



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

March 28, 2016

Ms. Tracey Duncan
Federal Facility Agreement Manager
United States Department of Energy
Portsmouth/Paducah Project Site Office
5501 Hobbs Road
Kevil, KY 42053

RE: U.S. EPA Region 4 Comments on: **Appendix D – Northeast Plume Optimization Quality Assurance Project Plan for the Remedial Action Work Plan for Optimization of the Northeast Plume Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, KY (DOE/LX/07-1280&D2/R2/A1)**, February 2016, EPA ID KY8890008982, McCracken County, KY

Dear Ms. Duncan,

The U. S. Environmental Protection Agency (EPA) Region 4 has reviewed the subject report that was received in Region 4 offices on February 12, 2016. Comments to the Department of Energy (DOE) are enclosed in support of discussion and document revision.

If you have any questions about this correspondence, please do not hesitate to contact me at (404) 562-8547 or via electronic mail at corkran.julie@epa.gov.

Sincerely,

A handwritten signature in blue ink that reads "Julie L. Corkran". The signature is fluid and cursive.

Julie L. Corkran, Ph.D.
Federal Facility Agreement Manager
Superfund Division

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United States Environmental Protection Agency (EPA) Region 4
Comments on:

**Appendix D – Northeast Plume Optimization Quality Assurance Project Plan
for the
Remedial Action Work Plan for Optimization of the Northeast Plume Interim Remedial
Action at the Paducah Gaseous Diffusion Plant,
Paducah, KY (DOE/LX/07-1280&D2/R2/A1), February 2016**

EPA ID KY8890008982, McCracken County, KY

1. **Introduction, D-7.** In the first paragraph on D-7, the text states that this project specific QAPP is based on “*the approved programmatic QAPP*”, implying to the reader that the programmatic QAPP (DOE/LX/07/1269&D2/R2) has been approved by EPA: the programmatic QAPP has not been approved by EPA. The programmatic QAPP referenced in this text is a DOE “living template” QAPP that is used by DOE and DOE contractors to develop project-specific QAPPs. The programmatic QAPP is not a primary document under the Federal Facility Agreement and is not subject to EPA and KY approval under the FFA. The project specific QAPPs, such as the QAPP that is the subject of this comment letter, are subject to review and approval under the FFA. Revise the text for accuracy.
2. **Worksheets 1 and 2, D-8.** For Federal Facilities, the Lead Organization is the federal agency. In this case, the Lead Organization is the Department of Energy. Revise D-8 to include the Name and Dated Signature of the Lead Organization’s Project Manager.
3. **Worksheets 1 and 2, D-8.** The Investigation Organization is identified as Fluor Federal Services, Inc (FFS). Revise D-8 to indicate which of the FFS signatories is the QA Officer for the Investigative Organization.
4. **Worksheets 1 and 2, D-8.** Revise D-8 to include the date and signature of Lead Organization (DOE) Quality Assurance Manager.
5. **Worksheets 1 and 2, D-9.** Revise Item 5, List dates of scoping session that were held, to include reference to the Senior Executive Committee Dispute Resolution Memorandum of Agreement (July 2015) for the Northeast plume optimization scope of work.
6. **Worksheets 1 and 2, D-10.** Under Item 6, List dates and titles of QAPP documents written for previous site work, if applicable, three QAPPs are listed as “approved”; however, at least two of those QAPPs listed are not approved by EPA. Revise the table to (i) indicate that the three listed QAPPs are approved by DOE or (ii) revise the table to distinguish which QAPPs are approved by which entities (DOE, EPA, Kentucky Department for Environmental Protection) and the dates of approval. EPA does not approve/has not approved either the Programmatic QAPP (DOE/LX/07-1269&D2/R2) or the Environmental Monitoring Plan (PAD-ENM-0055/R4).

