ..." Therefore, the removal action objective is not only source control but also cleanup of site specific contamination (i.e. soil and ground water). This sentence should be clarified with the removal action objectives. This site will have to be addressed in the risk assessment portion of the RI/FS and the final disposition of the site will be addressed in a ROD.

Navy's Response

See Navy's response to general comment 4.

Specific Comment 26

Page 26, Paragraph 2: Although Site 14 is primarily contaminated with TPH and BTEX, there are chlorinated compounds in the "A" aquifer. In monitoring well 14-02(A), 1,2 Dichloroethane was detected at 110 ppb (March 1989 Quarterly Report, Moffett NAS) and at 160 ppb (February 1990 Quarterly Report, Moffett NAS). The MCL for this compound is 5 ppb. The report does not address how this contamination will be controlled or whether it is part of the regional plume. This item should be clarified.

Navy's Response

Section 3.4, "Determination of Contaminants of Concern," was revised to include inorganic and organic contaminants other than TPH and BTEX that were detected at levels significantly above baseline at Site 14.

Specific Comment 27

Table 4: Other VOC compounds detected in the ground water for Site 14 should be included in this table. Also, the MCL for benzene is 1 ppb not 5 ppb as reported in the table.

Navy's Response

The table was revised to include ARARs for all the contaminants of concern (see Navy's response to specific comment 26). The table was also revised to state that the MCL for benzene is 1 ppb.

Specific Comment 28	**Page 30, Bottom Paragraph: The source control goals at Site 14 should emphasize contaminated soils. Contaminated soils are the most likely source for ground water contamination at Site 14. The first sentence of this paragraph should read "The source control goals for the site include controlling and removing contaminants in the ground water and soil .....".**
Navy's Response	Section 4.0, "Identification of Response Actions and Technologies," was revised as suggested. In addition, the significance of soils in the source control goals was emphasized throughout the text where appropriate.
Specific Comment 29	**Page 32, Paragraph 5, Sentence 1: These are removal alternatives not remedial ones.**
Navy's Response	The phrase "remedial alternatives" was replaced with "removal alternatives" in Section 4.1.2.1, "No Action."
Specific Comment 30	**Page 33, Paragraphs 1 and 2: Containment technologies which include capping must, under this removal action for Site 14, meet ARARs. For a cap to be considered a containment technology it must meet permeability specifications which have been developed to protect ground water.** **Under Federal RCRA requirements, RCRA containment technologies such as caps are required to have a permeability less than or equal to the permeability of natural underlying soil. State of California permeability specifications for top liners is 1 x 10-7 cm/sec (Title 23, section 67281).** **Although these ARARs are not applicable to the situation at Site 14, they may be relevant and appropriate because they were developed to prevent the infiltration of surface runoff into underlying soils and ground water. The containment technology at Site 14 should meet the same criteria.** **In addition, this containment technology does not prevent vertical or lateral migration of contaminants due to fluctuations in the ground-water table. As the hydrographs (Figures 4 and 5) show, ground-water levels can fluctuate approximately 2 to 3 feet per year.**
Navy's Response	The term "cap" was changed to "cover" throughout the text when referring to the surface cover in place at Site 14; by doing so, the surface cover at Site 14 will not be confused with containment technologies such as RCRA caps. The discussion of the surface cover included in the text is intended to provide information demonstrating that direct contact to contaminated soils and uncontrolled infiltration or runoff through soils does not occur. Furthermore, the cover is already in place at Site 14 and is not considered an option for implementation. The purpose of the surface cover at Site 14 is not to prevent vertical or lateral migration of contaminants due to fluctuations in the ground-water table.

Specific Comment 31	**Page 49, Paragraph 3, Sentences 3, 4, and 5: It appears that soil vacuum extraction is being treated as an option and not as a specific removal alternative or part of an alternative. Soil vacuum extraction should be an alternative or incorporated into Alternatives 2 and 3. Contaminated soil is the most likely source of site specific ground-water contamination in the "A" aquifer. Treatment of soil in conjunction with ground-water treatment will control and reduce the toxicity, mobility, and volume of contamination at Site 14. Also see comment 30.**
Navy's Response	Vapor vacuum extraction (VVE) has been redefined as Alternative 4. VVE is intended to augment the containment and removal of the ground water alternatives and should not be considered as a separate removal alternative; however, VVE is discussed separately in the text since it is a distinct technology. To clarify the role of VVE in the alternatives evaluation and the removal action, the text and tables were corrected.
Specific Comment 32	**Page 49, Paragraph 5: According to EE/CA guidance, the final analysis of alternatives consists of the application of the following selection criteria:** **Technical Feasibility** **Reasonable Cost** **Institutional Considerations** **Environmental Impacts** **Under the report's selection criteria, technical feasibility and costs are addressed. What should be reported is an expanded description of institutional considerations and environmental impacts for each alternative. This is briefly described in the initial evaluation (Section 5). However, a more detailed description needs to be reported in Section 6.**
Navy's Response	See Navy's response to general comment 6.
Specific Comment 33	**Page 51, Paragraph 1, Last Sentence: Is additional site characterization being performed under this removal action?**
Navy's Response	See Navy's response to general comment 5.
Specific Comment 34	**Page 53, Paragraph 3: A figure of a completed extraction well should follow this page.**
Navy's Response	Placement, design, and completion of extraction wells will be discussed in the 35 and 100 percent remedial designs. A figure of a completed extraction well, therefore, is not appropriate for inclusion into this Action Memorandum.
Specific Comment 35	**Page 53, Paragraph 5: The on-site handling of discharge water should be more clearly defined. If upon analysis the discharge water is found to contain compounds at hazardous levels, handling of the liquid needs must be in accordance with ARARs (e.g. RCRA generation and storage requirements). Is there a sump near Site 14? If one is used to store discharge water, it needs to be designed such that it too meets ARARs.**

