

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

Phone: Area Code 415
464-1255FRANCISCO BAY REGION
1111 JACKSON STREET, ROOM 6040
OAKLAND 94607

May 23, 1986

File No. 2189.8009 (TJB)

Commanding Officer
Western Division
Naval Facilities Engineering Command
P.O. Box 727
San Bruno, CA 94066

SUBJECT: PROPOSED STEP II CONFIRMATION STUDY WORK PLAN FOR MOFFETT FIELD
NAVAL AIR STATION, SANTA CLARA COUNTY

Dear Commander:

This letter is written regarding the proposed Work Plan for Step II Confirmation Study for Moffett Field Naval Air Station.

Enclosed are comments regarding the subject work plan, which includes comments received from the Environmental Protection Agency. The work plan is approved by Regional Board staff provided the enclosed comments are incorporated into the work plan. It will not be necessary to re-submit the work plan if the enclosed comments are acceptable to the Navy. I request written confirmation of the Navy's intent to implement the work plan, including the recommended modifications, by June 13, 1986.

As you may know, recent investigations south of Moffett Field have indicated that the deep aquifers are contaminated due to private wells acting as conduits. Thus, we request that the proposed investigation of public and private wells be implemented as soon as possible and proceed ahead of the other tasks contained in the Step II work plan.

I understand that the Navy has retained a separate consultant to investigate the numerous underground tanks located on Moffett Field and that a proposal has been developed to investigate, abandon, and/or permit these tanks. It is important that the Navy submit the underground tank investigation proposal to the various regulatory agencies as soon as possible. This proposal should also be submitted to the Middlefield-Ellis-Whisman companies (Fairchild, Intel, and Raytheon) since they are currently conducting a separate investigation on Moffett Field.

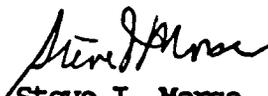
I also understand that the Navy is currently negotiating a contract with their consultant to conduct the investigation contained in the work plan. Once the Navy has reached an agreement with their consultant to conduct the investigation it will be necessary to arrange a meeting with Regional Board staff to develop a schedule for submittal of the various reports.

58
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May 23, 1986

We appreciate your cooperation on this matter. If you have any questions or comments regarding this letter, please contact Tom Berkins of my staff at (415) 464-1249.

Sincerely,


Steve I. Morse, Chief
South Bay Division

Enclosure

cc: Craig Von Barga, Camp Dresser & McKee
Alex Dong, Western Div., NAVFACENGCOM
Michael Evans, Kennedy/Jenks/Chilton
Thomas Frutchey, City of Mountain View
Howard Hatayama, DOHS/TSCD
✓ Ensign Hawkins, Moffett Field
Tom Iwamura, SCVWD
Lewis Mitani, EPA Region 9
Charles Nichol森, SOCHD
Al Rench, Western Div., NAVFACENGCOM
Commander Sherron, Western Div., NAVFACENGCOM
Gil Torres, SWRCB
Julio Valera, Earth Science Assoc.

REVIEW OF
MOFFETT FIELD NAVAL AIR STATION
WORK PLAN FOR STEP II CONFIRMATION STUDY

The following comments are in response to the Work Plan for Step II Confirmation Study for Moffett Field Naval Air Station prepared by Earth Science Associates. These comments should be incorporated into the subject work plan and as such it will not be necessary to resubmit the work plan provided this is acknowledged by the Navy. It is understood that this work plan will be used by the Navy's consultant to negotiate a contract to conduct the investigation outlined in the work plan. The following comments include comments received from EPA.

GENERAL COMMENTS

1. The work plan only briefly acknowledges the fact that two separate subsurface investigations are on-going at Moffett Field. The Navy has retained a separate consultant to investigate the numerous underground tanks (mostly fuel) located on Moffett. A separate investigation being conducted for Fairchild, Intel, and Raytheon is also on-going on Moffett Field to define the vertical and lateral extent of contamination emanating from sites south of the Bayshore Freeway. It is important that the Navy and their consultant be aware of these two separate investigations when planning and conducting the Confirmation Study in order to ensure an efficient, optimal investigation and cleanup. In addition, it is also very important that the Navy keep the Middlefield-Ellis-Whisman (MEW) companies informed of all on-going and planned investigations.

