

NAS MOFFETT FIELD

RESPONSE TO COMMENTS ON

**DRAFT FINAL ADDITIONAL INVESTIGATION OF INFERRED
SOURCES TECHNICAL MEMORANDUM**

APRIL 18, 1994

This report presents point-by-point responses to regulatory agency comments on the Draft Final Additional Investigation of Inferred Sources Technical Memorandum prepared February 18, 1994 by PRC Environmental Management, Inc. (PRC) for Naval Air Station (NAS) Moffett Field, California. Mr. Michael Gill of the U.S. Environmental Protection Agency (EPA) submitted comments in a letter dated March 14, 1994. Mr. Joseph Chou of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) submitted comments in a letter dated March 22, 1994. Ms. Elizabeth Adams of the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) stated RWQCB did not have any comments in a telephone conversation with Mr. Timothy Mower of PRC on March 23, 1994.

Comments from Mr. Michael Gill, EPA

GENERAL COMMENT

Comment Number 1. The Navy's evaluation of potential sources contributing to the regional volatile organic compound (VOC) plume uses a coarse resolution of monitoring wells. In some cases, downgradient wells are greater than 750 feet away from potentially significant groundwater contaminant sources (Building 127). The existing monitoring well network is adequate only for identifying major contaminant sources. Various EPA and DTSC comments state the position that the resolution of the investigation of additional inferred sources could be refined to include monitoring wells closer to buildings of interest, and thereby detect potential sources of contamination not presently detected. The Navy response to each of these indicates that the Navy believes that potential sources at NAS Moffett Field are adequately characterized, and that the installation and sampling of additional monitoring wells closer to buildings of interest would not significantly improve the current understanding of

contaminant distribution in the west side aquifers. Further, the Navy indicates that the selection of areas to investigate was made as a consensus with EPA and RWQCB and is presented in approved sample plans. The argument presented by the Navy that lack of detection of VOCs at concentrations one order of magnitude greater than regional VOC concentrations (Middlefield-Ellis-Whisman [MEW] plume) indicates NAS Moffett Field contains no sources of major contamination is likely correct. However, because of the relatively coarse resolution of the monitoring well network, smaller potential sources of contamination may go unidentified. From a remedial standpoint, these potential smaller areas of contaminant contribution may not significantly impact the remedial alternative selection, well placement, or duration of remediation needed to reach a particular cleanup level. However, as remediation progresses and regional VOC concentrations decline, potential local areas of contamination at NAS Moffett Field may provide continuing sources of groundwater contamination and may cause continued local areas of elevated levels of VOCs in the A1 aquifer. In an effort to move forward with remediation, EPA recommends that VOC concentrations in monitoring wells nearest buildings of interest, such as WSI-3, be monitored during the remedial process for comparison with the regional VOC decline. If these wells fail to show declines in VOC concentrations as regional VOC concentrations approach cleanup levels (5 micrograms per liter [$\mu\text{g}/\text{L}$] as indicated in the MEW record of decision [ROD]), then the possibility that a local source of VOC contamination exists should be reported to the regulatory agencies and investigated.

Response:

Table 1 indicates the groundwater monitoring wells used to provide data for the screening of the buildings of interest in the additional investigation of inferred sources. Nearly all of these wells are planned to be sampled as part of the ongoing west side aquifer remediation activities (either the MEW regional groundwater remediation program [RGRP] or the Navy's long-term source controls). Sampling from these activities should be adequate to identify localized areas of groundwater contamination that may indicate the presence of additional sources. Expansion of the groundwater monitoring well network outside of Navy source areas should be the responsibility of the RGRP until a

TABLE 1

**NAS MOFFETT FIELD
 ADDITIONAL INVESTIGATION OF INFERRED SOURCES
 GROUNDWATER MONITORING WELLS USED IN SCREENING**

Well Number	Building(s) Monitored	Future Sampling¹
74A	146, 184, 258, 383	No Plans
75A	543	RGRP
FP9-1	29	Navy LTSC
W8-1	144	NASA/Navy Site 8
W8-4	144	NASA/Navy Site 8
W8-6	144	NASA/Navy Site 8
W9-6	15, 460	RGRP
W9-16	95, 96, 100, 467, 505	RGRP
W9-18	88	RGRP
W9-19	16, 532	RGRP
W9-23	10, 110, 115, 117, 510, 542, 567	Navy LTSC
W9-29	503, 535	RGRP
W9-31	45	RGRP
W9-35	6, 527, 530	RGRP
W9-38	529	RGRP
W9-43	1, 44	Navy LTSC
W9-44	15, 460	RGRP
W9-45	126	Navy LTSC
W9-46	88	Navy LTSC
W9-47	31	RGRP
W14-2	161	Navy Site 14
W14-4	431, 432	Navy Site 14
W14-10	466	No Plans
W29-2	29	Navy LTSC

TABLE 1 (Continued)

**NAS MOFFETT FIELD
 ADDITIONAL INVESTIGATION OF INFERRED SOURCES
 GROUNDWATER MONITORING WELLS USED IN SCREENING**

Well Number	Building(s) Monitored	Future Sampling¹
W29-4	10, 110, 115, 117, 510, 542, 567	Navy LTSC
W29-5	1, 44	RGRP
W56-1	31	Navy LTSC
W56-2	31	RGRP
W60-1	184	No Plans
W60-2	184	RGRP
W61-1	45	Navy LTSC
W89-5	48	RGRP
W89-8	24	RGRP
W89-9	19, 34	RGRP
WSI-2	544	No Plans
WSI-3	251, 292	No Plans
WSI-4	123, 127	NASA/Navy Site 8
WT14-1	400	RGRP
WU4-8	1, 44	Navy LTSC
WU4-21	118	RGRP
WU4-25	438, 464, 535	RGRP

¹ Anticipated future annual sampling based on Table 5-2A of the Final Design, Regional Ground Water Remediation Program North of U.S. Highway 101, Middlefield-Ellis-Whisman Site (Canonie 1994) is indicated by RGRP. This designation includes wells to be sampled by both the Navy and the MEW companies. The designation LTSC indicates estimated future sampling for the Navy's long-term source controls and is based on the current extent of Navy groundwater contamination. Actual sampling plans may change based on the long-term source control design.

