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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

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REPLY TO THE ATTENTION OF: SRF-5J

Mr. Johnny W. Reising
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

RE: U.S. EPA Draft
Revised SCQ Comments

Dear Mr. Reising:

The United States Environmental Protection Agency (U.S. EPA) has completed a portion of its review of the United States Department of Energy's (U.S. DOE) revision 1.0 of the Sitewide Comprehensive Environmental Response, Compensation, and Liability Act Quality Assurance Project Plan (SCQ).

U.S. EPA has enclosed several draft comments on the document. Final comments addressing any additional issues will be submitted by January 31, 1998. However, it may be necessary to have a meeting to discuss these draft comments and other comments before then.

Please contact me at (312) 886-0992 if you have any questions regarding this matter.

Sincerely,

James A. Saric
Remedial Project Manager
Federal Facilities Section
SFD Remedial Response Branch #2

Enclosure

cc: Tom Schneider, OEPA-SWDO
Bill Murphie, U.S. DOE-HDQ
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TECHNICAL REVIEW COMMENTS ON "SITEWIDE CERCLA QUALITY ASSURANCE PROJECT PLAN, REVISION 1"

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

GENERAL COMMENTS

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Not Applicable (NA) Page #: NA Line #: NA
Original General Comment #: 1.
Comment: The text contains many typographical and grammatical errors, some of which could limit the usability of the document. The first example occurs on Page 1 of the Glossary, where "CCB" is defined as "Calibration Continuing Blank" rather than the correct "Continuing Calibration Blank." Only the errors that tend to mislead the reader are noted in the specific comments. Nevertheless, the document should be thoroughly edited before its release to eliminate such errors. In addition, some significant errors and omissions may not be noted in the following comments because of the document's complexity. While checking for and correcting minor errors, the U.S. Department of Energy (DOE) should also look for any major errors not yet detected and correct them as well.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 2.
Comment : Revision 1 of the "Sitewide CERCLA Quality Assurance Project Plan" (SCQ) contains a number of new sections and has been partially reorganized, resulting in assignment of new section numbers. For example, former Section K.4.2.4 is now Section K.4.2.5, and former Section K.6.2.1 is now Section K.6.2.2. However, the text still contains cross-references to the original section numbers (for example, on Line 4 of Page 6-4 and Line 27 of Page 6-11 in the cases cited above). Cross-references should be checked and corrected as necessary. In addition, as part of the editing process, cross-references should be revised to identify to the precise sections of interest (for example, Section "K.4.2.4" rather than "K.4.2 *et seq.*" in order to assist the reader in locating the necessary information.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 3.
Comment: The text provides quality assurance (QA) requirements for field analytical measurements but does not address real-time instruments such as the radiation tracking system and high-purity germanium detector. The text should be revised to include references to standard operating procedures (SOP) and other supporting information for these instruments.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 4.
Comment: Sections 6.4 and K.6 omit two of the three types of air samples to be collected under the final "Integrated Environmental Monitoring Plan" (IEMP) for the Fernald Environmental Management Project (FEMP): radiological air particulate monitoring samples and direct radiation monitoring samples. The IEMP states that sampling procedures for both types of samples are included in the SCQ (see Sections 6.5.2.1 and 6.5.4.1 of the IEMP). Sections 6.4.5 and K.6.5 of the SCQ include general discussions of the air sampling required to confirm compliance with applicable dose limits. However, these discussions do not specifically address the high-volume air samples that will be

collected to demonstrate compliance with National Emission Standards for Hazardous Air Pollutant Subpart H requirements, a key component of the IEMP air monitoring program. Similarly, direct radiation monitoring using thermoluminescent detectors (TLD) is not addressed in the SCQ. Sections 6.4 and K.6 of the SCQ should be revised to discuss sampling procedures for both radiological air particulate monitoring and direct radiation monitoring using TLDs. The SCQ should also include references to any SOPs that may be used to collect the samples.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 5.
Comment: Section 6.4 and Appendixes G and K should be revised to present clearer and more consistent information on quality assurance and quality control (QA/QC) procedures and analytical methods for gaseous matrix samples. As stated in Section 1.1, the purposes of the SCQ are to (1) establish minimum performance standards and (2) ensure that the standards are followed. However, the SCQ does not adequately define minimum standards. For example, the IEMP includes radon monitoring using alpha track-etch radon cups as one type of air sampling that will be conducted under the sitewide air monitoring program, but neither the SCQ nor the IEMP completely defines the required QA/QC procedures and analytical methods for the samples. Section 6.5.3.2 of the IEMP states that QC samples for the alpha track-etch radon cups will include "internal control blanks, spikes, and laboratory control samples as required by the SCQ." Section 6.4.2.1 of the SCQ states that "the types of Quality Control samples analyzed with each batch of samples and the acceptance limits for the results" are included in Section K.6.2.1. While Section K.6.2.4 of the SCQ states that spiked detectors and blanks will be analyzed, frequencies and acceptance criteria for these QC samples are not presented. In addition, the analytical method for the alpha track-etch radon cups is not presented in Appendix G of the SCQ. Because the IEMP has been approved as final, the SCQ should be revised to include all remaining information needed to collect and analyze IEMP air samples and to evaluate the quality of the resulting data.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.4.3 and 6.4.4 Page #: 6-12 Line #: NA
Original General Comment #: 6.
Comment : These sections briefly discuss air monitoring for radioactivity and for organic and inorganic contaminants and imply that such health and safety monitoring is outside the scope of the operational analytical activities that are the subject of the SCQ. In addition, Section 5.4 on Page 5-10 discusses monitoring for radioactivity for health and safety purposes and explicitly excludes this activity from the requirements of the SCQ. However, the major unknowns at FEMP are the extent of the known contaminated sites and the locations of any unidentified contaminated sites within or near FEMP. The "extent" question is being addressed by various project-specific plans for both initial surveys and certification surveys to be carried out in accordance with the SCQ, the "Sitewide Excavation Plan," and similar documents. The only reasonable method for locating unknown contamination is visual observation (of green salt, derbies, or other foreign matter in soil, for instance) supplemented by use of the standard health and safety monitoring equipment for radioactivity and organic vapors. Because the health and safety activities serve remedial purposes, they should be treated as on-site analytical activities covered by the SCQ at analytical support level (ASL) A. The sections cited above and related ones in Appendix K and elsewhere should be revised to emphasize the need to use all available information to locate all significant contamination, especially contamination that exceeds the waste acceptance criteria for the On-Site Disposal Facility. Section 2.3.4.A, which defines ASL A, need not be changed because it already includes some examples of use of health and safety monitoring equipment for identifying contamination.

