



Tetra Tech EM Inc.

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December 12, 1997

Mr. Stephen Chao and Mr. Hubert Chan
Department of the Navy
Engineering Field Activity West
Naval Facilities Engineering Command
900 Commodore Drive, Building 210
San Bruno, California 94066-5006

CLEAN Contract Number N62474-94-D-7609 (CLEAN II)
Contract Task Order 003

**Subject: Response to Comments on Draft Site 2 Groundwater Monitoring Plan
Operable Unit 1, Moffett Federal Airfield**

Dear Messrs. Chao and Chan:

Enclosed are three copies of the above-referenced document submitted to the regulatory agencies. Tetra Tech EM Inc. (TtEMI) anticipates submitting the final Site 2 groundwater monitoring plan after receiving comments from the regulatory agencies.

If you have any questions or comments, please call us at (303) 312-8884 (Schuller) or (303) 312-8874 (Mower).

Sincerely,

A handwritten signature in black ink that reads "Brian L. Schuller". The signature is written in a cursive style with a large, sweeping 'B' and 'S'.

Brian L. Schuller
Project Geologist

A handwritten signature in black ink that reads "Timothy E. Mower". The signature is written in a cursive style with a large, sweeping 'T' and 'M'.

Timothy E. Mower
Project Manager

TJP/jem

Enclosures

cc: Distribution List (attached)

**DRAFT SITE 2 GROUNDWATER MONITORING PLAN
RESPONSE TO REGULATORY AGENCY COMMENTS
MOFFETT FEDERAL AIRFIELD**

DISTRIBUTION LIST

<u>Name</u>	<u>Number of Copies</u>
Mr. Stephen Chao/Mr. Hubert Chan, EFA West	3
Mr. Michael Gill, EPA	1
Mr. Joseph Chou, RWQCB	1
Mr. Michael Rochette, RWQCB	1
Mr. Glenn Young, CIWMB	1
Mr. Don Chuck, MFA	1
Mr. Kenneth Eichstaedt, URS	1
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**RESPONSE TO REGULATORY AGENCY COMMENTS
ON THE DRAFT SITE 2 GROUNDWATER MONITORING PLAN
MOFFETT FEDERAL AIRFIELD, CALIFORNIA
DECEMBER 12, 1997**

1.0 INTRODUCTION

This document presents responses to regulatory agency comments on the draft Site 2 Groundwater Monitoring Plan for Moffett Federal Airfield dated April 14, 1997. Comments were received via electronic mail from Mr. Michael Gill of the U.S. Environmental Protection Agency (EPA) on May 19, 1997 and in a letter from Mr. Joseph Chou of the California Regional Water Quality Control Board, San Francisco Region (RWQCB) on June 9, 1997.

2.0 RESPONSE TO COMMENTS FROM EPA

GENERAL COMMENTS

Comment 1: The regional groundwater flow direction needs to be defined, probably in the Hydrology section, since wells are discussed as up or downgradient of the site, yet the local gradient shown on Figure 2-3 indicates all groundwater flows to the site.

Response: Groundwater flow direction is defined for the upper A-aquifer in the vicinity of Site 2. The A-aquifer is the area of primary concern because it is directly adjacent to areas where waste was disposed and any release to groundwater would be first detected in the vicinity of Site 2 (closest to the source). Figure 2-3 shows the local groundwater gradient.

Figure 2-3 shows that groundwater flows into Site 2 from the south, east, and west; all groundwater then flows out of Site 2 to the north, toward Building 191. Therefore, wells on the north side of Site 2 are downgradient of the area where waste was excavated.

The text will be modified to further explain groundwater flow at Site 2. In addition, more recent groundwater elevation data will be reviewed and Figure 2-3 may be modified as appropriate.

Comment 2: The monitoring plan should address the final sampling and analysis performed for the decision that no further sampling is necessary. Table 3-2 of the EPA document Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites provides appropriate analytes for the final decision regarding future sampling.

