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MOFFETT FIELD  
SSIC NO. 5090.3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, Ca. 94105-3901

AUG 20 1992

Stephen Chao  
Project Manager  
Department of Navy  
Western Division  
Naval Facilities Engineering Command  
900 Commodore Way, Bldg. 101  
San Bruno, CA 94066-0720

Subj: Naval Air Station, Moffett Field Operable Unit 6 Draft  
Work Plan

Dear Mr. Chao:

The U.S EPA has reviewed the subject document. Enclosed please find the comments made by EPA's representative SAIC, the EPA Region IX Ecologist, the EPA Remedial Project Manager and the National Oceanic and Atmospheric Administration (NOAA). All comments should be responded to accordingly in the draft final Work Plan.

Since an ecological assessment should be conducted on a site wide basis, not just for the OU 6 wetland areas, which is the approach the Navy is taking, EPA would like to propose a meeting between the Navy and regulatory agencies to develop the appropriate goals for a sound ecological assessment.

If you have any questions, please feel free to contact me at (415)744-2386.

Sincerely

*for* *Roberta Blum*  
Lida Tan  
Remedial Project Manager

cc: Elizabeth Adams (RWQCB)  
Cyrus Shabahari (DTSC)  
Joe LeClaire (James M. Montgomery, Inc.)  
Jim Haas (NASMF)

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TECHNICAL REVIEW OF  
OPERABLE UNIT 6, DRAFT WORK PLAN  
NAVAL AIR STATION, MOFFETT FIELD  
MOUNTAIN VIEW, CALIFORNIA

JULY 31, 1992

Submitted to:

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 HAWTHORNE STREET  
SAN FRANCISCO, CALIFORNIA 94105

Submitted by:

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION  
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EPA CONTRACT NO. 68-W9-0008  
EPA WORK ASSIGNMENT NO. C09015  
SAIC/TSC PROJECT NO. 06-0794-03-0630

TECHNICAL REVIEW OF  
OPERABLE UNIT 6, DRAFT WORK PLAN  
NAVAL AIR STATION, MOFFETT FIELD  
MOUNTAIN VIEW, CALIFORNIA

GENERAL COMMENTS

1. This work plan should contain the following information:
  - An organizational chart showing key project staff and depicting the relationship between JMM and PRC.
  - A schedule showing expected time frames for field work and preparation of deliverables.
  - A list of expected deliverables (including data packages and draft and final documents).
2. The text should provide an explanation for why groundwater sampling is not being conducted. Although additional wells may not be necessary, resampling of existing wells is in order to evaluate whether concentrations of contaminants fluctuate over time. Also, water level measurements should be obtained, to track the behavior of the aquifer(s) over time.
3. The text should describe the frequency with which the storm water retention ponds contain water, and what the contingency for collecting sediment and soil sampling will be if the ponds are flooded.
4. The text should provide the depth to groundwater in this area.
5. A working distinction should be provided between sediment sample, surface soil sample and soil sample within the context of this investigation. These three terms are used throughout the text, and it is difficult to determine how they will apply to samples collected at depths between 0 and 1.5 feet below ground surface (bgs).
6. Section 4.3 on Environmental Assessment has all the major components required by EPA risk assessment guidance but reads as if it were a work plan for a human health risk assessment, instead of a work plan for an ecological risk assessment. For example, the identification of potential receptors is discussed rather than the evaluation of potentially affected populations, and conceptual models are discussed rather than biotic structure and dynamics.
7. A table should be included in Section 4.3.4, Risk Characterization, comparing concentrations of contaminants in groundwater and surface water at operable unit (OU) 6 versus water quality criteria.

## SPECIFIC COMMENTS

1. Page 2, Paragraph 2

Please clarify if studying the role of potential horizontal conduits in contaminant migration will be part of the investigation delineated by this work plan. The stated objective of the investigation outlined in this work plan does not include such a conduit study. For the purposes of this review, it is assumed that the horizontal conduit study will not be part of the investigation delineated by this work plan. Given the date of this Draft Work Plan (July 3, 1992), it seems unlikely that a horizontal conduit evaluation could be conducted during the third and fourth quarters of 1992, unless a work plan has already been submitted. If one has been submitted, it should be cited in this section. If the horizontal conduit investigation will be part of the investigation delineated by this work plan, then additional sampling, beyond what is proposed in this work plan, will be required.