7. **Worksheet 5-A, D-13.** The reader was unable to crosswalk the position titles/organization affiliations on D-12 in order to “fill in the blanks” for key positions in the Project Level Organizational Chart. For example, who is the “*DOE Prime Contractor Site Manager*”? Revise D-12 and/or D-13 such that the QAPP user can perform a crosswalk to identify the name of the individual who fits into each “box” in the Organizational Chart on D-13 (from DOE Project Manager through the DOE Prime Contractor QA Manger and DOE Prime Contractor Project Manager).
8. **Worksheet 4, D-14.** The Project Level Organization Chart (D-13) uses a dashed line to indicate that the Independent Data Validation Services for this project will be “independent” from the Investigation Organization team (FFS Paducah Deactivation Project; see D-8). The FLUOR Paducah Deactivation Project (FPDP) team combines three companies – Fluor Federal Services, Inc. (FFS); LATA; and CB&I Federal Services, LLC (Ref: <http://ffspaducah.com/OurTeam>). On page D-14, LATA is identified as the “Independent Third Party Data Validator” for this project. Subsequently, James Moore is listed in Worksheet 7 (D-15) as the “Independent Third Party Contractor” but his organization affiliation is not provided. An internet search indicates that Mr. Moore is an employee of LATA (Ref: <https://www.linkedin.com/in/james-moore-bb3a4a8>). As a member of the FPDP team, it is not clear to EPA how LATA can reasonably be identified, and function as, an independent third party data validator. In response to this comment, please provide for EPA evaluation a justification for identification of LATA in this role. See, also, comments on Worksheet 36.
9. **Worksheet 7, D-15.** Revise the Personnel Responsibility and Qualifications Table entry for James Moore to include his affiliation, LATA, under the Organization Affiliation column heading.
10. **Worksheet 9, D-19.** EPA found Worksheet 10 to be completed at a superficial and incomplete level of detail. Worksheet 9 states that “*the scoping that supports this QAPP is document in Section 4 of the Operation and Maintenance Plan....DOE/OR/07-1535&D3/R4*” for this project (date not provided). This statement is incorrect. EPA has not reviewed and approved any revisions to the Northeast Plume Interim Remedial Action O&M Plan since 2013. Since that date, multiple scoping sessions have been conducted to inform the Interim Remedial Action pump and treat optimization activities that are the subject of the current Remedial Action Work Plan and Appendix D QAPP.
 - The scoping that was conducted among the three parties, and culminated in the Senior Executive Committee Dispute Resolution Memorandum of Agreement (July 2015) for the Northeast Plume Explanation of Significant Differences and Remedial Action Work Plan, is not documented in the Operation and Maintenance Plan for this project.
 - Similarly, the tri-party project team scoping discussions that were held in 2015 and 2016 to support development of the Remedial Action Work Plan (other than this QAPP Appendix) are not documented in the O&M Plan referenced in Worksheet 9.

Revise Worksheet 9 for accuracy to include the dates of, and participants in, the key scoping sessions that support this QAPP since the last update to the O&M Plan.

11. **Worksheet 10, D-20 through D-22.** EPA found Worksheet 10, the key project specific Worksheet, to be completed at a superficial level of detail for many of the information sub-headings. Had the Parties used the DQO Process and Worksheet 10 between 2013 and 2015 to scope the pump and treat optimization scope of work, Worksheet 10 would have been a valuable resource for drafting the RAWP. Instead, DOE developed the project specific QAPP Worksheets, including Worksheet 10, after drafting the current RAWP.

- The problem to be addressed by the project: The questions listed under this sub-heading are not statement(s) of the problem(s) to be addressed by the project; rather, these are environmental questions being asked in support of actions proposed to be taken to address the problem statement. The problem to be addressed by the project is: Pending future actions to characterize and mitigate TCE source areas at C-400, TCE concentrations in groundwater persist within the plant boundary, and migrate beyond the plant boundary, at concentrations above Safe Drinking Water standards.
- Observations from any site reconnaissance reports: No observations are provided. Minimally, provide the specific reference for the “regular updates of the site plume maps” and the “site groundwater modeling” such that the document user can locate and reference these reports.
- A synopsis of secondary data or information from site reports: The statement that TCE levels are not expected to exceed 600 ug/L and Tc-99 activity is not expected to exceed 200 p/Ci/L, although asserted by DOE in the SEC MOA (July 2015), was subsequently demonstrated to be unsupported for Tc-99 in information provided by DOE to support subsequent RAWP scoping sessions.. Revise for accuracy.
- Information concerning various environmental indicators. Revise for completeness and accuracy generally as follows: Groundwater investigations have indicated that TCE contamination extends off-site in the Northeast Plume above the constituent-specific Safe Drinking Water Standard of 5 ug/L. (If other contaminants in the Northeast Plume exceed their SDWS, insert statement(s) here). Accordingly, contaminated groundwater migration is not considered to be under control at the PGDP under the Government Performance and Results Act.
- Project decision conditions (D-21). It is not clear in Statements 2 and 3 whether the project specific CERCLA Outfall is being reference or a KPDES Outfall. Evaluate and revise for clarity.
- Project decision conditions (D-21). It is not clear in Statement 5 where the TCE and Tc-99 levels are measured (influent?). Evaluate and revise for clarity.