Navy's Response	The text was revised to state that the discharge water from pumping tests will be stored in holding tanks and treated with the selected technology (carbon adsorption or air stripping) prior to discharge. Treated effluent will be tested prior to discharge to the publicly-owned treatment works (POTW) to ensure that ARARs are met.
Specific Comment 36	**Page 53, Last Paragraph: Action specific ARARs, such as RCRA generator and transporter requirements, may need to be implemented if discharge water contains compounds at hazardous levels or with hazardous characteristics. Also, see comment 35.**
Navy's Response	The text was revised to state that ground water will be treated to meet chemical-specific ARARs prior to discharge. As such, action-specific requirements for generators and transporters of hazardous wastes are not anticipated to be ARARs.
Specific Comment 37	**Page 54, Top Paragraph: The "subsequent discharge system" or discharge options for Alternatives 2 and 3 need to be more clearly described.**
Navy's Response	The discharge system for extracted and treated ground water will be developed in the 35 and 100 percent designs. The discharge system will be designed based on data from the ongoing site characterization activities. Discharge options for Alternative 2 and 3 include discharge to a POTW, storm drain, stream, or ocean, which will all require National Pollutant Discharge Elimination System (NPDES) permits.
Specific Comment 38	**Page 56, Bottom Paragraph: Section 3.4 is the wrong reference for the MCL summary.**
Navy's Response	The text was revised to reference Table 4, which lists chemical-specific ARARs.
Specific Comment 39	**Page 59, Paragraph 2: There is no Section 3.4.3.**
Navy's Response	The text was revised to reference Section 3.5.3.
Specific Comment 40	**Page 61, Paragraph 2, Last Sentence: Reinjection into the aquifer can only take place as long as the treated liquid meets Federal and state ARARs. This sentence should be stated in this paragraph.**
Navy's Response	Although reinjection of the treated ground water is an option, discharge to a POTW is preferred. Section 6.4.1, "Description," was revised to state that Federal and state ARARs must be complied with prior to discharge or reinjection.
Specific Comment 41	**Page 63, Paragraph 3, Sentence 2: The wrong section is referenced.**
Navy's Response	The text was revised to reference Section 3.5.3.

Specific Comment 42	**Page 63, Section 6.5: In situ vapor extraction should not be treated as an option, but as an alternative or incorporated into alternatives 2 and 3. The rationale for this designation is that the source of ground-water contamination is the contaminated soil at Site 14. Controlling ground-water contamination, which alternatives 2 and 3 may do, does not address the existing source of contamination.** **There is no proof cited in the report that the asphalt covering at Site 14 meets ARARs for capping technology. Although it may contain surface soil, such containment does not control vertical or lateral migration of contaminants due to ground-water table fluctuations. See also comment 30.** **Furthermore, how will contaminated soil be addressed if as the report states no further remedial action at Site 14 will be required after removal activities are performed.**
Navy's Response	See Navy's response to specific comment 31 for a discussion of the in situ vapor extraction alternative. See Navy's response to specific comment 30 for a discussion of the surface cover at Site 14. See Navy's response to general comment 4 for a discussion of the remediation of contaminated soil at Site 14.
Specific Comment 43	**Page 65, Paragraph 3: See comment 31.**
Navy's Response	See Navy's response to specific comment 31.
Specific Comment 44	**Page 65, Section 6.6: See comment 30.**
Navy's Response	See Navy's response to specific comment 30.
Specific Comment 45	**Page 67, Paragraphs 1 and 2: See comment 30.**
Navy's Response	See Navy's response to specific comment 30.
Specific Comment 46	**Table 15, Bottom Half: See comment 31.**
Navy's Response	See Navy's response to specific comment 31.
Specific Comment 47	**Page 70, Paragraph 6, Sentence 3 and 4: See comment 30 and 31.**
Navy's Response	See Navy's response to specific comments 30 and 31.
Specific Comment 48	**Page 71, Paragraph 2, Sentence 1 and Paragraph 5, Sentence 2: See general comment 5.**
Navy's Response	See Navy's response to general comment 5.

3.0 INCORPORATION OF COMMENTS FROM DHS

Incorporation of DHS's comments into the Site 14 Action Memorandum is described below. The comment numbers correspond to those provided to WESTDIV by DHS.