Commenting Organization: U.S. EPA
Commentor: Saric
Appendix #: D
Page #: NA
Line #: NA
Original General Comment #: 7.
Comment: Appendix D discusses the data validation requirements for organic, inorganic, and radiochemistry analytical methods; however, the ASLs discussed for each type of analysis appear to differ. For example, most discussions of organic analyses include only ASLs C and D, while most discussions of inorganic analyses include ASLs B, C, and D. In addition, Section D.9 discusses validation of volatile organic compound (VOC) data for drinking water at ASL B only. A rationale for the ASL differences should be clearly presented in the introduction to Appendix D.

Commenting Organization: U.S. EPA
Commentor: Saric
Appendix #: D
Page # NA
Line #: NA
Original General Comment #: 8.
Comment: Sections of Appendix D are inconsistent with each other when discussing the procedures for qualifying analytical data when the laboratory does not submit all the laboratory QC data to the validator. For example, Section D.6.3.3 states that "if continuing calibration data are required and not available, qualify all associated data as unusable (R)." However, Section D.6.2.3 indicates that if the laboratory fails to submit instrument tuning criteria data, the validator should complete a request for additional information and resubmittal (RIR). Other sections, for example Section D.6.3.2, do not even discuss the issue of insufficient laboratory QC data. The issue of insufficient laboratory QC data should be addressed globally in Appendix D, and all portions of the appendix that contradict the global procedures should be removed.

Commenting Organization: U.S. EPA
Commentor: Saric
Appendix #: F
Page #: NA
Line #: NA
Original General Comment #: 9.
Comment: Section F.3.7 refers to the FEMP Sitewide Environmental Database (SED) as a data repository that is the heart of the FEMP environmental data management system. The text in other sections of Appendix F is confusing because inconsistent references are made to the SED as the "database," "repository," or "centralized data repository." DOE should refer to the SED in a consistent manner throughout the appendix.

In addition, Section F.1 indicates that the subsystems of the data management system and linkages between the subsystems will be described in Appendix F. However, the text does not identify the components of the data management system as subsystems and provides only limited discussion of linkages within the data management system. It is not clear which components are subsystems, and it appears that some of the components are stand-alone with no linkage to the data management system. DOE should revise the text to clarify the overall system and subsystem structure as well as the interrelationships between the different systems and subsystems.

Commenting Organization: U.S. EPA Commentor: Saric
Appendix #: G Page #: NA Line #: NA
Original General Comment #: 10.
Comment: Appendix G does not reference the most recently promulgated analytical methods in Update III of "Test Methods for Evaluating Solid Waste" (SW-846). Although some of the methods listed in the SCQ are still approved for use, others have been deleted from SW-846 altogether. For example, Method 3520 cited in Table G-1 has been replaced with Method 3520C, and Methods 8080A and 8150B cited in Table G-1 have been deleted from SW-846 and should not be used. These examples do not represent all the changes required in Appendix G. This appendix should be thoroughly checked and revised to reflect use of the most recently promulgated analytical methods in SW-846 Update III. In addition, Footnote 4 of Table G-1 cites the Seventeenth Edition of "Standard Methods for the Analysis of Water and Wastewater," but the Nineteenth Edition (dated 1995) is current. This footnote should be revised to cite the current guidance.

