



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

July 7, 1999

MEMORANDUM

SUBJECT: Draft Sampling, Analysis, and Quality Assurance Plan
for IRP Site 24, Vadose Zone Remediation, Marine Corps
Air Station, El Toro, California (Document Control
Number [DCN] H6CA010Q99VSF1)

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

THROUGH: Vance S. Fong, P.E., Manager
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TO: Glenn Kistner, Remedial Project Manager
Air Force & DOE Section, SFD-8-1

A draft sampling, analysis, and quality assurance plan (SAP) prepared by Earth Tech, Inc. for the Department of the Navy and dated May 1999, was reviewed. The review was based on guidance provided in "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5, October 1997), "Guidance for the Data Quality Objectives Process" (EPA QA/G-4, September 1994), "Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects" (9QA-06-93, August 1993), and a Region 9 memorandum "Review and Amendments of Quality Assurance Project Plans for Federal Facilities Cleanup Sites" (September 30, 1996).

The objective of the project is to remove volatile organic compounds (VOCs) from the vadose zone at Site 24 using a soil vapor extraction (SVE) system. The SAP primarily pertains to operation and maintenance (O&M) of the SVE system. The data gathering process includes measurements of flow rates, stack emission concentrations, and soil gas concentrations. The remedial approach, locations of the soil gas extraction wells, and schematic diagram(s) of the SVE system are provided in other referenced documents.

The SAP addresses most of the Agency quality assurance project plan (QAPP) and field sampling plan (FSP) required elements. The SAP provides a cross reference between the QAPP required elements and various sections of the plan. The SAP develops the project data quality objectives (DQOs) according to the guidance provided in EPA QA/G-4 (EPA 1994).

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Some concerns were noted during the review. The SAP does not clearly identify the number of samples to be collected per sampling event. A few inconsistencies were noted between the information provided in the tables. In addition the SAP does not adequately specify requirements for performance evaluation (PE) samples and the percentage of data to be validated. These and other issues are discussed in the body of the report.

The SAP cannot be approved by the Quality Assurance (QA) Program until the following concerns are addressed.

Concerns

1. [General] The plan does not list the individuals and their organizations who will receive copies of the approved plan. This list should be provided.
2. [Approval Sheet] The approval sheet does not provide blocks for the EPA Remedial Project Manager and EPA QA Manager. These should be added to the approval sheet.
3. [Figure 1-2, Project Organization Chart; Section 1.7, Project Organization] Figure 1-2 does not include the lines of communication between Mr. Crispin Wanyoike, CTO Manager, and Mr. John Fern, Technical Director, who also provides QA oversight. This should be added (dotted lines).

Similarly, dotted lines should depict the lines of communication between Mr. Crispin Wanyoike, CTO Manager and Mr. David B. DeMars, U.S. Navy Remedial Project Manager, as they belong to different organizations.

4. [Section 2.1.7, Sampling Design; Table 3-1, Sample Collection and Analysis Plan] Section 2.1.7 and Table 3-1 summarize the sample collection and analysis plan for the project over 18 months period. Section 2.1.7 states that regulatory compliance samples will be collected in SUMMA canisters and will be shipped to a fixed laboratory for analysis by EPA Method TO-14. To assess the system operations, samples of gas input (influent), intermediate point, and effluent will be analyzed by EPA Method 8021. In addition, soil gas samples will be collected from field wells in different stages and analyzed by EPA Method 8021 to assess the site cleanup. However, some concerns were noted during the review of the tables and are discussed below.
- 4A. Table 3-1 indicates that system operational assessment samples will be collected from the S1, S2, and S3 locations only during the initial operation period of 8 weeks (i.e., weekly during "Weeks 2-4" and monthly during "Weeks 5-8").

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The table does not specify the collection of system operational assessment samples for the remaining period; Phase I (Months 2-6) and Phase II (Months 6-18) of the project. This information should be provided.

- 4B. Similarly, Table 3-1 indicates that regulatory compliance samples will be collected only during "Weeks 5-8" from the S3 location. The table does not specify collection of compliance samples during "Weeks 2-4" of the initial operation period; Phase I of the operation (Months 2-6); and Phase II of the operation (Months 6-18). This information should be provided.
- 5A. [Table 3-3, Planned Samples at IRP 24 SVE Site] Table 3-3 indicates that 33 influent samples with four (4) duplicates; nine (9) samples in-between carbon vessels with one (1) duplicate; and 33 effluent samples with four (4) duplicates, will be collected for system operational assessment. Table 3-3 does not indicate the collection of blank samples for system operational assessment. A rationale for not collecting blanks should be provided. (Note the total number of influent samples and effluent samples should read 37, and not 42.)

Further, Table 3-3 does not indicate the total number of system operational assessment samples to be collected for each sampling event over 18 months period. This information should be provided.

