



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

November 21, 2000

Ms. Andrea Muckerman
BRAC Environmental Coordinator
Southwest Division, Naval Facilities Engineering Command
BRAC Operations Office
1230 Columbia Street, Suite 1100
San Diego, CA 92101-8517

Dear Ms. Muckerman:

Enclosed please find our review of the: 1) "November 1999 Quarterly Report" (November Report), and 2) "February 2000 Quarterly Report" (February Report), dated August 2, 2000. We reviewed the Reports with respect to agreements reached during a February 17, 2000 meeting regarding the content and format of future quarterly reports for the Site. Our specific comments on these reports are enclosed. A couple of general concerns are identified below.

It should be noted that we continue to question the Navy's depiction of groundwater extraction well capture zones. The concentrations detected in January 2000 for wells W9-8 and W9-33, seem to indicate that the general shape of the TCE plume does not vary as much over time as the Navy had indicated in the August 1999 Quarterly Report, and the general plume shape should be unchanged in isoconcentration maps. At any rate, more information will be required in the coming annual report to support the Navy's interpretation.

Also, EPA's Specific Comment 2 on the August 1999 Quarterly Report noted that 29 monitoring wells should be resurveyed since non-usable water level data had been obtained from these wells in June 1999. However, it is unclear whether the 29 monitoring wells have in fact been resurveyed. Appendix D in the November Report indicates that three wells will be resurveyed and Appendix E in the February Report indicates that six wells will be resurveyed. It is unclear how this surveying effort addresses the need for resurveying 29 monitoring wells.

Please contact me at (415) 744-1685 if you have any questions regarding this evaluation. We appreciate the opportunity to provide comments on these reports.

Sincerely,

A handwritten signature in cursive script that reads "Roberta Blank".

Roberta Blank
Remedial Project Manager

Enclosure

cc: Joseph Chou, RWQCB
Sandy Olliges, NASA
Jim Boarer, Locus Technologies
Catherine Glick, RAB Co-Chair

**Review of the "November 1999 Quarterly Report", dated August 2, 2000
for Moffett Federal Airfield, California**

GENERAL COMMENTS ON THE NOVEMBER 1999 QUARTERLY REPORT

1. The "November 1999 Quarterly Report" (November Report) states (Section 3.0, Page 6) that "The rationale for the selection process [for monitoring wells sampled during November 1999] is detailed in the Quality Assurance Project Plan (QAPP) for Long-Term Groundwater Monitoring (TtEMI 1997). Wells proposed to be sampled and analytical methods to be used were specified in a letter from TtEMI to EFA WEST dated November 11, 1999 (TtEMI 1999c). The letter amended the proposed lists of wells to be sampled that is provided in the QAPP." However, the wells that were sampled in November 1999 are not listed as part of the QAPP and the November 11, 1999 letter was not submitted to the EPA for review of the sampling program. As such, it is unclear what the current monitoring program is based on. For example, in August 1999, groundwater samples collected from the Petroleum Sites were analyzed for Polynuclear Aromatic Hydrocarbons (PAHs). However, in November 1999, these wells were not analyzed for PAHs. In addition, data presented in previous reports (May 1999 and August 1999 Quarterly Reports) included the analysis of approximately 100 monitoring wells (EATS and WATS wells) for VOC analysis. In contrast, the November Report states that samples were only collected for 1) the petroleum sites, 2) the Iron Curtain pilot test, and 3) the in-situ abiotic redox manipulation (ISRM) pilot study, and did not include the EATS and WATS wells. Therefore, please clarify the rationale for selecting: 1) monitoring wells for sampling, 2) analytical suites, and 3) sampling frequencies.
2. The November Report does not include chemical concentration tables. However, at the February 17, 2000 meeting, the Navy agreed to attach data summary tables, including minor constituents (e.g., PAHs and MTBE) and associated cleanup levels, in future quarterly reports. A reference to Table 9 ("Summary of Organic Compounds") is included in the Table of Contents and Section 5.4. However, the November Report does not include Table 9. To facilitate the review, please present chemical concentrations in tabular format.
3. During the February 17, 2000 meeting, it was agreed that anomalous chemical concentrations will be discussed in the quarterly reports. However, chemical concentrations are not discussed in Section 5.1.3 ("Discussion of Outliers", Page 12) nor Section 5.4 ("Summary of Organic Constituents", Page 18). To facilitate the review, please provide a discussion of anomalous chemical concentrations detected during this quarter.
4. During the February 17, 2000 meeting, the Navy agreed to state in the quarterly reports that other chemicals of concern are co-located with the trichloroethylene (TCE) plume

and that the TCE plume represents the maximum extent of groundwater contamination at Moffett Field. However, these statements were not included in the November Report. Therefore, please include the requested text in future monitoring reports.