2. Page 6, Paragraph 2

This section states that the salt marsh harvest mouse, California clapper rail, California brown pelican, and California least tern are species of special concern at NAS Moffett Field. The reader is then referred to Tables 1 and 2 for a list of plant and wildlife species found at NAS Moffett Field. These species are not found on these tables. Why are these considered species of special concern if the animal or signs of the animal have not been observed? Was their omission from these tables an oversight? If so, they should be included.

3. Page 7, Paragraph 2

The sampling grid spacing should be provided in this discussion, and the rationale/criteria for selecting sampling points on the grid defined. Specifically, the text should state the sampling grid size near the Lindberg Avenue outfall, distant from the outfall, and along the shoreline area adjacent to the salt evaporation ponds. It should also explain at what distance from the outfall the points become more widely spaced. In addition, the discussion of density of sampling points in the text does not agree with Figure 12. The text indicates that the density of sampling points around the Lindberg Avenue outfall and along the shoreline adjacent to the salt evaporation ponds is to be higher than the density of sampling locations distant from the outfall. However, the sampling points along the shoreline in Figure 12 appear to be spaced farther apart than the points a moderate distance from the outfall, and quite a bit further apart than the points adjacent to the outfall.

This paragraph should provide the rationale for collecting samples to only 1.5 feet bgs. According to Figure 7, samples were collected at depths of 2.5 feet bgs where significant concentrations of contaminants were detected. In order to properly characterize contamination within this operable unit, the vertical extent of contamination must be delineated. It is therefore, recommended that samples be collected from deeper than

1.5 feet bgs. The text should also explain why borings are to be advanced to 2 feet bgs if the deepest samples are to be collected at 1.5 feet bgs. A contingency for deeper sampling should be included, should sampling at the proposed depths reveal high levels of contamination.

4. Page 8, Paragraph 3

Identify the databases to be utilized in determining the ecological toxicity, environmental persistence and mobility, bioaccumulation potential, etc., for the contaminants of concern identified in the environmental assessment.

5. Page 8, Last paragraph

The specific definition of "contaminants of concern and their transformation products" should be provided. A reference on how the transformation products will be defined should be provided.

6. Page 9, Paragraph 4

This section should include an ecosystem survey and a discussion of identifying ecosystem surrogates for assessing impacts of the contaminants on the ecosystem population. Information on exposure end points such as population abundance, diversity, nutrient retention/loss, and reproductive potential should be provided. This will aid in identifying no observed effects levels (NOELs) and lowest observed effects levels (LOELs) which were discussed in Section 4.3.3. Further, there is no information on how the study will address the structure and dynamics of biotic communities that are potentially threatened at this site.

7. Page 10, Paragraph 1

This section should explain specifically how exposure point concentrations (EPCs) will be estimated based on field data or derived from modeling.

8. Page 10, Paragraph 2

The text should explain why adverse health effects associated with exposure to chemicals of potential concern are to be evaluated in an environmental (ecological) assessment. Please clarify the difference between chemicals of potential concern and contaminants of concern.

9. Page 11, Paragraph 2

The text should discuss how figures delineating the range and extent of contamination at OU 6 will be used to determine the distribution of potentially impacted environmental receptors.

10. Page 12, Paragraph 1

Provide a brief explanation of the data quality objective (DQO) approach and how it will be used to ensure that the data collected are adequate. In addition, indicate the timing within the investigation where each step occurs (i.e., Is this process only followed during scoping of an investigation? Are some steps imitated during scoping and some after the data are collected?) If steps or sequences of steps are repeated throughout the investigation, this also should be mentioned.

11. Page 12, Paragraph 4

Please elaborate on specific decision criteria that have been developed and will be developed as the investigation proceeds. Provide the timing and discuss the relationship between the criteria and the types of decisions the criteria will be applied to.

12. Page 13, Paragraph 1

The text indicates that an algorithm is to be developed during this step. The term "algorithm" suggests a mathematical relationship or statistical analysis. The text does not mention performing statistical analyses with the data (i.e., analysis of variance, method of polygons, etc.). Is the data (the maps depicting contaminant concentrations) the "algorithm" referred to in solving the problem of vertical and horizontal extent of contamination? If so, it is recommended that a different term, such as "method," be used. It should also be noted that the volume of data on shallow contamination at this operable unit, after this investigation, should be adequate for conducting statistical analyses of the data to determine areas of potentially high contamination.

