



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

April 16, 1998

Mr. Stephen Chao
Naval Facilities Engineering Command
Engineering Field Activity, West
900 Commodore Way, Bldg. 210
San Bruno, CA. 94066-2402

Re: *Draft ISARM Phase I Work Plan*, dated February 6, 1998.

Dear Mr. Chao,

The U.S. Environmental Protection Agency (EPA) has received the subject document and provides the following comments. Comments address both the workplan and the Quality Assurance Project Plan in Appendix A. We realize that the Navy is on an accelerated schedule and has already started the bench testing, but understand that the QAPP could be used to address field testing, if pursued, later this year. Since the bench-scale work has commenced, the comments on the workplan should at this point be considered recommendations to avoid potential problems. If the field work is conducted in the future, the comments should be responded to and documented in a final approved plan in order to have regulatory acceptance of the results. Comments are from our Quality Assurance Program. If you have any questions, please call me at 415-744-2385.

Sincerely,

A handwritten signature in cursive script that reads "Michael D. Gill".

Michael D. Gill
Remedial Project Manager
Federal Facilities Cleanup Branch

cc: J. Chou (RWQCB)
K. Eichstaedt (email)
T. Mower (PRC) (email)
S. Olliges (NASA) (email)
P. Strauss (PM Strauss and Associates) (email)



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

April 13, 1998

MEMORANDUM

SUBJECT: ISARM Phase I Draft Work Plan and Quality Assurance Project Plan, Moffett Federal Airfield (MFA), California (EPA Quality Assurance Program Document Control Number [DCN.] C7CA010W98VSF1)

FROM: Joe Eidelberg, Chemist
Quality Assurance Program, PMD-3

THROUGH: Vance S. Fong, P.E., Manager
Quality Assurance Program, PMD-3

TO: Mike Gill, Remedial Project Manager
Navy Section, SFD-8-2

The subject work plan and quality assurance project plan (QAPP), prepared by Tetra Tech EM Inc. (TtEMI) and dated February 6, 1998, were reviewed. The review was based on guidance provided in "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5, August 1994), "Preparation of a Field Sampling Plan for Private and State-EPA Lead Superfund Projects" (9QA-06-93), and "Guidance for the Data Quality Objectives Process" (EPA QA/G-4, September 1994).

The subject Phase I ISARM (In Situ Abiotic Redox Manipulation) work plan and QAPP address most of the areas required by field sampling plan (FSP) and QAPP guidance. A number of issues were identified during the review, including the need to clarify critical analyses, provide an organizational chart, and document the data quality objectives (DQO) process.

The work plan provides only an overview of the experimental design and numerous comments were provided to illustrate the type of detail that is recommended for inclusion.

The Quality Assurance (QA) Office cannot concur on the subject QAPP until the following concerns are addressed. In addition, it is requested that all comments be addressed in order to facilitate the Agency's understanding of the project and later acceptance of the project's conclusions.

Mr. Mike Gill
April 13, 1998

Concerns

1. [QAPP: Section 2.1.1, Project Organization] Section 2.1.1 states that Figure 1 presents the project team organization. The Figure located in the QAPP is an example Field Forms Transfer List. The QAPP must include an organizational chart depicting the lines of authority and communication among project participants, and include data users and subcontractor relationships as well as the prime contractors involved in the project. Note that throughout the document the references to figures are incorrect, reflecting the omission of the organization chart as Figure 1. Further, it is recommended that the telephone numbers and addresses of the project participants listed in sections 2.1.1.1 through 2.1.1.3 be listed with the corresponding name.
- 2A. [Section 2.4.3, Data Type, Quantity, and Matrices Needed; Table 2, Soil Sample Data Quality Objectives; Table 3, Water Sample Data Quality Objectives] Section 2.4.3 indicates that volatile organic compounds (VOCs), major cations and anions, alkalinity, and silica will be measured as definitive data; however, Table 3 does not include information for major cations. Note that section 3.1 states that cations/anions are critical groundwater analytical parameters.
- 2B. It is recommended that specific target analyte lists (TALs) be provided in the QAPP, identifying VOCs, metals, major cations, and major anions to be measured. The QAPP is not clear whether iron and the other major cations will be determined as one of the Contract Laboratory Program (CLP) Statement of Work (SOW) target analytes, or whether a shortened TAL will be utilized.
- 2C. Tables 2 and 3 lists "CRQL" or "MDL" for the detection limit columns of the tables. This column should indicate the numerical detection limit required for the project.
- 2D. The QAPP defines temperature, ORP, pH, and dissolved oxygen as screening data, however, it is this reviewers impression that these determinations are critical due to the experimental needs explained in the work plan. For example, in the column experiments, there is concern about the dissolved oxygen levels being controlled to those of the in-situ levels. Hence, it is recommended for this study that additional quality control measures be incorporated for these measurements, which given the limited number of samples, is probably not a burden. For example, the following measures could be adopted:

Mr. Mike Gill
April 13, 1998

pH: measure a pH buffer as calibration check before and after every sample;

dissolved oxygen: verify the calibration before and after every sample;

temperature: ensure the temperature measurement device is NIST traceable and verify the calibration daily; and

ORP: verify the ORP before and after every sample.

In addition, it is recommended that the Table 6 Acceptance Specifications be given numerical criteria for calibration verifications.

3. [Section 2.4.5, Acceptable Level of Confidence in the Data] The QAPP discusses data quality indicators (DQIs) as DQOs. The QAPP should include documentation of the establishment of the DQOs using the seven step DQO process. At minimum, a summary of the seven step DQO process as outlined in EPA Guidance (QA/G-4) should be included in the QAPP. Note that, in general, the PARCC parameter are considered DQIs.
4. [Section 5.1, Data Review, Verification, and Validation Requirements] This section states that 100 percent of the data will undergo cursory validation. It is recommended that full data validation, including the verification of raw data, be performed on a minimum of 10 to 20 percent of the data packages.
5. [Work plan: Section 4.4, Groundwater Characteristics] Section 4.4 references Figure 5 for the location of well W9-14 relative to the test location. Well W9-14 could not be located on Figure 5.
6. [Work plan: Section 5.3.2, Decontamination Procedures; Appendix B: SOP No. 002, General Equipment Decontamination] Section 5.3.2 references Standard Operating Procedure (SOP) No. 002 for decontamination procedure. Since SOP 002 indicates that a solvent rinse and a nitric acid rinse are performed "when necessary," it is recommended that Section 5.3.2 of the work plan indicate that a solvent rinse and a nitric acid rinse are required for this project because cross contamination of VOCs and metals are of concern.
- 7A. [General] Although the EPA guidance document QA/R-5 is referenced in the QAPP, a number of elements required by QA/R-5 have not been addressed in the QAPP. As stated in the QAPP guidance, if a required element is not considered to be relevant to the project, this should be stated and a

Mr. Mike Gill
April 13, 1998

reason provided. Elements which need to be addressed or which require additional information include:

- 7B. Title and approval sheet with signatures of officials expected to formally approve or concur on the document; and
- 7C. Distribution list of persons and organizations who will receive copies of the approved plan and its revisions.

Comments

- 1. [General] It is recommended that in addition to major cations and anions, alkalinity and silica, groundwater samples be analyzed for total dissolved solids (TDS) to provide a more complete characterization of the groundwater and as an additional check on the correctness of analyses.
- 2. [QAPP: Section 1, Introduction] Section 1 states that assistance will be provided by Pacific Northwest National Laboratory (PNNL). This section should be revised to describe the type of assistance provided by PNNL.
- 3A. [QAPP: Appendix A, TtEMI Statement of Work for Analytical Services; Task 1 - CLP Analyses] The title of Appendix A indicates that the SOW is for work performed for TtEMI; however, the SOW indicates that it is prepared by PRC Environmental Management, Inc. (PRC). The SOW should state the relationship between TtEMI and PRC, e.g., divisions of the same organization; subsidiary, subcontractor, etc.
- 3B. The task description for Task 1, CLP analyses, cites CLP SOWs OLM02.0 and ILM03.0 for organic and inorganic analyses, respectively. The TtEMI SOW should cite the current CLP SOWs, OLM03.2 and ILM04.0.
- 4A. [Work Plan, Section 7.0, Batch Tests] It is recommended that the terms "heterogenous disproportionation, homogeneous disproportionation, and inherent disproportionation" be explained and the significance of this determination provided.
- 4B. (Page 27, Paragraph 3) The plan states that all experiments will be performed at room temperature. It is recommended that the term "room temperature" be replaced with a definitive range and if ambient temperature is critical, the QAPP require recording of the ambient temperature.
- 4C. (Page 28, Paragraph 3) The plan states "Then, immediately before dilution, stoichiometric amounts of sodium dithionite will be added to the diluent solution ... to remove any

Mr. Mike Gill
April 13, 1998

remaining oxygen." It is recommended that clarification be provided for how sodium dithionite removes trace oxygen.