5. Groundwater flow contours and capture zones in the November Report are not dashed in Figures 4 through 9. Please indicate that groundwater flow and capture zones are inferred in areas where there is an insufficient number of monitoring points by using dashed lines in future monitoring reports.
6. The November Report does not include an evaluation of the adequacy of the groundwater capture zones (i.e., spacial extent and orientation) in capturing groundwater contamination and does not present the treatment system remedial action objectives as agreed upon during the February 17, 2000 meeting. To better evaluate the treatment system effectiveness, please provide an evaluation of the adequacy of groundwater capture zones with respect to reaching the treatment system remedial action objectives.
7. The November Report does not include a table listing field parameters for the wells sampled during that quarter (especially for the Petroleum Sites Wells). Since the Navy agreed to provide a table listing the field parameters for wells sampled during each quarter in the February 17, 2000 meeting, please provide a table listing field parameters.
8. Appendix A presents hydrographs for 133 monitoring wells. However, the rationale for plotting the hydrographs has not been provided, and the hydrographs are not discussed elsewhere in the November Report. For clarity, please indicate what the purpose of the hydrograph presentation is and discuss the hydrographs in the November Report.

SPECIFIC COMMENTS ON THE NOVEMBER 1999 QUARTERLY REPORT

1. **Section 5.3.2, Page 17:** The last three bullets on Page 17 appear to be unrelated to the topic of "Completeness". For clarity, please revise this section to delete the bullets or include additional text to explain the relevance of the last three bullets on Page 17.
2. **Section 5.4.1, page 18:** The text states that "These results [from gasoline-range organics] did not resemble a standard fuel pattern and probably confirmed of the detection of benzene." Please clarify the intent of this sentence.
3. **Figures 5, 6, and 8:** Water table surface elevations and well identification numbers for wells within the pink and blue capture zones are illegible due to the color overlay. To facilitate the review, please revise the figures to clearly show the well identification numbers and water table surface elevations.

**Review of the "February 2000 Quarterly Report", dated August 2, 2000
for Moffett Federal Airfield, California**

GENERAL COMMENTS ON THE FEBRUARY 2000 QUARTERLY REPORT

1. The "February 2000 Quarterly Report" (February Report) states (Section 3.0, Page 7) that "The rationale for the selection process [for monitoring wells sampled during January/February 2000] is detailed in the Quality Assurance Project Plan (QAPP) for Long-Term Groundwater Monitoring (TtEMI 1997b). Wells proposed to be sampled and analytical methods to be used were specified in a letter from TtEMI to the Navy dated February 1, 2000 (TtEMI 2000). The letter amended the proposed lists of wells to be sampled that is provided in the QAPP." However, the wells that were sampled in January/February 2000 are not listed as part of the QAPP and the February 1, 2000 letter was not submitted to the EPA for review of the sampling program. As such, it is unclear what the current monitoring program is based on. For example, in August 1999, groundwater samples collected from the Petroleum Sites were analyzed for Polynuclear Aromatic Hydrocarbons (PAHs). However, in February 2000, these wells were not analyzed for PAHs. In addition, it is unclear why EATS and WATS wells were sampled in January (as stated in Section 3.0) before the February 1, 2000 letter was submitted to the Navy and did not follow the regular quarterly sampling schedule (i.e., three month after the November 1999 event). Therefore, please clarify the rationale for selecting: 1) monitoring wells for sampling, 2) analytical suites, and 3) sampling frequencies.
2. The February 2000 Report (Section 4.4.1, Page 11) states that "QC information was not available for samples collected by IT to support evaluation of EATS and WATS." Although the January 2000 EATS and WATS groundwater analytical data were collected by International Technology (IT), the Navy should have access to the quality control portion of the data and perform the data validation. EPA had previously (EPA comments on the quarterly reports for May 1999 and August 1999) requested that the data validation be included in quarterly reports. It is unclear why the data validation is not possible for the January 2000 data. Therefore, please either provide the data validation for the January 2000 data in Section 5.3 or discuss how the lack of data validation will affect the usability of the January 2000 data.
3. The February Report does not include minor constituents such as MTBE in Table 14, Summary of Organic Compounds in Groundwater (ug/l), Petroleum Sites Wells. However, at the February 17, 2000 meeting, the Navy agreed to include data summary tables including minor constituents (such as MTBE) and associated cleanup levels in future quarterly reports. To facilitate the review, please include chemical concentrations data for minor constituents in Table 14.