13. Page 13, Paragraph 1 .

This paragraph should include a discussion of constraints on the uncertainty of the data to be collected during this investigation.

The second sentence requires clarification. It states that data delineating the vertical extent of contamination (to 2.0 feet bgs) will be presented. This sentence is contradictory to Section 4.2.2 which states that samples will be collected to 1.5 feet bgs. Please explain why maps of the OU 6 area will only show contamination to a depth of 2 feet bgs. Figure 7 presents contamination to a depth of 2.5 feet bgs.

14. Page 13, Paragraph 4

Define for the purposes of this document what constitutes Level III or Level IV analytical data.

15. Page 13, Last paragraph

This paragraph should state whether the field sampling plan (FSP) has been approved, and whether the approved FSP, including the standard operating procedures (SOPs), will be on site during the field investigation. This information provides specific details on how samples will be collected.

16. Page 14, Paragraph 1

Describe how the drummed wastes will be classified for disposal (i.e., sampling methods, analytical methods, classification criteria, etc.).

17. Page 14, First full paragraph

The text should state in this section or in Section 7.0 that the approved base-wide quality assurance project plan (QAPjP) will be on site at all times during sampling.

18. Page 14, Last paragraph

The third bullet states that equipment rinsates will be collected at a frequency of "one per day of groundwater sampling." There has been no mention of groundwater sampling in this document; however, contract laboratory program (CLP) quality assurance/quality control (QA/QC) protocols do require that one equipment rinsate be collected per day per media sampled.

19. Page 15, Paragraph 1

This paragraph should state whether the referenced health and safety plan (HSP) has been approved and that the HSP will be on site at all times during field activities.

20. Table 3

"CLP-RAS/CLP-SAS" are not method numbers for CLP analyses. The correct method numbers can be obtained from the *User's Guide to the Contract Laboratory Program* (EPA/540/P-91/002, January 1991). With the exception of the analysis for multimedia high concentration samples, EPA now uses OLM, OLC, OLV, ILM, ILC, or IHC, prefixes and the method revision numbers to refer to the various methods (i.e., ILC01.0 for Low Concentration Water for Inorganic Analytes). These method numbers must be specified in this table.

TECHNICAL REVIEW OF  
OPERABLE UNIT 6, DRAFT WORK PLAN  
NAVAL AIR STATION, MOFFETT FIELD  
MOUNTAIN VIEW, CALIFORNIA

ERRATA SHEET

1. Page 4, Paragraph 3

The second sentence states that BNAs were detected in four samples. However, Figure 7 shows six locations where BNAs were detected, and one location where SVOCs (non-specific) were detected.

2. Figure 7

The legend should include an explanation for the box format shown for each sampling location. The legend should indicate the units of measure because all boxes do not provide this information. The word pesticides is misspelled.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

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San Francisco, Ca. 94105-3901

**COMMENTS ON OPERABLE UNIT 6, NAVAL AIR STATION, MOFFETT FIELD  
SUPERFUND SITE**

Page 2, Section 2.0, Paragraph 2:

Give the rationale for not including groundwater sampling in this operable unit.

Page 2, Section 2.0, Paragraph 2, line 6:

"...to assess the presence or absence of...", delete the word "absence" since some of the contaminants have already been found during past investigations.

Page 7, Section 4.2.2, Paragraph 1:

Provide data and/or reference for making the statement that VOC contamination is minimal and does not occur at levels that are acutely toxic in the OU 6 area.

Page 7, Section 4.2.2, Paragraph 2:

If VOCs have been detected at above the Maximum Contaminant Level (MCL) in the OU 6 area, then all samples should be analyzed for VOCs.

Page 7, Section 4.2.2, Paragraph 2:

State the number and depth of the soil samples, sediment samples and surface water samples that are going to be collected. The work plan should include the locations of surface water sampling. The sampling methods should also be briefly mentioned.

Page 7, Section 4.2.2, Paragraph 2:

Past investigations indicate that the contamination level was found at about 2.5 feet below the ground surface (Figure 7). Soil sampling during this first phase should at least extend to the same depth, not just to 1.5 feet bgs.

Page 14, Section 8.0, Paragraph 1, Last sentence:

Air monitoring should be conducted during the soil and sediment sampling period in the field for health and safety reasons.