12. **Worksheet 14, D-27.** A footnote to the Summary of Project Tasks states “It is understood that SOPs are contractor specific.” While a Programmatic QAPP might include such a footnote, a project specific QAPP (such as this Appendix D QAPP to the NE Plume RAWP) that is intended to be a “stand-alone” implementable plan (per DOE’s stated approach to QAPPs at PGDP) should identify and include the contractor specific SOPs in the QAPP itself. The worksheet should provide a summary of all work to be performed, products to be produced, data and management assessment. The worksheet should list the actual measurements to be made including: in-situ field measurements, fixed laboratory measurements, or any other type of information collected as part of the project implementation. Evaluate and revise the worksheet.

13. **Worksheet 14, D-27.** Under the sub-heading “Sampling Tasks”, a treatment system equalization tank is mentioned. However, EPA could not find mention of a treatment system equalization tank in the current version of the RAWP Appendix C – Northeast Plume Extraction System Design and Evaluation. See, for example, C-64. A process flow diagram for the optimized NE Plume extraction and treatment system could not be located anywhere in the February 2016 RAWP (pending EPA approval). Evaluate and revise this worksheet and Appendix C of the RAWP for accuracy and completeness regarding the equalization tank.
14. **Worksheet 16, D-28.** Under the column heading “Deliverable”, DOE notes that “Project data will be summarized in semi-annual FFA reports” (emphasis added). In what report(s) will the regulatory agencies be provided with detailed project data for review and comment in support of our oversight activities under the Federal Facility Agreement? For example, in what project-specific post-RAWP periodic report would EPA find data records, data reports, and quality assurance reports and documentation for review?
15. **Worksheet 15-K, D-31.** The outfall discharge criteria and effluent limits listed in this Worksheet as “CERCLA Outfall” appear to be generic KPDES permit limits for a KPDES outfall. Revise this Worksheet to reflect the NE Plume treatment system outfall analytes and discharge criteria/effluent limits for the project-specific COPCs.
16. **Worksheet 17-B, D-32.** The Worksheet does not provide for the project the design of the sampling/collection network or a discussion regarding the rationale for the sampling design and relevance of the analytical program. Evaluate and revise: cross-walk to other sections of the current version of the RAWP may be adequate.
17. **Worksheet 18, D-33.** Revise Worksheet 18 to address the following:
 - Worksheet 18 should provide a table with the type and number of samples required for collection for each medium. Cross-reference to this information in the body of the RAWP, if it is available there, may suffice.
 - Worksheet 18 should include a map or diagram with sample locations/collection locations: cross-reference to this information in the body of the RAWP, if it is available there, may suffice.

Northeast Plume Optimization Outfalls

- Under Northeast Plume Optimization Outfalls, specify if the table refers to CERCLA or KPDES outfalls (or both) and provide the ID number for each.
- Under the Column heading “Concentration Level” for the Northeast Plume Optimization Outfalls sampling location, delete reference to the Explanation of Significant Differences (ESD) and pull concentrations levels from the Northeast Plume ESD forward into Worksheet 18.
- Under the Column heading “Number of Samples”, delete reference to the ESD and populate the table with the projected number of samples, including field duplicates, by analytical group.
- Under the Column heading “Rationale for Sampling Location”, the Worksheet references the O&M Plan. The O&M Plan has not been updated by DOE to reflect

this pump and treat optimization scope of work. Evaluate and revise for accuracy and to provide the rationale (or an accurate and current reference) for the sampling location.

Extraction Wells and Monitoring Wells

- Under the Column heading “Number of Samples”, delete reference to the ESD and populate the table with the projected number of samples, including field duplicates, by analytical group.
- Under the Column heading “Rationale for Sampling Location”, the Worksheet references the O&M Plan. The O&M Plan has not been updated by Doe to reflect this pump and treat optimization scope of work. Evaluate and revise for accuracy and to provide the rationale (or an accurate and current reference) for the sampling location.