- 5B. Table 3-3 indicates that 33 effluent samples, four (4) duplicates, five (5) trip blanks, and one (1) trip spike will be collected for regulatory compliance. However, the footnote "a" to Table 3-3 states that trip blanks will be collected for the T0-14 sampling events at a frequency of 20 percent. Region 9 recommends at least one blank sample be collected per day for each parameter. Alternatively, a rationale for not collecting at least one blank sample per day should be provided.

Footnote "a" to Table 3-3 indicates that 24 sampling events are scheduled for regulatory compliance samples. The table should also indicate how many regulatory compliance samples will be collected per scheduled event. (Note the total number of samples to be collected for compliance are 43 and not 42.)

- 5C. Table 3-3 indicates that in total 240 field samples; 24 duplicates; and 14 equipment blanks will be collected from field wells for soil gas analysis. The table should also indicate how many soil gas samples will be collected per sampling event.

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- 5D. Table 3-3 indicates that samples for the SVE operational assessment will be analyzed by EPA 8021B/TO-14, while Table 3-1 indicates only Method 8021. This inconsistency should be resolved.
6. [Section 3.1, Operation and Monitoring] Section 3.1 references a system evaluation and operation report (SEOR) plan (Earth Tech 1999) for schematic diagram, sampling procedures, and locations of soil gas wells. However this plan was not provided for reference. It is recommended that at least a schematic diagram of the SVE system and a figure identifying the sampling locations be added to the SAP. Further the SEOR plan should be made available at the site.
7. [Section 3.1.5, Sample Designation] Section 3.1.5 indicates that field duplicates will be identified with "D". This sample designation will not be blind to a laboratory. Region 9 recommends that duplicate samples be assigned separate numbers and be submitted blind to the laboratory.
8. [Section 3.4, Data Management] Section 3.4 specifies a requirement for obtaining hard copy and electronic data deliverables from the laboratory. It is recommended that the SAP also include a provision for obtaining gas chromatography (GC) and gas chromatography/mass spectrometry (GC/MS) data on magnetic tapes along with other laboratory data deliverables. The SAP should also state that these tapes containing GC and GC/MS data could also be made available to Region 9 upon request.
9. [Section 3.4.2, Data Validation] Section 3.4.2 states that an independent, third party subcontractor will validate data gathered to demonstrate compliance with regulations. The SAP should also specify an appropriate percentage of data to be validated. Region 9 recommends that a minimum of 10 to 20% of the data be validated according to procedures consistent with those specified in the National Functional Guidelines.
10. [Section 3.5.2, Laboratory System Audits] Section 3.5.2 states that the selected laboratory will be evaluated for capabilities and experience to meet the project requirements. The SAP should also include a provision for submitting copies of laboratory audit reports to Region 9 summarizing auditing activities and findings, and any corresponding corrective actions implemented as a result of audit activities.
11. [Section 3.5.3, Laboratory Performance Review] Section 3.5.3 describes how laboratory performance reviews will be conducted. The SAP should also include a provision for

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analyzing double blind PE samples by on-site and off-site laboratories. The SAP should specify the frequency, acceptance criteria, and oversight for PE sample analyses. The results of PE sample analyses should be provided to Region 9.

Note Table 3-3 indicates one (1) trip spike sample will be analyzed by an off-site laboratory for regulatory compliance. The SAP should state who will prepare this sample and how it will be disguised and introduced into the sample stream in the field.

Comments

1. [Title and Approval Sheet] The title of the plan is not consistent between the cover page and approval sheet. The cover page indicates "Vadose Zone Remediation", while the approval sheet has "SVE Operation and Maintenance".
2. [Section 1.2, Project History] Section 1.2 states that the SVE system has been installed south of Building 296. However the location of Building 296 is not identified.
3. [Section 3, Sampling and Analysis Plan; Section 3.2.5, Documentation and Deliverables] Section 3 states that the methodologies and procedures will conform to project standard operating procedures (SOPs), BNI 1998b. Section 3.2.5 also states that records will be kept in accordance with SOPs. It is recommended that these SOPs be attached to this SAP and be made available at the site.
4. [Section 3.1.3, Analytical Methods] Section 3.1.3 indicates that regulatory compliance samples will be analyzed by an off-site laboratory and the SVE system assessment samples will be analyzed by an on-site mobile laboratory. It is suggested that the SAP identify these laboratories upon selection.
5. [Table 3-1, Sample Collection and Analysis Plan] Table 3-1 indicates that O&M data forms will be used; however, the SAP does not include a copy of the forms. This should be provided.

Questions or comments regarding this review should be referred to Joe Eidelberg of the EPA QA Program at (415) 744-1527. Technical assistance for this review was provided by Surender Kaushik of Lockheed Martin Environmental Services Assistance Team (ESAT)

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Contract No. 68D60005, Work Assignment (WA) No. 9-99-3-5,
Technical Direction Form (TDF) No. 9935021.