SPECIFIC COMMENTS

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.2.3 Page #: 1-4 and 1-5 Line #: NA
Original Specific Comment #: 1.
Comment: This section lists U.S. Environmental Protection Agency (U.S. EPA) guidances and requirements used to develop the QA/QC procedures in the SCQ. However, several documents listed have been replaced by more recent U.S. EPA documents. For example, Item A has been replaced by "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations, Draft Interim Final" (EPA QA/R-5, August 1994). A final version of EPA QA/R-5 is scheduled for publication in 1997. Similarly, Item F has been replaced by "Data Quality Objectives Process for Superfund, Interim Final Guidance" (EPA/540/G-93/071, September 1993). In addition, "Guidance for the Data Quality Objectives Process, Final" (EPA QA/G-4, September 1994) is not listed. Section 1.2.3 should be revised to include applicable, up-to-date U.S. EPA documents, and copies of these documents should be maintained at FEMP.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 1.2.3 Page #: 1-4 Line #: 45
Original Specific Comment #: 2.
Comment: The text cites a reference as "U.S. EPA 1996b," but this newly added reference does not appear in the reference section. This reference and any others cited but not included in the reference section should be added, and the citations in the text should be checked for consistency with the reference section.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: 1.3
Page #: 1-5
Line #: 30 to 32
Original Specific Comment #: 3.
Comment: The text cites out-of-date U.S. EPA requirements for QA program plans and quality assurance project plans (QAPP). QA program plans have been replaced by quality management plans as described in "EPA Requirements for Quality Management Plans, Draft Interim Final" (EPA QA/R-2, August 1994). Current U.S. EPA QAPP requirements are specified in "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations, Draft Interim Final" (EPA QA/R-5, August 1994). Final versions of both documents are scheduled for publication in 1997. The text should be revised to cite the current U.S. EPA requirements.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: 1.5
Page #: 1-7
Line #: 14
Original Specific Comment #: 4.
Comment: Item F indicates that approval of data quality objectives (DQO) is one of the steps involved in implementing the SCQ. However, Section 1.5 and subsequent sections of the SCQ (including Section 3.3.1, Form C-1 in Appendix B, and Appendix C) do not indicate how DQO approval will occur or who is responsible for the approval. For example, Section 1.5.1 (Lines 5 to 7 on Page 1-8) states that the DQO coordinator is responsible for ensuring that all required approvals have been received but does not specify who must approve the DQOs. The text should be revised to clearly describe the DQO approval process.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: 1.5
Page #: 1-7
Line #: 28
Original Specific Comment #: 5.
Comment: The text outlines the means used to amend ongoing projects, giving the process for revision and approval of project-specific plans (PSP). Many of the actual modifications can be done through use of a variance/field change notice (V/FCN). Use of the V/FCN should be discussed in the text, and a cross-reference to Section 15.3 should be included for the details of the V/FCN's applicability and use.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: 1.5.1
Page #: 1-7
Line #: 48
Original Specific Comment #: 6.
Comment: The text states that completed DQO summary forms should be referenced in a PSP. However, Item C on Page 1-6 states that DQO summary forms will be included in the PSP. The SCQ should be revised to clearly state whether DQO summary forms are to be included or simply referenced in the PSP.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: 3.1.1
Page #: 3-1
Line #: 27 to 31
Original Specific Comment #: 7.
Comment: The text identifies the regulatory bodies through which U.S. EPA has authority at FEMP. The text should be revised to state that U.S. EPA has review and comment responsibility for Comprehensive Environmental Response, Compensation, and Liability Act documents.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3.1 Page #: 3-5 Line #: 47
Original Specific Comment #: 8.
Comment: The text states that "USEPA guidance has been used to develop a process for defining DQOs. . . ." Although the DQO definition process described in Appendix C is consistent with current U.S. EPA guidance, the current guidance is not identified in the text, the reference section, or Appendix C of the SCQ. The SCQ should be revised to identify the current U.S. EPA guidance on DQOs.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3.2.2 Page #: 3-7 Line #: 32 and 33
Original Specific Comment #: 9.
Comment: The text states that the "DQO date must be attached to the PSP and incorporated as a reference." The text should be revised to refer to the DQO summary form (Form C-1 in Appendix B). In addition, as discussed in Original Specific Comment 6, the SCQ presents conflicting information as to whether the DQO summary form should be included in the PSP, referenced in the PSP, or both. The SCQ should be revised to clarify this matter.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3.2.5 Page #: 3-8 Line #: 49
Original Specific Comment #: 10.
Comment: The text should be revised to refer to "approved" methods rather than "approval" methods.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3.3 Page #:3-9 Line #: 24 to 36
Original Specific Comment #: 11.
Comment: The text in this section describes the PSP review and approval process. The text refers to PSP review and approval by the appropriate regulatory agency. For the soils remediation project, PSPs have undergone an informal review by the regulatory agencies. DOE should revise the text in this section to describe this informal review process.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.1.1 Page #: 4-3 Line #: 1 to 18
Original Specific Comment #: 12.
Comment: The general descriptions of trip blank and field blank samples presented in this section are not applicable to air sampling media such as high-volume air filters or alpha track-etch radon cups. The descriptions should be revised to apply more broadly to the types of samples that will be collected under the SCQ.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.3.1 Page #: 4-7 Line #: 3
Original Specific Comment #: 13.
Comment: The text discusses data that are imperfect but still adequate to be counted for completeness. The text should be revised to note that data qualified as "estimated" by data validators are usually considered to be valid for calculating completeness but may not be considered acceptable if very high precision is needed to meet the project objectives.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.5.1.2 Page #: 4-17 Line #: 34 and 35
Original Specific Comment #: 14.
Comment: The text states that test programs will be run whenever significant hardware or operating system configuration changes are made. However, the circumstances that will trigger in-use tests are not clear. The text should be revised to either define or provide examples of a significant hardware or operating system configuration change.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.5.5 Page #: 4-19 Line #: 1 to 6
Original Specific Comment #: 15.
Comment: The text states that software will be controlled to prevent use of modified packages that have not been verified. However, it is not clear how inadvertent use of unverified software will be prevented. The text should be revised to clarify this matter.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.2.2 Page #: 5-3 Line #: 48
Original Specific Comment #: 16.
Comment: The text states that Figure 2-2 illustrates the well types defined in the text. However, the figure shows a "Type 6" well that is not discussed in the text. The text should be revised to define the "Type 6" well and discuss how it differs from the similar "Type 3" well.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.2.1 Page #: 6-3 Line #: 17 and 18
Original Specific Comment #: 17.
Comment: The text indicates that field requirements for measurement of turbidity are provided in Section K.4.1 *et seq.* However, the field methodology for collecting turbidity measurements is not included in Section K.4.1, and no calibration procedures for turbidity are included in Section I.4. Appendixes K and I should be revised to include this information.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.2.4.1 Page #: 6-5 Line #: 38
Original Specific Comment #: 18.
Comment: The text states that Appendix G gives analytical procedures required for compliance with the National Pollutant Discharge Elimination System permit, and Line 20 on Page 6-5 indicates that samples collected from Discharge Point 1IO00004901 will be analyzed for acute toxicity. However, Appendix G does not discuss acute toxicity tests. The text should be revised to include quality criteria for acute toxicity analysis.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.4.5 Page #: 6-12 Line #: 42
Original Specific Comment #: 19.
Comment: The text discusses air monitoring for off-site exposure but does not cite the IEMP. The text should be revised to cite the IEMP and discuss the differences between the IEMP and PSP. In particular, the text should note that the IEMP includes provisions for monitoring emissions from the entire FEMP, including multiple sources, while the PSP or similar documents cover individual sources such as those created or modified during remedial activities.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.4.5 Page #: 6-13 Line #: 13 to 24
Original Specific Comment #: 20.
Comment: Meteorological data collection is potentially relevant to all the types of gaseous matrix samples described in Section 6.4. The SCQ should be revised to address meteorological data collection in a separate subsection rather than as part of Section 6.4.5.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.5 Page #: 6-13 Line #: NA
Original Specific Comment #: 21.
Comment: This section discusses biological sampling at FEMP. The text should be revised to state that biota samples to be used for ecological risk assessment will be collected during periods of high species abundance and activity.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.7.8.2 Page #: 6-24 Line #: 4
Original Specific Comment #: 22.
Comment: The text cites Table K-1 in Appendix A, but no Table K-1 is included in the SCQ. This table should be provided.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 7.2.1.1 Page #: 7-6 Line #: 8 to 10
Original Specific Comment #: 23.
Comment: The text provides instructions for comparing custody seal numbers on the shipping container (cooler) with the numbers recorded on the chain-of-custody (COC) form. However, if samples are shipped to a laboratory by common carrier, the COC form is placed in a plastic bag and sealed inside the cooler as detailed in Section K.10.4.I. The text should be reviewed to account for this procedure by adding "and record seal numbers" to the end of Line 12 and adding "open the cooler and remove the COC form" followed by current Lines 8 through 10 after current Line 14. These changes and some minor editing will provide a logical order of actions for all relevant cases.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 7.2.1.1 Page #: 7-6 Line #: 33
Original Specific Comment #: 24.
Comment: The text states that the way bill number should be entered on the COC form. The person shipping the samples should enter the way bill number on the COC form before relinquishing sample custody to the common carrier. The text should be revised to specify that the way bill number is to be entered on the COC form before sample custody is relinquished to the common carrier.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 9.4.1 Page #: 9-2 Line #: 27 and 28
Original Specific Comment #: 25.
Comment: The text indicates that all organic, inorganic, and wet chemical analytical methods to be used under the jurisdiction of the SCQ are listed in the "Method Selection Table" (Appendix G, Table G-1). However, Table G-1 does not identify radiochemical analytical methods for all isotopes of concern at FEMP; the table specifies chemical analytical techniques for uranium and thorium only. The highest allowable minimum detectable concentrations (HAMDC) for additional isotopes of concern, such as plutonium, neptunium, polonium, americium, radium, lead, strontium, and technetium, are identified in Table G-3. If HAMDCs can be specified for these additional isotopes, then Table G-1 should be revised to include specific chemical analytical methods for them.