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE  
OFFICE OF OCEAN RESOURCES CONSERVATION AND ASSESSMENT  
HAZARDOUS MATERIALS RESPONSE AND ASSESSMENT DIVISION  
COASTAL RESOURCES COORDINATION BRANCH  
c/o U.S. Environmental Protection Agency (H-1-2)  
75 Hawthorne Street  
San Francisco, CA 94105-3901

August 20, 1992

Mr. Stephen Chao  
Department of the Navy  
Western Division  
Naval Facilities Engineering Command  
900 Commodore Way, Building 101  
San Bruno, CA 94066-2402

Dear Mr. Chao:

The U.S. Department of Commerce/National Oceanic and Atmospheric Administration (NOAA) appreciates the opportunity to review the *Draft Work Plan, Operable Unit 6 (OU 6), Naval Air Station, Moffett Field, Mountain View, California, July 3, 1992*. This document was prepared for the Department of the Navy, Naval Facilities Engineering Command, Western Division, San Bruno, California, by PRC Environmental Management, Inc., Denver, Colorado and James M. Montgomery, Inc., Walnut Creek, California.

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Contingency Plan (NCP), NOAA is a designated Federal Natural Resources Trustee. As a natural resource trustee, NOAA is responsible for evaluating potential injury to NOAA trust resources that may be the result of releases of hazardous materials from CERCLIS sites. This review is offered from the perspective of NOAA's resource trust interests.

## Background

The 2,000-hectare Naval Air Station (NAS) Moffett Field site is located at the southern end of San Francisco Bay near the cities of Mountain View and Sunnyvale, California. The work plan is the first phase remedial investigation of OU 6, which consists of wetlands and storm water retention ponds. Previous soil samples were restricted to surface soil and sediment samples from ditches and outfalls. Groundwater samples were collected as part of the Navy RI (IT Corp., 1991), the EPA regional plume study (URS, 1991), and the North Base Area (NBA) investigations (PRC and JMM, 1991 and 1992c).

Polychlorinated biphenyls (PCBs) are found throughout the OU 6 area, although the distribution is quite variable, with a concentration range covering three orders of magnitude. One sediment sample collected from the Lindberg Avenue ditch near the diversion box contained PCBs at a concentration of 83,000  $\mu\text{g}/\text{kg}$ . This outfall is the likely source of the PCB contamination. Volatile organic compound (VOC) contamination in the area appears to be minimal and associated with the outfall draining the Lindberg Avenue



ditch. Base/neutral/acid-extractable organic compounds (BNAs) and organochlorine (OC) pesticides have been identified at low concentrations in some of the samples. According to the Draft Work Plan, trace elements have not been adequately characterized in OU 6.

#### Comments:

#### General Work Plan

The proposed work plan for the NAS Moffett Field site includes collecting additional on-site soil, sediment, and surface water samples from the wetlands and storm water retention ponds. Sample locations were established along a grid pattern, with a greater density around the edge of the shoreline/fill area (secondary suspected source). Thirty-two sample locations have been identified. Samples will be analyzed for total petroleum hydrocarbons (TPH), PCBs, BNAs, pesticides, and trace elements. Surface water samples will be collected from the outfall, Jagel Slough, Devils Slough, and the Navy Channel and will be analyzed for the same suite of analytes.

#### Environmental Assessment

An environmental assessment will be conducted as part of the investigation of the wetlands and storm water retention ponds to provide the necessary baseline information (chemical, ecological, and toxicological) for assessing potential impacts to biota near the site. This assessment will be based on the *Risk Assessment Guidance for Superfund (RAGS) Volume II, Environmental Evaluation Manual* (EPA, 1989a) and *Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Manual* (EPA, 1989b). The Environmental Assessment will rely upon field measurements of chemical concentrations in environmental media, observed conditions in the field, and information available in scientific literature on the potential effects of site-related chemicals on biota. The proposed plan for conducting the environmental assessment includes four steps:

- Hazard identification
- Exposure assessment
- Toxicity assessment
- Risk characterization

The first phase of the field investigations will help define the spatial extent and magnitude of contamination. The second phase will evaluate the likelihood of exposure to contaminants of concern for any flora and fauna under current conditions or potential future conditions. The third step will evaluate the potential adverse effects that may be associated with exposure to the chemicals of potential concern at each site. The final step will integrate the results of the hazard identification, exposure assessment, and toxicity assessment into an overall assessment of risks or impacts.

