UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

August 1, 2014

4WD-FFB

Jennifer Woodard
United States Department of Energy
Portsmouth/Paducah Project Site Office
P.O. Box 1410
Paducah, Kentucky 42002

RE: **EPA Comments on the Addendum to the Work Plan for the Soils Operable Unit Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Remedial Investigation 2 Sampling and Analysis Plan (DOE/LX/07-0120&D2/R2/A1)**

Dear Ms. Woodard,

EPA has received and reviewed the *Addendum to the Work Plan for the Soils Operable Unit Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Remedial Investigation 2 Sampling and Analysis Plan (DOE/LX/07-0120&D2/R2/A1).* DOE did a good job incorporating scoping comments and recommendations into the document. The majority of EPA comments are QAPP related and are attached.

Sincerely,

Jennifer Tufts

Digitally signed by Jennifer Tufts
DN: cn=Jennifer Tufts, o=US EPA Region 4, ou=Federal Facilities Branch, email=tufts.jennifer@epa.gov, c=US
Date: 2014.08.01 16:01:38 -04'00'

Jennifer Tufts
Remedial Project Manager
Federal Facilities Branch

ec: Todd Mullins, KDEP-Frankfort
Leo Williamson, KDEP-Frankfort
Lisa Santoro, DOE

EPA Comments on the Addendum to the Work Plan for the Soils Operable Unit Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, Remedial Investigation 2 Sampling and Analysis Plan (DOE/LX/07-0120&D2/R2/A1)

1. The language included in Section 1.6, Recharacterization of SWMU 1, does not reflect the current approach for SWMU 1 soil excavation as described in the revised *Addendum to the Remedial Action Work Plan for In Situ Source Treatment by Deep Soil Mixing of the Southwest Groundwater Plume Volatile Organic Source at the C-747-C Oil Land Farm (Solid Waste Management Unit 1) at the Paducah Gaseous Diffusion Plant (DOE/LX/07-1287&D2/A1/R1).* Please modify the paragraph with the updated approach.

2. Throughout the Soils OU Remedial Investigation 2 Work Plan/SAP (Soils RI 2 SAP), the Soils OU Remedial Investigation Report is referred to as either the RI 2 Report or the Phase II RI Report. For consistency, the Soils OU RI 2 Report should be referred to as the Soils OU RI 2 Report rather than the Soils OU Phase II RI Report. Please modify text where appropriate.

3. The QAPP does not specify the contractors that will perform work under this project. Therefore, QAPP Worksheets #2, #3, #4, #5, #7, #27, #36, and #37 are incomplete. Additionally, the laboratory-specific information is not provided in Worksheets #15, #19, #23, #24, #25, #28, and #30. As a result, the adequacy of these worksheets cannot be evaluated. Upon contractor selection for this project, please revise the QAPP to include all of the contractor and laboratory project-specific information in the appropriate worksheets.

4. The Soils RI 2 SAP indicates that total PCBs will be reported, but the method for calculating total PCBs is not provided. Please revise the document to discuss how total PCBs will be calculated.

5. Worksheet #21 (Project Sampling SOP References Table) lists Paducah SOPs for sample collection, sample transport, and XRF analysis; however, the SOPs are not included with the QAPP. Please ensure the final version of the QAPP includes a copy of all sampling, sample handling, field measurement, sample container and preservation requirements, and relevant analytical SOPs.

6. Worksheet #11 (Project Quality Objectives/Systematic Planning Process Statements) includes a discussion regarding what type of data are needed for this project and states that soil results will be reported on an "as received" or wet weight basis. Reporting results on a wet weight basis (without the water content removed) will underestimate the amount of contaminants in the soil matrix, and therefore may not be comparable to project action limits (PALs) which are based on the concentrations listed in the Risk Methods Document (DOE 2011) No Action Levels (NALs) for the Child Resident. Further, it should be noted that any risk assessment screening/analysis conducted using wet weight results may not provide definitive evidence that the soil meets the NALs. Please revise the QAPP to discuss why samples will be reported as wet weight results and how this affects comparison to PALs. Alternatively, please revise the QAPP to require that a portion of each sample (may require additional sample volume) be analyzed for moisture content so that the dry weight results can be calculated for those samples sent to the laboratory.

7. Analysis of select radionuclides by alpha spectroscopy and technetium-99 by liquid

scintillation should include measurement performance criteria (MPC) for the tracer radionuclide. Background and efficiency checks for alpha spectroscopy and liquid scintillation, as well as gamma spectroscopy may be included in Worksheet #12, or may be included with the instrument calibration information. Please revise the QAPP to include this information.