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Commenting Organization: U.S. EPA
Commentor: Saric
Section #: 14.2
Page #: 14-1 and 14-2
Line #: NA
Original Specific Comment #: 26.
Comment: Section 14.2 discusses initial, secondary, and tertiary data review requirements for the laboratory; however, documentation of the reviews is not discussed. The text should be revised to state that the three-tiered review will be documented to provide evidence that the reviews were performed.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: 15.1.2.1
Page #: 15-2
Line #: NA
Original Specific Comment #: 27.
Comment: This section includes several references to a "nonconformance report form," but no such form is included among the forms in Appendix B of the SCQ. A form is necessary to complete the nonconformance reporting procedure presented in Section 15.1.2.1. The SCQ should be revised to either modify the reporting procedure or include a nonconformance report form.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: 15.4
Page #: 15-6
Line #: 13 to 41
Original Specific Comment #: 28.
Comment: Section 15.4 discusses procedures for obtaining expedited sampling and analysis authorization. Section 15.4 should be revised to describe how the authorization or approval of expedited sampling and analysis is to be documented. Section 15.4 should also be revised to more clearly describe the documentation that must be prepared by the project organization conducting the expedited sampling and analysis with special attention to any deviations from normal procedures.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: References
Page #: R-1
Line #: NA
Original Specific Comment #: 29.
Comment: A final version of the American Society for Quality Control document listed on this page is available and should be referenced. The final version is "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (ANSI/ASQC E4-1994).

Commenting Organization: U.S. EPA
Commentor: Saric
Appendix #: A
Page #: A-11
Line #: NA
Original Specific Comment #: 30.
Comment: The heading on this page of Table 2-2 implies that laboratory QC requirements for organic analyses are presented on this page. However, the reference to "DFTPP and BFB performance results" applies only to gas chromatography/mass spectrometry (GC/MS) analysis and not to all organic analyses as the heading implies. The table should be revised to note that this QC requirement is for GC/MS analysis only.