The approach presented in the work plan for conducting an environmental assessment for the NAS Moffett Field site was consistent with the risk assessment approach recommended by the U.S. EPA (1989a). The information presented in the workplan was very general and did not fully address each of the phases of the ecological

assessment. The approach emphasized literature reviews, modeling efforts, and available data.

With regard to sampling, it may be beneficial to add sampling stations in the wetlands near the diversion box to determine whether PCBs are migrating from this location. Otherwise the placement and number of sampling locations appear to be adequate to characterize sediment in OU 6. In Section 4.3.1 (Hazard Identification) it is mentioned that bioassays conducted with indicator species may be necessary. The details of bioassays to be conducted and the types of species to be utilized should be discussed in the workplan.

The Exposure Assessment (Section 4.3.2) discusses using literature data, modeling efforts, and existing federal, state, and facility information. An exposure assessment should include the actual and potential exposure pathways with respect to resident organisms. Benthic surveys should be conducted to assist in identifying potentially impacted areas as well as organisms that could be used as indicator species for bioaccumulation studies. Since the effects of PCB contamination may not be apparent with standard laboratory toxicity tests, bioaccumulation studies with resident organisms may provide more meaningful information regarding the extent of site related contaminants.

The Toxicity Assessment (Section 4.3.3) is based on data available through the literature and electronic databases. These data bases are proposed to be used to establish appropriate assessment endpoints for all contaminants of concern. Both no observed effects levels (NOELs) and lowest observed effects levels (LOELs) will be used in the evaluation. The concentrations derived from this analysis will then be used to establish concentrations below which biological effects would not be expected to occur. The literature and electronic sources should only be used to corroborate the site-specific test results, not to evaluate site-specific conditions.

There are additional data available from NOAA with which to screen for biological effects. NOAA scientists have conducted several studies on adverse biological effects to aquatic resources associated with specific contaminants. The NOAA Technical Memorandum NOS/OMA 52 *The Potential For Biological Effects Of Sediment-Sorbed Contaminants Tested In The National Status And Trends Program*, August 1991, contains the screening criteria that NOAA recommends be used to assess the potential for injury to aquatic resources. NOAA suggests using the effects range-low (ER-L) values presented on page 138 in Table 70 as detection limits in analysis of sediments. This document has been provided to Mr. Jim Haas of Moffett. If additional copies are needed, please contact me.

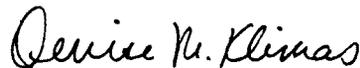
Also, on July 16, 1992, I sent the March 1992 NOAA Technical Memorandum NOS ORCA 64, *An Evaluation Of The Extent And Magnitude Of Biological Effects Associated With Chemical Contaminants In San Francisco Bay, California*. to Stephen Chao. This document contains specific information on biological effects found in the Bay around Moffett Field and will provide information useful for the ecological assessment at OU 6.

On page 11 of the workplan, it is proposed that a summary of appropriate data will be presented. This summary will include data pertaining to environmental contaminant

concentrations, body burdens, toxicity test results, literature values of toxicity, field surveys of receptor populations, and measures of community structure and ecosystem function. Except for the information from the literature, no information has been provided regarding the proposed approach for acquiring data for each of these efforts. It is recommended that the work plan include proposed methods for determining body burdens, conducting toxicity tests, performing field surveys, and evaluating community structure and ecosystem function.

If you have any questions about these comments or require further explanation or elaboration, I may be reached at (415) 744-3126.

Sincerely,



Denise M. Klimas  
Coastal Resources Coordinator

cc: Roberta Blank, EPA RPM  
Lida Tan, EPA RPM  
Cyrus Shabahari, DTSC  
Jim Haas, NASMF

### References

IT Corp. 1991. Phase I Characterization Report, Naval Air Station, Moffett Field, Vols. 1-5. April 1991.

PRC Environmental Management, Inc. 1991 Naval Air Station, Moffett Field, Mountain View, California. North Base Area Field Investigation Report. San Francisco, California. July 1991.

URS Consultants, Inc. 1991. Middlefield-Ellis-Whisman-Northern Plume Boundary Groundwater Sampling Report, Sacramento, California. February 1991.