2. As mentioned above, it is very important that the various regulatory agencies, as well as the various consultants conducting the investigations, be kept informed of any investigation and cleanup activities that are planned or in progress. It was very difficult, if not impossible, to comment on the adequacy of this work plan in regards to the proposed locations of monitoring wells since we have not received the underground tank investigation proposal. It is critical that the Navy submit the underground tank investigation proposal as soon as possible such that the agencies can properly evaluate the adequacy of this work plan. This information is also urgently needed by the (MEW) companies, as they are proposing to install additional monitoring wells on Moffett in the near future. It should be understood that it may be necessary to modify certain tasks contained in the Confirmation Study work plan based upon a review of the underground tank proposal.

WORK PLAN COMMENTS

3. Page one, Section 1.1 - This section outlines the purpose and objectives of the Confirmation study. It would be preferable to clearly identify objectives in an outline format with specific bullets. A presumed restatement of the objectives presented are (a) define both the lateral and vertical extent of contamination, along with quantities, concentrations and characteristics of contaminated soils, groundwater and potentially surface water; and (b) evaluate hydrologic and geochemical factors which influence movement and concentrations of site-related chemicals. Additional objectives of the characterization step should be (c) evaluate specific risks and

hazards to public health and the environment that result from site related contamination, and (d) identify the appropriate cleanup criteria and provide a quantitative basis for a feasible selection of an effective remedial action. These four objectives are not considered to be the only objectives of the characterization study, but do provide additional clarification of objectives needed to guide a study to support the Feasibility Study.

4. Page two, second paragraph - Nine specific tasks are listed which are to be included as part of the Characterization Step. Additional tasks which should be added to this list include: Community Relations plan, chemical analysis of soil samples, Endangerment Assessment, evaluation of effectiveness of any interim cleanup activities in place, and additional interim cleanup measures necessary.

5. Page three, Section 1.2 Schedule - When possible, the schedule should coincide with the proposed schedule for the study of contamination associated with the Middlefield-Ellis-Whisman study area, as well as with Moffett's underground tank investigation. Schedule compatibility is important for timing of water level measurements and chemical sampling rounds.

6. Page three, Section 1.2, Reports - Five reports are identified which will, as a minimum, be submitted during the course of the Characterization Study. Additional reports which are appropriate include (a) Data management plan, (b) Community relations plan, (c) Groundwater flow model plan, (d) Water quality analysis and water level measurement reports from sampling rounds, (e) Monitoring well network summary, (f) Endangerment Assessment work plan and report, Definition of remedial objectives and initial screening of alternatives, (g) Soil evaluation, (h) Historic flow analysis, (i) Aquifer tests, (j) Potential conduits evaluation, (k) interim cleanup plan, and (l) Monthly progress reports.

Data provided in these potential submittals would probably be integrated in the Characterization Study report. But, submittal of reports for review and comment prior to submittal of a Characterization Study report will provide the investigator necessary insights into the adequacy of the site characterization for potential modification or acceptability.

7. Page three, Quality Assurance Project Plan (QAPP) - The QAPP is proposed to be developed in accordance with the EPA Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (QAMS-005/80). The QAPP should also be based on and be consistent with the following:

- a) U.S. EPA, National Contingency Plan, 40 CFR 300, 50 FR 47912 (November 20, 1985).
- b) EPA guidance documents to the extent applicable: "Guidance on Remedial Investigations Under CERCLA," dated June 1985; and "Draft Supplement to: Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, QAMS-005/80," dated January 1986.

8. Page three, last paragraph - Once a QAPP is developed by Moffett's consultant it would be useful to identify any differences between the QA/QC procedures followed previously during the Step I Confirmation Study.
9. Page four, Sampling Plan - In addition to the ten items listed to be discussed in the Sampling Plan, the following items should also be included: (a) rationale for sample locations, number of samples, and analytical parameters, (b) sample collection techniques, (c) decontamination and disposal procedures, and (d) sample containers, preservation, shipment, and documentation.
10. Page five, first paragraph - Similar to comment number seven above, the Sampling Plan should be based on and be consistent with the following:
- a) U.S. EPA, National Contingency Plan, 40 CFR 300, 50 FR 47912 (November 20, 1985).
 - b) EPA guidance documents to the extent applicable: "Guidance on Remedial Investigations Under CERCLA," dated June 1985; and "Draft Supplement to: Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, QAMS-005/80," dated January 1986; and "What to include in a U.S. EPA Region 9 Sample Plan if you are not going to use the Contract Lab Program," dated January 1986.
11. Table 1-B, Elements To Be Included In Sampling Plan - The elements should be consistent with the items listed on page four of the work plan and those listed in comment #9 above.
12. Page six, Characterization Study Report - The following items should be included in the list of information to be contained in the report: (a) soil and groundwater disposal procedures, (b) soil sampling procedures, (c) site background information, (d) summary of findings, (e) description of lateral and vertical extent of soil and groundwater contamination, including maps and cross-sections, (f) description of hydrologic and geochemical site conditions which influence movement and concentrations of site related chemicals, including cross-section and isopach maps, (g) description of the current and historic direction of groundwater flow, including groundwater gradient contour maps for all identified aquifers, (h) description of the aquifer parameters that control groundwater flow, and (i) description of potential flow pathways, including private wells, sanitary sewers, storm drains, and other utilities.