Commenting Organization: U.S. EPA Commentor: Saric
Appendix #: A Page #: A-17 to A-23 Line #: NA
Original Specific Comment #: 31.
Comment: Analytical methods for approximately 30 analytes listed in Table 6-1 titled "Sample Container and Preservation Requirements" are not provided in Table G-1 titled "SCQ Analytical Methods Selection Table for Standard and Historical Methods (Organic, Inorganic, and Isotopic)." For example, nitrite, sulfite, benzidines, haloethers, nitrosamines, and phthalate esters are identified as analytes for the project in Table 6-1 but are not identified in Table G-1. Therefore, it is not clear whether these analytes are applicable to the project. Table 6-1 should be thoroughly checked and revised as necessary to provide container, preservation, and holding time requirements for project-specific analytes only. Also, Table 6-1 should be revised to identify the analytical method for each analyte in the table.

Commenting Organization: U.S. EPA Commentor: Saric
Appendix #: A Page #: A-17 to A-23 Line #: NA
Original Specific Comment #: 32.
Comment: A number of deficiencies were noted in Table 6-1 titled "Sample Container and Preservation Requirements." The table should be revised as indicated below.

- For all toxicity characteristic leaching procedure (TCLP) analyses, the holding times from sample collection to TCLP extraction and from TCLP extraction to analysis of the sample extract should be provided.
- The table should be revised to specify a 24-hour liquid sample holding time for ammonia analysis.
- The table should be revised to include cooling the samples to 2 to 6 °C for the metals analyses on Page A-19.
- The table should be revised to specify use of 0.008 percent sodium thiosulfate for phenols analysis of liquid samples.
- The table should be revised to specify use of a container with a Teflon-lined cap for elemental phosphorus analysis of liquid samples.
- The table should be revised to reflect a sample holding time requirement of "8 hours from sample collection to extraction and analysis of the extract as soon as possible" for elemental phosphorus analysis of liquid samples.
- Liquid samples for total phosphorus analysis should be analyzed on the day of sample collection, or the samples should be collected in glass containers, preserved with 40 milligrams of mercuric chloride for every liter of sample, and cooled to 2 to 6 °C. The table should be revised to reflect this requirement.
- Table G-1 provides various SW-846 and Contract Laboratory Program (CLP) methods for VOC analyses of soil, sediment, or sludge samples; however, Table 6-1 lists a sample holding time of 14 days for VOC analyses of soil, sediment, or sludge samples, which applies to SW-846 analyses only. A sample holding time of 10 days for CLP VOC analyses should also be included in Table 6-1.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: C.2
Page #: C-2
Line #: 40
Original Specific Comment #: 33.
Comment: The reference cited in this section (Neptune 1991) should be added to the SCQ reference section.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: D.2.2.1
Page #: D-2
Line #: 23 to 44
Original Specific Comment #: 34.
Comment: The section titled "Field Checklist Development" does not discuss development of a field checklist; instead, it lists data package requirements. The section should be revised to include a description of field checklist development similar to the discussion in Section D.2.2.2.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: D.2.2.2
Page #: D-3
Line #: 4 to 42
Original Specific Comment #: 35.
Comment: The organic analysis checklist requirements listed in Item A of this section do not include field duplicates, target compound identification, compound quantitation and reported detection limits, tentatively identified compounds, and system performance. For a validation checklist to be an effective tool for the task, it should include all elements being reviewed. Although the items specified above are discussed in Sections D.6.7, D.6.9, D.6.10, D.6.11, and D.6.12, they should also be identified as organic analysis checklist elements in Section D.2.2.2. Likewise, the laboratory control samples (LCS) discussed in Section D.10.5, graphite furnace atomic absorption precision and accuracy checks discussed in Section D.10.9, sample result verification discussed in Section D.10.11, and field duplicates discussed in Section D.10.12 should be included as inorganic analysis checklist elements in Item B of Section D.2.2.2.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: D.2.2.2
Page #: D-3
Line #: 9
Original Specific Comment #: 36.
Comment: The references to a "gas chromatograph/spectrometer" in this section are incomplete. The complete instrument name is "gas chromatograph/mass spectrometer," and the text

should be revised to use this name.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: D.2.4.3
Page #: D-7
Line #: 1
Original Specific Comment #: 37.
Comment: The description of the "S" qualifier in this section is incomplete. The text should be revised to state that while the "S" qualifier indicates that the sample result was obtained by performing the method of standard addition, it also indicates that the calculated correlation coefficient was greater than or equal to 0.995.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: D.2.4.3
Page #: D-7
Line #: 8
Original Specific Comment #: 38.
Comment: The description of the "+" qualifier in this section is incomplete. The description should be revised to state that the qualifier indicates that the sample result was obtained by performing the method of standard addition and that the calculated correlation coefficient was less than 0.995.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: D.2.6
Page #: D-8
Line #: 20
Original Specific Comment #: 39.
Comment: The text describes the RIR procedure and form. A blank copy of the RIR form should be included in Appendix B to clarify the description.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: D.4.1
Page #: D-12
Line #: 6 to 24
Original Specific Comment #: 40.
Comment: Item C of this section lists the items to be reviewed by the validator. Although this list includes items required for validation, it is inconsistent with the items in the validation checklist (Section D.2.2) and the discussion in Sections D.5 through D.12. Item C should be revised to make it consistent with the validation requirements set forth in other sections of Appendix D.