4. During the February 17, 2000 meeting, it was agreed that anomalous chemical concentrations will be discussed in the quarterly reports. However, chemical concentrations are not discussed in Section 5.1.3 ("Discussion of Outliers", Page 13) nor Section 5.4 ("Summary of Organic Constituents," Page 18), although a sharp increase in 1,2-DCE concentrations was observed in samples collected from wells W9-28 (A2-Aquifer, WATS), W4-11 (A1-Aquifer, EATS), and W9-1 (A1-Aquifer, WATS). To facilitate the review, please provide a discussion of anomalous chemical concentrations detected during this quarter.
5. During the February 17, 2000 meeting, the Navy agreed to state in the quarterly reports that other chemicals of concern are co-located with the trichloroethylene (TCE) plume and that the TCE plume represents the maximum extent of groundwater contamination at Moffett Field. However, these statements were not included in the February Report. Therefore, please include the requested text in future monitoring reports.
6. Contours and/or capture zones in the February Report are not dashed in Figures 10 through 15. Please indicate that groundwater flow and capture zones are inferred in areas where there is an insufficient number of monitoring points by using dashed lines in future monitoring reports.
7. The November Report does not include an evaluation of the adequacy of the groundwater capture zones (i.e., spacial extent and orientation) in capturing groundwater contamination and does not present the treatment system remedial action objectives as agreed upon during the February 17, 2000 meeting. To better evaluate the treatment system effectiveness, please provide an evaluation of the adequacy of groundwater capture zones with respect to reaching the treatment system remedial action objectives.
8. During the February 17, 2000 meeting, the Navy agreed to include in the text of the quarterly reports the criteria for selecting the wells for the historical chemical trend figures in Appendix A. Therefore, please provide the rationale for selecting the wells for the historical chemical trend figures in the February Report.
9. It is not clear how the Navy included high-level non-detect data in the chemical isoconcentration contouring in Figures 6 and 8. In Figure 6 depicting PCE concentrations in the A1 Aquifer Zone, numerous wells are labeled 200 ug/l (U), 100 ug/l (U), 50 ug/l (U), and 25 ug/l (U), and are not taken into account when contouring isoconcentration lines. In addition, the 5-ug/l-contour delineating the eastern extent of the plume is missing from Figure 6. As shown in Figure 8 (depicting PCE concentrations in the A2 Aquifer Zone), all non-detect concentrations had detection limits at least 5 times higher than the Maximum Contaminant Levels for Drinking Water (MCLs) for PCE with the exception of two samples. These concentrations were not taken into account when contouring isoconcentration lines. The fact that PCE was not detected above an elevated detection limit does not confirm that PCE was not present at concentrations above the MCL. In the

Navy's response to EPA's comments on the August 1999 quarterly reports, the Navy stated that future quarterly reports will consider high-level non-detect data more carefully, but plume shapes will not be modified from previous versions based on the non-detect values unless the data clearly warrant the change. The intent of EPA's original comment on the August 1999 quarterly report was to determine a way to accurately depict compound concentrations above the MCLs. However, it is impossible to depict compound concentrations above MCLs if the laboratory reporting limits exceed the MCL. Since it is the Navy's responsibility to adequately depict the extent of contamination in the groundwater, a more conservative approach is recommended. For example, for compounds that were deemed not-detected, but for which the reporting limit exceeds the MCL, the concentration of the compound should be set at the detection limit or at one-half the detection limit for contouring purposes. A notation on the map should explain this procedure to the reviewer. Therefore, please reconsider EPA's original comment for future quarterly reports.

10. At the February 17, 2000 meeting, the Navy agreed to include grid lines for the historical trend graphs included in Appendix A. To facilitate the review, please include grid lines for the historical trend graphs included in Appendix A in future quarterly reports.

SPECIFIC COMMENTS ON THE FEBRUARY 2000 QUARTERLY REPORT

1. **Section 5.4.1, Page 19:** The February Report states that benzene concentrations at well ERM-1 are decreasing but are still at a concentration of 3,000 ug/l. It is unclear where this well is located and whether groundwater in this area is captured and treated by the WATS or EATS system. For clarity, please indicate whether groundwater in the vicinity of ERM-1 is captured by the groundwater extraction and treatment system at the Site. If groundwater near ERM-1 is not captured, please indicate how the benzene plume is/will be contained.
2. **Tables 6 and 7:** Turbidity readings for numerous wells (e.g., W43-3 (217 NTU), W7-6 (750 NTU), W7-7 (500 NTU), WU-15 (694 NTU), UST21-MW01 (245.6 NTU), and UST21-MW-02 (188.5 NTU)) are outside of the commonly acceptable range (i.e., the readings are higher than 100 NTUs). In addition, several ORP measurements were not taken. To determine how useable the analytical results from water samples collected at these wells is, please provide a discussion regarding field parameters that were measured outside the QAPP-specified range, and any deviations from the QAPP-specified sampling protocol in the quarterly reports.
3. **Table 9:** It is unclear why some control parameters have a "0 percent fulfillment" (e.g., Source Water Blank, Field Duplicate, MS/MSD) or are labeled "NA" (e.g., Trip Blank). Please provide an explanation for samples labeled "0 percent fulfillment" or "NA" and discuss how this will affect data usability.

4. **Tables 11 and 12:** Please provide an explanation for why fewer samples than intended were collected for each analytical method.
5. **Appendix A:** The historical trend graphs show a substantial increase in 1,2-DCE concentrations in samples collected from wells W9-28 (A2-Aquifer, WATS), W4-11 (A1-Aquifer, EATS), and W9-1 (A1-Aquifer, WATS). However, no explanation or discussion regarding the concentration trends are provided in the February Report. To better evaluate plume migration at the Site, please provide a discussion of substantial increases in chemical concentrations in the February Report.
6. **Appendix E:** The appendix shows that several wells are targeted to be resurveyed. Please indicate when resurveying of these wells will occur.

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6