Response: The sample constituents in the Site 2 groundwater monitoring program were selected by reviewing detections during past groundwater monitoring programs. Because groundwater has been extensively monitored in the past, the Navy believes it is prudent to monitor only for those constituents that are likely to be present and may have an adverse effect on human health or the environment. In addition, all wastes have been removed from

Site 2 and there is little chance that constituents different than those previously detected will be released from the landfill. However, because of detections of pesticides and polychlorinated biphenyls (PCBs) in excavation confirmation soil samples, pesticides/PCB analysis will be included during groundwater monitoring at Site 2. This information should be adequate to evaluate whether no further sampling is necessary.

SPECIFIC COMMENTS

Comment 1: Section 2.4.1, Page 5, Paragraph 1. Please clarify that the A aquifer and the A1 aquifer are the same. The A2 aquifer on Figure 2-4 also requires explanation. Also, please explain whether the silty clay at 20 to 25 feet bgs is the base of the A1 or A2 aquifers or neither.

Response: Higher-permeability sand units that serve as the aquifer at Site 2 are only occasionally encountered because of the discontinuous nature of low-energy channel deposits; therefore, there is no clear boundary (for example, an aquitard) that separates the A aquifer at Site 2 into A1- and A2-aquifer zones. Therefore, future references to the A aquifer will refer to the upper and lower A aquifer. Although no boundary exists across the site, the approximate boundary of the upper and lower aquifer is at the silty clay at 30 to 35 feet below ground surface (bgs); these silty clays (and clays) will, in places, be thicker or thinner. In general, the silty clays and clays are relatively more frequently encountered while drilling than are more permeable deposits such as sand. Well screen depths will be included in Figure 2-4 to clarify where these wells are screened in the A aquifer. The text will be revised to explain the differentiation of the upper and lower A aquifer.

Comment 2: Section 2.4.1, Page 5, Paragraph 2. Please be more specific about where the hydraulic conductivity soil samples were collected and what the information means. For example, were the lower permeability samples representative of the base of the A1 aquifer or just a lens within it? Was the sand hydraulic conductivity sample typical of the A1 aquifer?

Response: The six low-permeability sample results are clays that are present throughout most of the A aquifer. The clayey sand unit is typical of a more permeable lens within clayey units at Site 2. This information will be included in the text of the document.

Comment 3: Section 2.4.3, Page 6, Last Paragraph, Second Sentence. The phrase "...only detections above detection limits..." is awkward, since by definition all detections are above detection limits. This is also a problem in Table 2-1, where a "J" value is defined as "Detected Below Detection Limit". "Detection" limits should be changed to "reporting" or "quantitation" limits in both the text and the table for clarity.

Response: The "J" qualifier indicates that the value is qualitatively identified but is reported at an estimated quantity because the detected amount is less than the required detection limit; however, detections below these limits are

technically achievable and when they occur are “J” qualified. The text and Table 2-1 will be changed to clarify the meaning of the “J” qualifier.

Comment 4: Section 2.4.3, Page 6, Last Paragraph. Please define where OU5 is relative to the site.

Response: Operable unit 5 (OU5) includes groundwater on the eastern side of Moffett Federal Airfield excluding the groundwater at Sites 1 and 2. The text of the monitoring plan will be revised for clarification.

Comment 5: Section 3.1, Page 7, Last Paragraph, Last Sentence. The criteria for determining total well depth should be described.

Response: Total well depth was selected by targeting permeable, water-producing deposits that are at a depth similar to saturated waste. Screening the wells at these depths allows monitoring of the uppermost aquifer through which groundwater flows from the area where waste was excavated. Well screens through these intervals also provide adequate groundwater for sampling. In addition, the Santa Clara Valley Water District requires a minimum of 5 feet of surface seal; this requirement means the minimum depth to top of screen would be about 6 feet bgs to allow for 1 foot of filter pack sand above the top of screen. The new wells at Site 2 were screened from 7.5 to 17.5 feet bgs. The text of the monitoring plan will be revised for clarification.

Comment 6: Section 3.4.5, Page 14, Paragraph 1, Last Sentence. This sentence is inconsistent with the text, which states that some wells may be purged with reusable submersible pumps. The text should address whether equipment blanks will be required for these wells.