8. Appendix A, Survey Plan for Soils Operable Unit SWMUs and AOCs at the Paducah Gaseous Diffusion Plant, Section A.4.2 (Survey Quality Control) describes the quality control checks and MPC that will be implemented for the gamma walkover survey. However, this section does not describe how the various gamma detectors will initially be calibrated and whether this calibration will be done by the manufacturer or site personnel or contractors, and does not describe how the calibration and quality control checks will be documented. The calibration and quality control parameters for the gamma walkover surveys should be added to the QAPP worksheets. Alternatively, please revise Appendix A to provide more detail about who will be responsible the gamma detector calibration, how the calibration will be performed, and how the calibration and quality control checks will be reported and reviewed to document that the measurement performance criteria were met for all of the detectors used in the gamma walkover surveys.

9. Attachment A1, Total Surface Contamination Measurement Parameters and Survey Method of Appendix A describes the radiological survey requirements for concrete and asphalt surfaces. However, Attachment A1 does not specify which detectors will be used for the beta/gamma scans or discuss the quality control parameters for these measurements. In addition, it is unclear how removable alpha activity will be assessed since it does not appear wipe samples will be collected. Please revise the QAPP to address these concerns.

SPECIFIC COMMENTS

10. <u>Worksheet #11, Project Quality Objectives/Systematic Planning Process Statements, Page 39:</u>

This section discusses the type of data needed and indicates that "Based on the type of anomaly identified, a percentage of the samples collected for field screening will be submitted to a fixed-base laboratory for analyses of target analytes listed on worksheet #18." However, from the information presented, it is unclear what anomalies will trigger samples to be sent to the fixed-based laboratory, what percentage of samples will be analyzed at the fixed-based laboratory, or how the number and particular samples to be sent is determined. Please revise the QAPP to provide a more detailed discussion of what will trigger fixed-based laboratory analyses, as well as the percentage of samples to be analyzed at this laboratory, and how the number and particular samples to be sent is determined.

11. <u>Worksheets #12-3 and 12-4, Measurement Performance Criteria Table, Pages 43-44:</u>

These tables indicate that the laboratory duplicate measurement performance criterion is a relative percent difference (RPD) of 35%. However, Methods 6020A and 7471A indicate that the RPD for laboratory duplicates should be less than 20%. Please revise these tables to correct this discrepancy, or to discuss why the elevated RPD was chosen.

12. <u>Worksheet #15, Reference Limits and Evaluation Table, Pages 55-64:</u>

This table lists the Method Detection Limits (MDLs) at concentrations equal to and at time greater than the Quantitation Limits (QLs). Once the laboratory has been selected for this

project, please update the Worksheet 15 tables to include the laboratory-specific MDLs and QLs.

13. Worksheet #15, Reference Limits and Evaluation Table, Pages 55-64:
Several compounds have MDLs and/or QLs that are higher than the associated PAL. Once the laboratory has been selected for this project, an evaluation of which lab-specific MDLs and/or QLs that exceed the PAL should be provided, with an explanation of how this may or may not impact the risk assessment screening and the goals of the project.

14. Worksheet #15, Reference Limits and Evaluation Table, Pages 55-64:
Many of the analytes listed in this worksheet indicate that a PAL is not applicable. However, it is unclear how these analytes will be assessed. Please revise the QAPP to discuss how analytes without a PAL will be assessed.

15. Worksheet #15, Reference Limits and Evaluation Table, Pages 58-59:
The MDLs and/or QLs for the polycyclic aromatic hydrocarbon (PAH) compounds often exceed the PALs. It is unclear why the SW-846 Method 8270 with Selective Ion Monitoring (SIM) method is not proposed for analysis of PAHs as this would eliminate most if not all of these issues. Please revise the QAPP to require that PAHs be reported by 8270 with SIM, or provide an explanation why this is not required and how the project will be impacted.

16. Worksheet #22, Field Equipment Calibration, Maintenance, Testing, and Inspection Table, Page 82:
The information provided in this table is insufficiently detailed. For example:

a. This table does not list the requirements for the XRF equipment.
b. The accuracy requirements of the global positioning system (GPS) are not presented.
c. The calibration and testing activities, acceptance criteria and corrective action for the Ludlum equipment are not provided.

Please revise this table to include this information, or to provide specific references as to where it can be found.

17. Worksheet #22, Field Equipment Calibration, Maintenance, Testing, and Inspection Table, Page 82:
Worksheet #22 includes a SOP reference of "numbers 1 and 2" from Worksheet #21 for the radiological walkover survey equipment; however, SOP references 1 and 2 from Worksheet #21 describe composite sampling and collection of soil samples, therefore they do not appear to be applicable to the radiological detectors and analyses or the GPS. Please revise the Worksheet #22 table to list the SOP numbers for the Ludlum alpha scintillator, Geiger-Mueller, gamma scintillator (or FIDLER) and GPS. Please also ensure the final version of the QAPP includes copies of these SOPs.

18. Worksheet #28, Quality Control Requirements, Pages 89-91:
This worksheet has not been completed for each of the proposed analytical methods. Please revise the QAPP to complete Worksheet #28 for each of the proposed analytical methods and ensure these worksheets include all of the applicable quality control samples for each of the proposed analytical methods as well acceptance criteria and corrective actions if the acceptance criteria are exceeded.