18. **Worksheet 19, D-40.** The Analytical SOP References Table is expected to be an SOP Requirements Table. Revise Worksheet 19 to include the following: table listing sample container requirements and preparation requirements for the containers; table listing sample preservation requirements (for chemical parameters) and holding time criteria (where applicable).
19. **Worksheet 21, D-38.** Project Sampling SOP Reference. Footnote “a” to this worksheet states that the “SOPs are posted to the FPD S Drive”. The project-specific QAPP should be a complete and stand-alone document, including the SOPs. Advising the user (sub-contractor, regulator, etc.) of the project-specific QAPP that SOPs are available on a prime contractor computer storage drive is not sufficient. Revise the QAPP to include the project-specific SOPs that have been identified for this project (electronic copy is adequate).
20. **Worksheet 21, D37-38.** Revise the worksheet to identify on-site support facilities that are available to field staff. If no on-site sampling support facilities are available, so state in the worksheet (footnote will suffice).
21. **Worksheet 21, D-37-38.** Revise the worksheet to clearly identify key study personnel in charge of overseeing sampling/collection activities. The reviewer was unable to locate this information in Worksheet 21, 3, 5, 5A, 6 or 7.
22. **Worksheet 21, D37-38.** The worksheet references an out-of-date Operation and Maintenance Plan that does not address the Optimization scope of work that is the subject of this RAWP. Revise.
23. **Worksheet 21, D37-38.** Worksheet 21 is expected to describe equipment decontamination procedures and requirements, and discuss whether sampling equipment is dedicated or non-dedicated. No discussion is provided; although CP4-ES-2702 is reference in the table on D-37, the SOP is not provided so a user of the project specific QAPP cannot confirm equipment decontamination procedures and requirements. Revise the QAPP to address this omission.

24. **Worksheet 22, D-39.** The Field Equipment Calibration, Maintenance, Testing and Inspection Tables Worksheet provides a list of the in-situ testing instruments and field equipment. Revise the QAPP to include the following omitted elements:
- The technical criteria by which the field instruments or sampling equipment is checked for acceptable performance.
 - A comprehensive list of the supplies required for the project.
 - Identification of the individual(s) responsible for checking and inspecting consumables and supplies.
 - The acceptance criteria for consumable items, instruments, and equipment.
 - Identification of the availability and location of spare parts.
25. **Worksheet 23, D-40.** The Analytical SOP Reference Table. Revise the QAPP to address the following omissions from the worksheet:
- List of the SOPs that will be used to perform on-site or off-site analyses.
 - Include copies of the SOPs as attachment.
- Does DOE intend to collect and analyze groundwater samples for general water chemistry parameters? If yes, update this worksheet to include the appropriate methods and SOPs.
26. **Worksheet 25, D-42.** The footnote to the Analytical Instrument and Equipment Maintenance, Testing and Inspection Table discusses laboratory and field survey equipment, implying (though footnote association) that the field equipment (listed in Worksheet 22; water quality meter, colorimeter, titrator, electronic water level meter and Hach flow meter) will be maintained/tested/inspected by the laboratory. Evaluate the content of, and footnote to, Worksheet 25, and revise the QAPP for accuracy and transparency.
27. **Worksheet 26, D-43.** Sampling Handling – revise the Worksheet to provide a detailed description of the procedures for post sample handling. Provision of SOP reference(s) and the SOP(s) in the project specific QAPP would suffice.
28. **Worksheet 27, D-44.** Sample Custody Requirements – Revise the QAPP to include the referenced SOPs under the sub-headings (i) Field Sample Custody Procedures (sample collection, packaging, shipment and delivery to laboratory) and (ii) Chain-of-custody procedures.
29. **Worksheet 27, D-44.** Under the sub-heading “Sample Identification Procedures”, the worksheet refers the user to Section 9 of the NE Plume RAWP.
- Section 9 of the NE Plume RAWP refers the reader to Sections 10.2-10.8 of the RAWP for the Southwest Plume RAWP DIMP (1.A-00588) with a web address provided.
 - This reviewer searched on the web address provided in Section 9 of the RAWP but was unable to recover the SW Plume RAWP. (Your search - <http://paducaheic.com/Search.aspx?accession=ENV 1.A-00588> - did not match any documents).