Response: The sample methodology will be changed to micropurging to be consistent with recent quarterly sampling events and to minimize generation of purge water. Equipment blanks will be necessary for any equipment used at more than one sample location. The text will be changed to indicate that one equipment blank per day will be collected from any nondedicated or nondisposable equipment used in purging or sampling more than one well.

Comment 7: Figure 2-4. The author may want to choose different symbols for the different well types (i.e., A1 vs. A2 and Proposed vs. Existing). The current symbols look nearly identical.

Response: The symbols on Figure 2-4 will be changed to make it easier to differentiate among them.

Comment 8: Figure 3-1. All wells should be shown on this figure for clarity, with appropriate symbols or annotation to indicate which will be destroyed, sampled, etc. Also, the areas of landfill waste (from Figure 2-4) should also be shown.

Response: The intent of Figure 3-1 is to show only existing wells included in future monitoring; therefore, additional wells will not be included on Figure 3-1. All wells (existing and destroyed) are shown on Figure 2-4. However, the boundaries of the excavated waste will be included on both Figures 2-4 and 3-1.

3.0 RESPONSE TO COMMENTS FROM RWQCB

SPECIFIC COMMENTS

Comment 1: Page 1, Section 1.0. The objectives of Site 2 long-term monitoring plan should be specified in the document.

Response: Site 2 groundwater will be monitored to detect if a release occurred from the waste that was once at Site 2 (detection monitoring). Groundwater monitoring at Site 2 will follow the substantive regulations in 23 California Code of Regulations (CCR), Chapter 15, Article 5. The objective of the Site 2 groundwater monitoring plan is to outline how samples will be collected and how sample data will be evaluated. The text will be modified to clarify groundwater monitoring objectives.

Comment 2: Page 5, First Paragraph, Section 2.4.1. At least one cross section map should be incorporated in the subject document to depict the underground lithology and water bearing zone(s).

Response: Two cross-sections will be prepared for the final document: one oriented north to south through the middle of Site 2; the other oriented east to west along the northern perimeter of Site 2.

Comment 3: Page 5, Third Paragraph, Section 2.4.2. According to the content, it is suggested to rename the section title as "Hydrogeology."

Response: This section will be renamed hydrogeology.

Comment 4: Page 5, Third Paragraph, Section 2.4.2. Please explain how the "shaded", "downgradient" boundary shown in Figure 2-4 was determined; please also clarify the sentence "...only a small portion of the landfill boundary is actually downgradient of the landfill itself".

Response: The downgradient boundary was estimated based on trenching; however, now that waste excavation is complete, the exact waste boundaries are known. The boundary of excavated waste and the general groundwater flow direction will be shown on Figure 2-4 to indicate areas that were downgradient of waste.

The sentence for which clarification is requested is no longer relevant; because exact waste boundaries are now known, this sentence will be deleted from the text.

Comment 5: Page 7, Section 3.0. Statistical methods should be use to evaluate groundwater data. The sampling plan should identify the type and amount of data required by the statistical methods to be used.

Response: **Only organic constituents will be monitored at Site 2. Since these constituents are not ubiquitous in the environment at Site 2, there is no basis for statistical evaluation. Any detection of an organic constituent will require evaluation to assess whether Site 2 is the source of a release.**

Comment 6: Page 8, First Paragraph, Section 3.2. This section should identify the constituents to be analyzed and the analytical methods and detection limits to achieve data quality objectives.

Response: **Table 3-1, referenced in the first sentence of Section 3.2, identifies the analytical methods; however, for clarity, this information will also be included in the text. An appendix will be included to identify the analytes in each of these methods and the associated detection limits.**

Comment 7: Page 8, Second Paragraph, Section 3.3. A quarterly and annual monitoring report for both Site 1 and Site 2 should be prepared by the Navy for regulatory agencies and pubic review.

Response: **Results from monitoring activities at Site 2 will be included in the quarterly activity reports already prepared by the Navy. These reports are available for regulatory agency and public review. The frequency of monitoring reports for Site 1 is discussed in the Site 1 post-closure monitoring plan.**

Comment 8: Page 14, Fifth Paragraph, Section 3.4.6. A State of California certified laboratory should be used to perform groundwater analysis.

Response: **The text will be modified to state that a State of California certified laboratory will be used for groundwater sample analysis.**