LTSC Long-term source control
 NASA National Aeronautics and Space Administration
 RGRP Regional groundwater remediation program

new source is identified. For example, if additional monitoring wells are desired in the transportation yard, these wells should be added to the monitoring system in the RGRP design (Canonie 1994). As indicated in the RGRP design, well designations (regional or source control) and responsibilities can change over time depending on sampling results. However, the groundwater concentrations in the regional VOC plume are highly variable and concentrations are not expected to decline uniformly so careful analysis will be necessary to evaluate the presence of new contaminant sources.

SPECIFIC COMMENTS

Comment Number 1. Response to specific comment 18. Site 8 groundwater flow direction.

Response to EPA specific comment 18 indicates that groundwater flow directions fluctuate near the northern border of the site because of influence from the Building 191 lift station and from drains located under the runways. Are the effects of these systems on the regional VOC plume understood? Do these systems cause accelerated migration of contaminants in the regional VOC plume? Is the discharge of the runway drains monitored for the presence of VOCs? These questions need to be addressed.

Response:

The A1 zone groundwater flow direction changes from approximately due north in the central and southern portions of NAS Moffett Field to approximately N45°E in the northern part of station near Site 8 because of the influence of pumping at the Building 191 lift station. These groundwater flow directions do not change over time but have maintained approximately the same orientations at least since May 1990 when the first site-wide potentiometric surface maps were compiled. The influence of pumping at Building 191 on the regional VOC plume is understood insofar as the effect of pumping on the potentiometric surface is known. Pumping groundwater from the runway drain system may increase the local gradient and may, therefore, increase the local groundwater velocity. However, continued operation of the runway drain system is necessary to maintain the structural integrity of the runways. The discharge from Building 191 is monitored quarterly for the presence of VOCs.

Comment Number 2. Response to specific comment 22, Figure 3. The Navy response to EPA specific comment 22 was to modify Figure 3 to present data qualifiers. The data qualifier "U" indicates trichloroethene (TCE) has not been detected at or above the listed concentrations. It should be noted that monitoring well W14-2 indicates a value of 200 U $\mu\text{g/L}$. Does this mean the detection limit for TCE for this sample was 200 $\mu\text{g/L}$? If so, this detection limit is very high and an explanation should be provided of why it is so high and its usability.

Response: *The detection limit for the analysis of the sample collected from well W14-2 in August 1992 was 200 $\mu\text{g/L}$. This high detection limit is probably the result of interferences from high concentrations of petroleum-related compounds present in this sample (23 milligrams per liter [mg/L] total petroleum hydrocarbons [TPH] purgeable as gasoline). The sample collected from well W14-2 during the following groundwater sampling event (May 22, 1993) also did not indicate the presence of TCE. However, the detection limit for this analysis was 25 $\mu\text{g/L}$. In addition, presence of a significant TCE source near well W14-2 should also result in large detections in samples collected from wells W14-11 and W14-12 immediately downgradient from W14-2. No such TCE detections have been observed in these downgradient wells. Section 5.1 has been modified to include additional explanation of the elevated detection limit for the sample collected from well W14-2.*

Comments from Mr. Joseph Chou, DTSC

SPECIFIC COMMENTS

Comment Number 1. Figure 3. Two parallel TCE concentration contour lines are shown in Figure 3. This could be interpreted as the existence of a TCE anomaly in between these two lines. If the only purpose of the contour lines is to show the approximate position of the regional VOC plume, it might be appropriate to eliminate the one across Building 245.

Response: *The TCE concentration contour lines indicated on Figure 3 are intended to indicate the approximate position of the regional VOC plume. The western*

contour line that passed through Building 245 has been removed from the figure to minimize potential confusion.

Comment Number 2. Figure 5. Is there any particular reason that cross section B-B' did not go below 35 feet? The sandy gravel unit (about 35 feet below land surface [BLS]) should be identified in Figure 5; it could perform as a channel for groundwater flow.

Response: The cone penetrometer test (CPT) logs at locations HSI-1, -2, -3, and -5 indicate a coarse-grained unit at approximately 35 feet BLS that could act as a preferential groundwater flow zone. However, this unit is part of the deeper A2 aquifer zone. Shallower sand intervals also are present at each of these CPT locations and these shallower zones are expected to be the first intervals that would be contaminated by potential contaminant sources. Consequently, the deeper sand intervals were not shown on the cross section to focus attention on the shallow aquifer zones that would most likely be affected by potential surface contaminant sources.

REFERENCE

Canonie Environmental Services Corp. (Canonie) 1994. Final Design Regional Ground Water Remediation Program North of U.S. Highway 101, Middlefield-Ellis-Whisman Site, Mountain View, California. March.