Revise the project specific QAPP to include the sample identification procedures (Sections 10-2-10.8 of the RAWP DIMP as referenced in Section 9 of the NE Plume RAWP).

30. **Worksheet 28, D-45.** QC Sample Table – Revise this worksheet to address the following errors/omissions:
 - Under the subheading “No. of Sample Locations” the worksheet refers the user to the out-of-date Operations and Maintenance Plan. The current O&M Plan for the NE Plume Project does not address the Optimization scope of work.
 - Not one of the referenced SOPs (in 12-K, 12-Q 23 or under the subheading Measurement Performance Criteria) is provided in the project specific QAPP.
31. **Worksheet 29, D-48.** Project Documents and Records Table. Revise this worksheet to address the omissions listed below. It is not sufficient to state “It is understood that SOPs are contractor specific”.
 - Provide a comprehensive list of the documents and records required for this project (including raw data, field logs, audit reports, analytical data reports, data validation reports, data quality assessment reports).
 - Describe record-keeping, archival and retrieval requirements for hard copy and electronic information produced during the course of the project.
 - Provide assessment checklists or other standardized forms in an appendix to the QAPP.
 - Provide retention time and location of study records, reports, and formal documents.
 - Describe data handling equipment and procedures used to process, compile and analyze. Specify whether computer databases will have restricted access or will be password protected. Discuss how the accuracy of computer databases is assured.
32. **Worksheet 30, D-35.** Analytical Services Table. Revise the QAPP to address the following omissions:
 - Identify the individual(s) responsible for overseeing the success of the analysis and for implementing corrective actions if deemed necessary.
 - Identify the laboratory/organization contact and back-up contact information.
 - Sample locations per the RAWP.
 - The table refers the user to Worksheet 23 for SOPs, but Worksheet 23 is incomplete (see earlier comment).
33. **Worksheet 31, D-49.** Planned Project Assessment Table. Revise the worksheet to include the name(s) and affiliations of the “Person(s) Responsible”.
34. **Worksheet 32, D-50.** Assessment Findings and Corrective Action Responses. Revise the Worksheet to discuss where assessment findings will be documented and how those findings will be communicated to all key project staff, including state and EPA personnel responsible for study oversight.
35. **Worksheet 33, D-51.** QA Management Reports Table. Revise the worksheet to address the following omissions:

- Project Status Reports
- Results of Audits and Assessments (only field audits are included in the worksheet)
- Results of periodic Data Quality Assessments
- QA Audit Reports (only field reports are included in the worksheet)
- Discuss retention time for maintaining reports listed in Worksheet 33.

36. **Worksheet 36, D-53-54.** Validation (Steps IIa and IIb) Summary Table. A footnote to this worksheet states “Validation is to be conducted by a qualified individual, independent from sampling, laboratory, project management, or other decision-making personnel for the task. This could be an outside party or someone from within FPDP who is not involved in the project”.

In Worksheet 4, D-14, the Project Level Organization Chart (D-13) uses a dashed line to indicate that the Independent Data Validation Services for this project will be “independent” from the Investigation Organization team (FFS Paducah Deactivation Project; see D-8). Worksheets 36 and 4 are inconsistent with one another.

The FLUOR Paducah Deactivation Project (FPDP) team combines three companies – Fluor Federal Services, Inc. (FFS); LATA; and CB&I Federal Services, LLC (Ref: <http://ffspaducah.com/OurTeam>). On page D-14, LATA is identified as the “Independent Third Party Data Validator” for this project. Subsequently, James Moore is listed in Worksheet 7 (D-15) as the “Independent Third Party Contractor” but his organization affiliation is not provided. An internet search indicates that Mr. Moore is an employee of LATA (Ref: <https://www.linkedin.com/in/james-moore-bb3a4a8>). As a member of the FPDP team, it is not clear to EPA how LATA can reasonably be identified, and function as, an independent third party data validator. In response to this comment, please provide for EPA evaluation a justification for identification in Worksheet 36 of “someone from within FPDP” in this role.

37. **Worksheet 37, D-55.** Usability Assessment. Revise the worksheet to address the following omissions:

- Identify how limitations in the final data set will be communicated to all end data users and stakeholders.
- Identify the individual(s) responsible for reconciling the data to the project-specific requirements.