Commenting Organization: U.S. EPA
Commentor: Saric
Section #: D.6.1.2.6
Page #: D-14
Line #: 46
Original Specific Comment #: 41.
Comment: The text discusses qualification of volatile organic analysis (VOA) results as unusable because of extreme holding time exceedances. The text should be revised to include numerical guidance as is done for semivolatile organic analysis (SVOA) in Section D.6.1.3. This comment also applies to the discussion of VOA results for drinking water in Section D.9.1.2.C. DOE should consider using the most common criterion - that an analysis conducted more than twice the standard holding time after sample collection requires data rejection.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.6.1.3 Page #: D-15 Line #: 5 to 36
Original Specific Comment #: 42.
Comment: The discussion of holding time qualification for semivolatile organic compound (SVOC) analyses of solid and liquid samples presented in this section is very confusing because Items E and F contradict Item D. If the undetected results for early-eluting SVOCs in soil samples are to be qualified as rejected (R) when they are obtained 21 days after sample collection as stated in Item D, then the text should explain the rationale for qualifying all undetected early-eluting SVOC results as estimated (UJ) when they are obtained between 41 and 54 days after sample collection as stated in Item E. Likewise, Item F states that when they are obtained after 54 days, the undetected early-eluting SVOC results should be qualified as rejected (R). The text should be revised to resolve these contradictions for both solid and liquid sample analyses.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.6.2.1 Page #: D-16 Line #: NA
Original Specific Comment #: 43.
Comment: The text gives criteria for tuning the mass spectrometer for VOA and SVOA. However, in a number of cases (such as the mass/charge [m/z] ratio of 50 for VOA), the criteria for ASLs C and D are less stringent than the criterion for ASL B (8.0 to 40.0 percent of m/z 95 versus 18.0 to 40.0 percent of m/z 95, in this case). In addition, the criterion "present" for m/z 70 for SVOA for ASLs C and D seems inappropriate compared to the "less than 2 percent of m/z 69" criterion for ASL B, which encompasses zero. ASL C and D data are defined as being higher in quality than ASL B data, so one would expect ASL C and D criteria to be at least as stringent as ASL B criteria. The text should include a justification for these discrepancies, or the criteria should be changed.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.6.3.1 Page #: D-19 Line #: 17 to 28
Original Specific Comment #: 44.
Comment: Item A(1) and Item B(1), which discuss initial and continuing calibration criteria, respectively, are not consistent with each other. Text was added to Item B(1) that includes hazardous substance list (HSL) compounds, but the HSL compounds are not discussed in Item A(1). The text should be revised to resolve this inconsistency.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.7.7.1 Page #: D-39 Line #: 39 and 40
Original Specific Comment #: 45.
Comment: This section states that the review criteria for field duplicates are the same as those for laboratory duplicates; however, organic analyses generally do not require laboratory duplicates. Organic analyses generally require matrix spike duplicates instead. The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.8.8.2 Page #: D-49 Line #: 16 to 32
Original Specific Comment #: 46.
Comment: The text gives guidance on use of LCSs in data validation. The SCQ should state either here or in Section D.8.6.2 on matrix spike/matrix spike duplicate (MS/MSD) analyses that when the LCS results are within QC limits but the MS/MSD results are outside those limits, significant matrix interference probably exists in the sample used for the MS/MSD analyses and in all similar samples.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.10.2.4 Page #: D-58 and D-59 Line #: NA
Original Specific Comment #: 47.
Comment: The text presents QC limits for qualifying analytical results because of irregular recoveries in calibration verification analyses. However, many of these QC limits are much less stringent than the limits provided in the U.S..EPA guidance cited. For instance, U.S. EPA would reject results associated with a calibration verification recovery of less than 75 percent for metals, 70 percent for cyanide, or 65 percent for mercury with no exceptions, while DOE would consider rejecting the results only if the recovery was less than 30 percent. Therefore, DOE would retain analytical results that U.S. EPA would consider unusable because of excessively low bias. Either the text should be revised to reflect use of U.S. EPA guidance or DOE should thoroughly justify its modified criteria in the SCQ.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.12.2.2 Page #: D-79 Line #: 5 to 7
Original Specific Comment #: 48.
Comment: The text states that for daily background checks, results should be qualified as estimated if the results are "no greater than +/- 2 standard deviations of the mean." The text should be revised to clarify that for daily background checks, if results are not within +/- 2 standard deviations of the mean, all associated data should be qualified as estimated.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.12.2.4 Page #: D-80 Line #: 5 to 24
Original Specific Comment #: 49.
Comment: This section provides supplemental calibration requirements for analyses using gas proportional counters. Item C should be expanded to identify a qualifier for a minimum alpha efficiency value. Also, Item F should identify a qualifier for beta-into-alpha crosstalk. Based on the discussion in Item G, if the beta-into-alpha crosstalk exceeds 3 percent, all associated data should be qualified as unusable.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.12.2.7 Page #: D-81 Line #: 27 to 31
Original Specific Comment #: 50.
Comment: The text states that when efficiency calibrations of gamma spectrometry systems are performed, mixed nuclide sources containing at least six useable gamma emissions should be used. The text should be revised to state that when useable gamma energies for calibration are selected, the range should encompass the entire span of photon energies that may be resolved for quantification purposes. This procedure would alleviate use of unnecessary data qualifiers such as those delineated in Section D.12.2.8.E.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.12.3.1 Page #: D-84 Line #: 23
Original Specific Comment #: 51.
Comment: This section provides an equation for calculating instrument detection limit concentrations. The term "K" used in this equation is defined as the product of several factors, including an exponential factor. However, the exponential factor is not defined in the text. The text should be revised to include definitions of all factors associated with the calculations.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: D.12.11 Page #: D-94 and D-95 Line #: NA
Original Specific Comment #: 52.
Comment: In addition to the other QC checks listed, some overall review of analytical results should be performed. For example, in many cases multiple radionuclides are to be analyzed for that may exist in secular equilibrium with their parent. If this is the case, a review of the data associated with these isotopes should be performed to ascertain data comparability. In other cases, a qualitative review should be performed for gross alpha and gross beta activities with respect to individual alpha and beta measurements. Although the sum of alpha and beta isotopic activities should not be directly comparable to gross results, a qualitative review could help to identify anomalous data that should be further reviewed. The text should be revised to include an overall review of the data.