- 4D. The plan states (Page 29, Paragraph 2): "After reaction, the reduced soil suspensions will be washed with nitrogen-sparged salt solution and then with groundwater to remove ... and will be brought to volume with uncontaminated MFA groundwater." It is recommended that the following questions be clarified: what is the "salt solution"; what do you mean by bring to volume (no previous discussion about a fixed volume of solution); what does the process of washing entail? (e.g. serially mixing the soil with solution and decanting the supernatant several times)
- 4E. (Page 28, Paragraph 2) The plan refers to total metals. It is recommended that the scope of analytes be provided or one of the Appendix III-A analysis methods referenced instead of using the generic term "total metals."
- 4F. (Page 29, Paragraph 4) The set up of this experiment is not clear. It is recommended that the following questions be explained: how many suspensions in headspace vials will be prepared?; which headspace method is being used?; what are the details of the headspace method? (note that the headspace method is not listed in Appendix III-A of the QAPP with the other analytical methods)
- 4G. (Page 29, Paragraph 4) The plan states "The suspensions will be filtered and the removed liquid will be analyzed for chlorinated compounds by gas chromatography." It is recommended that details about this step be provided due to the possibility that significant bias and variability may be introduced by some filtering methods.
- 4H. (Page 29, Paragraph 4) It is recommended that clarification be provided for when the first sample in the sequence of samples is taken. The plan provides information on the intervals but not when the first sample is taken.
- 4I. (Page 29, Paragraph 4) The plan states that the soil is sieved to obtain > 2 mm and < 2 mm fractions. However, it is not clear if only the < 2 mm fraction is used for the study experiments.
- 4J. (Page 29, Paragraph 5) It is recommended that the criteria for an acceptable fit for the modeling of the concentration versus time results be provided.
5. [Work Plan, Section 8.0, Column Tests] It is recommended that clarification be provided for the following: what is synthetic groundwater; how are influent dissolved oxygen

Mr. Mike Gill
April 13, 1998

values obtained; and how are groundwater samples maintained at dissolved oxygen levels the same as the aquifer?

- 6A. [Work Plan, Section 5.3.1, Sampling Equipment and Procedures] (Item 6) It is not clear if the pH of VOA samples are checked in the field. If VOA sample pH is field verified, it is recommended that a second aliquot of samples be taken for field pH verification to minimize sample handling for samples sent to the laboratory for analysis.
- 6B. [QAPP, Section 2.1.2.2, QA Manager] It is recommended that the Navy QA Manager have the authority to independently audit a laboratory selected by a contractor.
7. [QAPP, Section 2.4.4, Action Levels Upon Which Decisions Will Be Based] It is recommended that further explanation of the 0.05 percent available iron criterion be provided. For example, is this a fixed decision point above which the next phase of the project may proceed, and below which, the next phase will not occur.
8. [QAPP, Section 2.6.2, Storage and Disposal] It is recommended that the Navy ultimately take possession of the electronic and hard copy data.
- 9A. [Work Plan, Table 1, Moffett Federal Airfield ISARM Phase I Work Plan Sample Identification Summary] It is recommended that clarification be provided for whether duplicate soil analyses for determination of total iron will be made.
- 9B. Footnote 3 indicates that three times the sample volume will be collected for MS/MSD analyses. However, the container requirements do not seem to reflect this for VOA analyses.
- 9C. It is recommended that clarification be provided whether any field or equipment blank samples are planned.
10. It is recommended that the name of the laboratory be specified and if the laboratory has not received double blind PE samples within the last year for the analyses required for this study, that double-blind PE samples be sent to the laboratory.
11. [Work Plan] There are many measures to prevent changing of the dissolved oxygen level and oxidation reduction potential of the samples, however, there appear to be no measures to verify that the procedures employed are effective. It is recommended that qualitative measures be employed or a response to the non-feasibility of this provided.

Mr. Mike Gill
April 13, 1998

12. [QAPP] It is recommended that extraneous material, for example, lists of analyses, holding times, etc., not pertinent to the project be removed from the document. This seems prudent since a QAPP tailored to the project was prepared, however, much of the QAPP seems to be copies of generic material applicable typical environmental investigations, but not pertinent to the actual work to be performed.

Questions or comments regarding this review should be referred to Joe Eidelberg, EPA QA Program, at (415) 744-1527. Technical assistance for this review was provided by Douglas Lindelof, Lockheed Martin, Environmental Services Assistance Team Contract No. 68D60005, Work Assignment No. 9-98-2-5 and Technical Direction Form No. 9825002.