COMMENTS

Comment 1	**Page 14, Paragraph 2, Last Sentence: VOCs were detected in soil borings (e.g. 8 ppb 1,1,1-TCA, W14-4(A), 3 feet, on 7/28/88). The text should be revised.**
Navy's Response	Section 2.3.2, "Soil Contamination," was revised to state that low levels of chlorinated VOCs, such as 8 ppb of 1,1,1-TCA in W14-4(A), were detected in soil samples from the IT boreholes.
Comment 2	**Figure 3: SB-14-2 is not located on this map.**
Navy's Response	Figure 3 was revised to show the location of SB14-2.
Comment 3	**Page 16, Section 2.3.3, Paragraph 5: Previous studies have shown that on 10/4/88 well W14-4(A) contained 10 ppb TCE and well W14-2(A) contained 160 ppb 1,2-DCA. Revise this paragraph to indicate that VOCs are present in the "A" aquifer.**
Navy's Response	TPH and BTEX were detected in the "A1" aquifer. The text throughout the Action Memorandum was revised to specify that chlorinated VOCs, with the exception of two hits of 1,2-dichloroethane (1,2-DCA) in W14-2(A) and one hit of trichloroethylene in W14-04(A), were not detected in the "A1" aquifer.
Comment 4	**Page 22, Section 2.4.2, Paragraph 2: 0.7 ppb benzene was detected in monitoring well ERM-2. Please revise the text.**
Navy's Response	Section 2.4.2 was revised to indicate that benzene was detected in monitoring well ERM-2.
Comment 5	**Page 25, Section 3.2, Paragraph 2, Sentence 3: Please explain in more detail the statement that the contamination at Site 14 appears to be "isolated" from the regional plume.**
Navy's Response	Section 3.2, "Determination of Removal Scope," was revised to state that the removal action is primarily concerned with remediating fuel contamination at Site 14, which is primarily confined to the "A" aquifer and underlying soils. Therefore, since the regional MEW chlorinated solvent plume is primarily confined to the "B1" aquifer at Site 14, it is anticipated that any long-term remedial action at NAS Moffett Field will not be impacted by the site-specific removal action.

Comment 6	**Page 33, Section 4.1.2.2, Paragraph 2, Last Sentence: Caps also need to be sloped sufficiently so that ponding does not occur.**
Navy's Response	The asphalt and concrete covering Site 14 is considered a surface cover rather than a RCRA cap. See Navy's response to specific comment 30 from EPA.
Comment 7	**Page 41, Section 5.1, Paragraph 2: Because VOCs were also detected in the "A" aquifer, those chemicals should also be used in the screening evaluation.**
Navy's Response	Section 3.4, "Determination of Contaminants of Concern," was revised to include inorganic and organic contaminants other than TPH and BTEX that were detected at levels significantly above baseline at Site 14. These additional compounds can be treated with the technologies selected during the screening process.
Comment 8	**Page 49, Section 6.0: Although the VOC contamination in the ground water may not be addressed in this Action Memorandum, they may be a constituent in the extracted ground water. Therefore, all removal action alternatives should be evaluated for those chemicals detected to ensure that they can be adequately treated.**
Navy's Response	See Navy's response to comment 7.
Comment 9	**Page 52, Section 6.2.3, Paragraph 2: A map showing the possible locations of the extraction wells should be included.**
Navy's Response	A map showing the possible locations of the extraction wells is not appropriate for inclusion into this Action Memorandum. Placement, design, and completion of extraction wells will be discussed in the 35 and 100 percent remedial designs.
Comment 10	**Page 53, Paragraph 3: Ideally, polyvinyl chloride (PVC) screens should not be used if free product is suspected in the ground water because of possible degradation of the PVC. Stainless steel screens are preferable.**
Navy's Response	Based on existing data, floating product is not expected; if it is present, stainless steel screens will be used. This will prevent the degradation of Schedule 40 polyvinyl chloride (PVC) and potential contamination of ground-water samples. In all other situations, the wells will be flush-threaded, Schedule 40 PVC risers and screens.
Comment 11	**Page 53, Paragraph 5: A contingency plan needs to be developed in the event that the discharge water cannot be disposed of at the local POTW.**
Navy's Response	POTW discharge, surface water discharge, and reinjection are all possible disposal options. Final determination of the discharge method cannot be made during this stage in the design. Treatability study data and treatment designs are needed before disposal options can be assessed. Discharge to the local POTW appears a likely method.

Comment 12	**Table 10: Was the cost to analyze and/or dispose of drill cuttings and purge water considered in the cost analysis?**
Navy's Response	The costs to analyze and dispose of drill cuttings and purge water were not considered in the analysis. These costs are minimal compared to other costs related to the removal action and will not significantly impact the cost analysis.
Comment 13	**Page 71, Paragraph 3: An explanation of what will occur after the 60 days of pumping should be described.**
Navy's Response	The 60-day time period is selected as a basis for comparing alternatives and conceptual designs. The period of performance for the removal action will be based on the results of the monitoring activities and the success of the removal action.