Commenting Organization: U.S. EPA Commentor: Saric
Section#: F.3.10 Page #: F-4 Line #: 10 to 14
Original Specific Comment #: 53.
Comment: The text states that the electronic database is permanently archived in a neutral ASCII file. DOE should specify the type of electronic data that will be permanently archived in this manner. For example, the inventory and waste characterization components of the Sitewide Waste Information, Forecasting, and Tracking System should be permanently archived, but it is not clear whether this type of information is included in the permanent archives. In addition, DOE should specify what is meant by a "permanent" archive. It is not clear whether "permanent" refers to the manner in which data will be stored long after the site cleanup activities are completed. The text should be revised to address these issues.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: F.4 Page #: F-4 Line #: 30 and 31
Original Specific Comment #: 54.
Comment: The text states that redundant storage of a piece of data in more than one location in the database is avoided when possible. The text should be revised to describe the mechanisms that have been developed to minimize, resolve, and delete anomalies between different systems.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: F.5.1 Page #: F-7 Line #: 21 and 22
Original Specific Comment #: 55.
Comment: The text states that entity relationship diagrams describe relationships among the ORACLE® tables. These diagrams should be included in Appendix F.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Table G-2 Page #: G-8 to G-44 Line #: NA
Original Specific Comment #: 56.

Comment: Except for Criteria 55 and 56 (for uranium isotopic analyses) and Criterion 57 (for total uranium analysis), all criteria in this table are for ASL B only. Criteria for ASLs C and D, which are needed for certification of the site as meeting final remediation levels, should be included.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Table G-2 Page #: G-17 Line #: NA
Original Specific Comment #: 57.
Comment: In Item 7 of this table, a set of criteria for analyzing postdigestion spikes is presented in the footnotes. However, according to this table, the analyst is required to continue redigesting the sample until the matrix spike recovery is greater than 30 percent and the postdigestion spike recovery is less than the matrix spike recovery. At some point the redigestion should end, and if the results are the same as those for the original digestion, the data should be qualified. The rationale and criteria presented in Item 7 are confusing and should be revised for clarity.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Table G-2 Page #: G-19 Line #: NA
Original Specific Comment #: 58.
Comment: The text states that the calibration verification criteria for pH are "90 to 110 percent." Such criteria are inappropriate for logarithmic units such as pH. These criteria should be changed to plus or minus some fraction of a standard unit as was done for the duplicate criteria.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Table G-2 Page #: G-32 Line #: NA
Original Specific Comment #: 59.
Comment: The text states that the duplicate criterion for ignitability analyses is a "relative percent difference (RPD)[of] less than 20 percent." The result of the ignitability analysis is either a temperature (on the Celsius, Fahrenheit, Kelvin, Rankin, or another scale) or a pass/fail result at a specified temperature. Therefore, the RPD criterion is inappropriate and should be changed to plus or minus a specified temperature.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Table G-3 Page #: G-45 and G-46 Line #: NA
Original Specific Comment #: 60.
Comment: All the information presented in Table G-3 is also included in Table G-4. Table G-3 could be removed from the SCQ without any loss of information.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Table G-3 Page #: G-45 and G-46 Line #: NA
Original Specific Comment #: 61.
Comment: The table specifies HAMDCs for radionuclides that may be present at FEMP. However, some of the concentrations specified appear to be low and should be further evaluated. The HAMDCs specified represent the minimum detectable concentrations that would be detected in a sample with a 95 percent probability. Although large sample volumes and long counting times would reduce minimum detectable activity values, the presence of interferences from the physical matrix as well as other radionuclides may prevent HAMDC attainment for some isotopes. In particular, the HAMDCs specified for isotopic uranium, thorium, plutonium-241, strontium-90, and technetium-99 in water and soil appear to be very low. The issue is not that the HAMDCs are unrealistic; rather, the analytical laboratory may be required to use unnecessarily long counting times and perform other labor-intensive activities to achieve the HAMDCs when doing so may not be practical. Therefore, the HAMDCs should be further evaluated and revised if necessary.