The Characterization Study report should describe the results of all field activities, specific risks associated with the site, and incorporate results of the preliminary evaluation of remedial alternatives. The report should also provide all maps generated, laboratory results, explanations and results of evaluations performed, and conclusions and recommendations. The first submittal of the Characterization Study report should be as a draft. Following circulation, review, and comments on the draft report, a final report should be submitted for review and approval.

13. Page seven, Monthly Progress Reports - Additional items which should be included in the Monthly report are (a) a summary of items submitted, (b) important dates and deliverables, (c) key personnel changes, and (d) status report of soil and groundwater chemical laboratory data.
14. Page fifteen, Site One - Although it may be appropriate to sample the existing wells on a quarterly basis, it should be understood that additional investigations at this site may be required in the future. The results of the quarterly sampling program, the Step II Confirmation Study investigation, and the investigation by the (MEW) companies, will all be evaluated in order to determine whether additional investigations will be required at this site.
15. Page fifteen, Site Two - Although it was previously indicated that it may not be necessary to install additional A aquifer monitoring wells at this site, the three rounds of sampling conducted at well W2-3A indicate the presence of TCE contamination, and thus the downgradient extent of contamination has not been fully defined. Therefore, additional A aquifer monitoring wells should be installed downgradient of well W2-3A.
16. Pages fifteen and sixteen, Sites Three and Four
- a) Site Three - Based on current available information, the monitoring wells installed at W3-1B and W3-2B are insufficient to adequately characterize the vertical and lateral extent of contamination. The existing monitoring wells at these two locations do not monitor the most apparent permeable zones identified. Thus, it is recommended that an additional monitoring well be installed at each of these two locations in order to adequately evaluate the extent of contamination. In addition, the second and third monthly groundwater samples collected from monitoring well W3-1C indicates that the C aquifer is contaminated. Thus, a minimum of two additional C aquifer monitoring wells appears necessary.
- b) Site Four - The eastern extent of contamination associated with site four has not been adequately defined. Contamination has been detected in monitoring wells MW-6, MW-11, and W4-2A. Thus, additional A aquifer monitoring wells are needed in this area. In addition, a minimum of one B aquifer monitoring well should be installed east of site four to assess the vertical extent of contamination.
17. Page sixteen, Site Five - It may be desirable to locate proposed well W5-5A further downgradient of the existing wells in order to define the downgradient edge of the plume. In addition, a minimum of one additional B aquifer monitoring well should be installed downgradient of this site in order to adequately evaluate the vertical extent of any contamination.
18. Page seventeen, Site Eight - Similar to comment number 17 above, a minimum of one additional A aquifer and two additional B aquifer monitoring wells should be installed downgradient of the site in order to adequately evaluate the vertical and lateral extent of contamination. If an objective of the Site eight investigation is to determine the extent of any upgradient

REVIEW OF WORK PLAN FOR STEP II
CONFIRMATION STUDY

GENERAL COMMENTS
PAGE 5

COMMENTS ON PROPOSED STEP II
CONFIRMATION STUDY WORK PLAN

THE ABOVE IDENTIFIED PAGE IS NOT
AVAILABLE.

EXTENSIVE RESEARCH WAS PERFORMED BY
NAVFAC SOUTHWEST TO LOCATE THIS PAGE.
THIS PAGE HAS BEEN INSERTED AS A
PLACEHOLDER AND WILL BE REPLACED
SHOULD THE MISSING ITEM BE LOCATED.

QUESTIONS MAY BE DIRECTED TO:

DIANE C. SILVA
RECORDS MANAGEMENT SPECIALIST
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 532-3676

24. Page nineteen, last paragraph - As indicated in comment #22c, geophysical logging should be conducted in all boreholes drilled deeper than the A aquifer. Given that all boreholes drilled deeper than the A aquifer should have geophysical logging conducted, it is not necessary to drill all such boreholes to a minimum depth of 200 feet. Existing information obtained from the three closest private wells to sites three, four, six, and seven indicate that private and public wells in this vicinity have been installed to depths of 655 to 783 feet. Thus, it is recommended that selected B aquifer boreholes be drilled into the B-C aquitard, and at least one of the C aquifer boreholes be drilled to a depth of approximately 600 to 700 feet. Although monitoring wells may not be installed at the 200 and 600 foot depths, it is important to define the deep stratigraphy to facilitate the location, depth, and installation of monitoring wells in the B and C aquifers.

25. Page twenty, Soil Sampling - Similar to the investigation procedure followed for the Step I study, it is recommended that a minimum of one soil sample be collected from the unsaturated zone at each proposed A aquifer monitoring well location and analyzed for EPA methods 8240 and 8270 as well as priority pollutant metals. Moffett should also consider soil sampling for physical analyses, and more importantly conducting continuous coring at several deep boreholes in order to correlate the results of the geophysical logging.

26. Page twenty, Aquifer Pump Tests - As previously mentioned, the aquifer tests should be conducted to evaluate groundwater movement within and between aquifer zones. Additional detail regarding the procedures, locations, and duration should be presented in the QAPP and sampling plan. It is recommended that some of these tests be conducted after completion of the additional monitoring wells to be installed by Moffett and the Mew companies. Moffett should also be aware that the MEW companies will be conducting a minimum of four aquifer tests on Moffett Field. It is also recommended that a separate technical report be prepared detailing the results of the aquifer tests.

27. Page twenty-one and Table 7, Groundwater Sampling and Analysis - The following eight existing monitoring wells are not proposed to be sampled during the Step II study as listed in Table 7: W3-3A, W3-3B, W3-2A, W3-2B, W7-1A, W7-2A, MW-20A, and MW-20B. With the exception of wells MW-20A and MW-20B, the other six wells are either on the downgradient or upgradient edge of the plume. Thus, it is not appropriate to discontinue monitoring these wells. It is recommended that these six wells be monitored on a quarterly basis for chemical analyses.

28. Page twenty-two, first sentence - It is recommended that the water level measurements be conducted on a monthly basis for all monitoring wells.

29. Page twenty-two, third sentence - Additional details regarding any proposed continuous water level recordings, including proposed locations, should be presented in the sampling plan.

30. Table Eight - It is recommended that one round of sampling and analyses be conducted for ENA's and priority pollutant metals analyses for all the existing monitoring wells where these analyses have not been previously performed (e.g. metals for Sites 5, 9, and 10 wells). It is unclear what analyses will be performed as part of the quarterly sampling program. As a minimum, volatile organic chemical analyses should be conducted for all wells on the quarterly monitoring network. Additional analyses may be required if the need is indicated by the results of tests using EPA methods 624 and 625 and/or by the results of the priority pollutant metals analyses.

31. Page twenty-two, Section 4.4 "Assessment of Public and Private Wells" - The conclusions and proposed tasks presented in the work plan were based on information obtained prior to February 1986. Since that time additional investigations have been conducted of private wells in the vicinity of Moffett Field and the results are contained in a report submitted by letter dated March 21, 1986. The tasks presented on pages seven and eight of the March 1986 Potential Conduit Report should be implemented as soon as possible and should proceed ahead of the other tasks contained in the Step II work plan.

32. Page seven of the March 1986 Potential Conduit Report states that geophysical gamma logging and downhole television inspection should be carried out in all wells in the near future. It is also recommended that gamma logging and television inspection be conducted for all inactive private wells identified where information regarding the construction and condition of such wells is not available.

33. As stated in task five, page 24 of the Step II work plan, a technical report shall be submitted "with options for addressing closure of wells which be acting as potential conduits." This report should contain the results of all investigative activities conducted regarding potential conduits, and it is recommended that this information be submitted as a separate report.

34. Section Five, "Field and Laboratory Procedures" - As part of the Step II investigation to be conducted at Moffett Field, detailed QAPP and sampling plans will be prepared regarding field operations and laboratory analyses to be followed while conducting this investigation. Thus, comments regarding these activities will be provided once the QAPP and sampling plans are submitted.

35. The work plan does not address the need to evaluate interim cleanup measures upon completion of this step of the investigation. It may be appropriate to conduct additional interim cleanup activities beyond those already proposed. Thus, the work plan should include a task to submit a technical report evaluating various cleanup alternatives.