In addition, the isotope uranium-233 is not listed in the table. In fact, uranium-233 is not included anywhere in the SCQ. Considering that thorium was used at FEMP for the production of uranium-233 and that this thorium was recycled at various DOE installations, some uranium-233 might be present at FEMP. Furthermore, this isotope is not associated with the uranium used for target assemblies. Therefore, no relationship between uranium-234, -235, and -238 could be used to ascertain the uranium-233 proportion of total uranium. Therefore, the SCQ should be revised to include uranium-233 as an isotope of concern at FEMP, and detection methods and HAMDCs for uranium-233 should be specified in Table G-3.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Table G-4 Page #: G-77 and G-78 Line #: NA
Original Specific Comment #: 62.
Comment: The text states that the units for HAMDCs in soils and sediments are picocuries per liter. This unit of measure should be changed to picocuries per mass unit.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: J.3 Page #: J-1 Line #: NA
Original Specific Comment #: 63.
Comment: The text identifies the general responsibilities of field personnel; however, it discusses only geologists and project managers. A new section (J.3.3) should be added to present the responsibilities of the sampling team members identified in Section K.3.3.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: J.4.2.1.2 Page #: J-9 Line #: 10
Original Specific Comment #: 64.
Comment #: The text states that dry boreholes drilled in stable material can be grouted from the bottom of the borehole using a tremie line. However, Line 37 on Page J-9 describes the use of a side-discharge tremie hose. It is unclear whether two different types of tremie are to be used during grout installation. The text should be revised to clarify this matter.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: J.4.3.1 Page #: J-10 Line #: 22
Original Specific Comment #: 65.
Comment: The text states that schedule-40 polyvinyl chloride (PVC) or 316 stainless-steel casing with flush-thread joints should be used. However, no decision-making criteria are presented to aid the project manager in determining the proper material to be used for a specific condition. For example, the Ohio Environmental Protection Agency does not recommend use of PVC when free product is present. The text should be revised to provide basic guidelines for choosing the appropriate casing material for particular conditions.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: J.4.3.2.F Page #: J-12 Line #: 38 to 41
Original Specific Comment #: 66.
Comment: The text states that the native material should be allowed to collapse on top of the filter pack (Step 3) and that the bentonite seal should then be added on top of the filter pack (Step 4). The text should be revised to reverse these steps so that the bentonite seal is placed on top of the filter pack and the native material is allowed to collapse on top of the bentonite seal.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: J.4.7 Page #: J-28 Line #: 44
Original Specific Comment #: 67.
Comment: The text addresses inspecting locks for rust; however, no specific corrective action is provided for locks found to be rusty. The text should be revised to specify the corrective action.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.5.E Page #: K-28 Line #: 41
Original Specific Comment #: 68.
Comment: The text states that "unfiltered metals" are a type of analyte for solid matrix environmental samples. The word "unfiltered" should be deleted.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.5.5.4.B.2 Page #: K-35 and K-36 Line #: NA
Original Specific Comment #: 69.
Comment: The text states that samples will be collected from the eight grid points in the drum. The text should describe the procedure for locating the prescribed eight grid points.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.6.1 Page #: K-39 Line #: 34 to 38
Original Specific Comment #: 70.
Comment: The text cites three specific analytical laboratory method numbers for total uranium, thorium-230, and particulate matter analyses of stack gas samples. However, these method numbers are not included in Appendix G, which is supposed to include "methods and/or performance criteria for all analyses performed for the FEMP." Appendix G should be revised to include all analytical methods listed in Appendix K as well as associated method numbers.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.6.4.6 Page #: K-47 Line #: 38
Original Specific Comment #: 71.
Comment: The text states that calibration methods for portable gas chromatographs are provided in Section I.4.12. However, this section does not exist, and Appendix I does not include portable gas chromatograph calibration methods. These calibration methods should be added to Appendix I, and Section K.6.4.6 should be revised to include a correct reference to Appendix I.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.6.4.7 Page #: K-48 Line #: 23
Original Specific Comment #: 72.
Comment: The text states that calibration methods for an X-ray fluorescence analyzer (XRF) are provided in Appendix I.4.13. However, this section does not exist, and Appendix I does not include XRF calibration methods. These calibration methods should be added to Appendix I, and Section K.6.4.7 should be revised to include a correct reference to Appendix I.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.6.5 Page #: K-49 Line #: 27
Original Specific Comment #: 73.
Comment: The text incorrectly states that flow calibration procedures for air sampling systems are included in Appendix I. Appendix I should be revised to include these calibration procedures.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.6. Page #: K-49 and K-50 Line #: NA
Original Specific Comment #: 74.
Comment: Section K.6.5 presents a general discussion of ambient air sampling requirements for characterizing air-related contaminant exposures. However, the discussion of performance standards for ambient air sampling systems (beginning on Page K-49, Line 38) includes several items related to "effluent sampling," such as Items A, B, and I. These items should instead be included in Section K.6.1, which discusses stack sampling requirements. Appendix K should be revised to address stack or effluent sampling requirements and ambient air sampling requirements separately.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.7.1.3 Page #: K-51 Line #: NA
Original Specific Comment #: 75.
Comment: The text provides procedures for collecting fish samples. The text should be revised to clarify that whole- fish tissue samples will be collected for the ecological risk assessment and that fish fillets will be collected for the human health risk assessment.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.10.3.E Page #: K-59 Line #: 44
Original Specific Comment #: 76.
Comment: The text states that concentrations of sodium hydroxide in water with a "pH [of] about 12.30 or greater" are not considered hazardous under the transportation regulations. The text should be corrected to read "pH of 12.30 or less."

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.10.6 Page #: K-63 Line #: 23 and 24
Original Specific Comment #: 77.
Comment: The text states that potentially radioactive samples will be screened before they are accepted for analytical measurement. The text further states that the screening method specified in Appendix G will be followed. However, after a thorough review of Appendix G, it is not clear what this screening method is. Appendix G should be revised to clearly identify the screening method for potentially radioactive samples.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: K.10.9 Page #: K-65 Line #: NA
Original Specific Comment #: 78.
Comment: The text states that the external surface of each package will be decontaminated to the extent practical and that no significant removable contamination will be present. However, these statements are ambiguous and do not provide quantitative contamination control requirements that must be met for package shipment. The text should be revised to provide contamination control requirements stipulated in 49 Code of Federal Regulations (CFR) 173.443. Allowable radiation levels should be identified as well, and the text should provide a reference to 49 CFR 173.441 for these levels.