



Department of Energy
Washington, DC 20585

September 5, 2013

Mr. Timothy Fischer
U.S. Environmental Protection Agency
Region V-SRF-6J
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Mr. Thomas A. Schneider
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402

Dear Mr. Fischer and Mr. Schneider:

SUBJECT: Transmittal of Responses to Ohio Environmental Protection Agency Comments on the 2012 Fernald Preserve Site Environmental Report

Reference: Letter, T. Schneider to J. Powell, "Comments-Fernald Preserve 2012 Site Environmental Report and Summary (Appendices A through D), May 2013", dated September 4, 2013

Enclosed for your review are responses to Ohio Environmental Protection Agency (Ohio EPA) comments on the 2012 Fernald Preserve Site Environmental Report (Reference). Consistent with past practice, the 2012 Fernald Preserve Site Environmental Report and appendices will not be revised. Comments will be considered during preparation of the 2013 Fernald Preserve Site Environmental Report.

If you have any questions regarding this report, please call me at (513) 648-3148. Please send any correspondence to:

U.S. Department of Energy
Office of Legacy Management
10995 Hamilton-Cleves Highway
Harrison, OH 45030

Sincerely,

A handwritten signature in cursive script that reads "Jane Powell".

Jane Powell
Fernald Preserve Manager
DOE-LM-20.2

Enclosures



Mr. Timothy Fischer
Mr. Thomas Schneider
Page 2

cc w/enclosure:

S. Helmer, ODH

G. Hooten, DOE

T. Schneider, Ohio EPA (3 copies of enclosure)

T. Tucker, Ohio EPA – Columbus

Project Record File FER030.1(A) (thru W. Sumner)

cc w/o enclosure:

(electronic)

K. Reed, DOE

D. Shafer, DOE

B. Hertel, Stoller

J. Homer, Stoller

K. Voisard, Stoller

C. White, Stoller

**Responses to Ohio EPA Comments on the Fernald Preserve 2012 Site
Environmental Report
May 2013**

General Comments:

1. Commenting Organization: Ohio EPA Commentor: DDAGW
Section: General/groundwater Page: Line: Code: C
Comment: The uranium ground water extraction system has achieved significant mass removal, plume contraction, and hydraulic containment since initiation of the first module in 1993. The uranium plume as defined by the 30 ug/L final remediation level (FRL) has declined to approximately 130 acres, and approximately 11,313 net pounds of uranium have been removed (Fernald Preserve 2012 Site Environmental Report). With the ultimate measure of system success being attainment of the uranium FRL however, Ohio EPA requests that future reports emphasize FRL attainment progress. Specific comments and recommendations for emphasizing attainment are provided below.

Response: In future SERs, FRL attainment progress will be emphasized.

Action: As stated in response.

Specific Comments:

2. Commenting Organization: Ohio EPA Commentor: DDAGW
Section: ES and Section 3.3 Groundwater Monitoring Highlights
Page: Line: Code: C
Comment: Ohio EPA recommends future reports include an established cleanup timeframe objective for attaining the uranium FRL (30 ug/L), and compare annually updated predictions to the objective timeframe as a measure of progress. According to the OU-5 Feasibility Study (DOE 1995 c.), the ground water extraction system was predicted to achieve attainment of 20 ug/L in 27 years.

Response: Table A.1-27 provides an established cleanup timeframe for attaining the uranium FRL. Progress is tracked against modeling output from the WSA Phase II Design. As shown in the *2012 Fernald Preserve Site Environmental Report*, Table A.1-27 the model predicts that an additional 2,815 pounds of uranium need to be removed from the aquifer to achieve the cleanup objective of 30 µg/L at all impacted points in the Target Remediation Footprint by 2024. This amount of uranium is broken down by year to track annual progress. The trend of decreasing uranium concentrations is becoming asymptotic with time, indicating that attainment of remediation goals could extend significantly beyond 2024. Text will be added to future reports to help clarify the remediation progress that is being reported.

Action: As stated in the response.

3. Commenting Organization: Ohio EPA Commentor: DDAGW

Section: Appendix A, A.1.4 Total Uranium Data Page: Line: Code: C
Comment: Ohio EPA requests that reported net uranium mass removed to date compared to year 2024 predictions, not be referred to as estimated percent “complete.” Three estimations of mass removal “completeness” through December 2012 are compared as follows (page 4): 77% (exponential regression curve of historic concentrations), 80% (fate and transport model predictions), and 47% (95% upper confidence limit of exponential regression curve of historic concentrations).

If system shutdown is anticipated in year 2024, as appears indicated, then justification should be provided. The percentage of net mass removed each year compared to the benchmark year 2024 highlights that uranium mass removal is declining with time, as expected. Though mass removal predictions are useful, clarification should be provided that such predictions are not necessarily a reflection of uranium FRL attainment progress.

Response: In future reports DOE will not refer to the three metrics as “Estimate of Percent Complete”. The name suggestions provided by Ohio EPA in the comment will be used instead to help clarify the metrics being presented.

Clarification will also be added to future reports to explain that tracking mass removal progress against groundwater modeling predictions provides an indirect status on progress being made to attain uranium FRLs.

Action: As stated in the response.

4. Commenting Organization: Ohio EPA Commentor: DDAGW
Section: Appendix A, A.1.4 Total Uranium Data Page: Line: Code: C
Comment: Ohio EPA requests that the difference (residual) between regression curve predictions of uranium concentration, versus actual concentration, be tabulated and discussed annually for each extraction well. Discussion is requested because in all but six of the twenty-three extraction wells (RW-2, RW-4, EW-15a, EW-17, EW-25, EW-31), predictions have become lower than actual concentration (operational data).

Response: Rather than tabulating residuals as proposed in the comment, DOE will look at refining the data regressions. Several of the data sets indicated that if the recent data alone is trended, the trend will provide a better future concentration prediction.

Action: As stated in the response.

5. Commenting Organization: Ohio EPA Commentor: DDAGW
Section: Appendix A, A.1.4 Total Uranium Data Page: Line: Code: C
Comment: Ohio EPA requests that the difference between fate and transport modeled uranium, versus actual concentration, be tabulated and discussed annually for each extraction well. Discussion is requested because in all but six of the twenty-three extraction wells (RW-4, EW-126, EW-17, EW-25, EW-28, and EW-33a), modeled predictions have become lower than actual concentration (operational data).

Action: As stated in the response.

8. Commenting Organization: Ohio EPA Commentor: DDAGW
Section: Section 3.0 & Appendix A, A.2 Assessment of Total Uranium Results
Page: Line: Code: C
Comment: Ohio EPA requests that the established uranium background ground water concentration be reported in the assessment of uranium discussion.

Response: In future SERs, the established uranium background concentration will be reported.

Action: As stated in the response.

9. Commenting Organization: Ohio EPA Commentor: DDAGW
Section: Appendix A, A.2.1.1 Former Waste Storage Area
Page: Line: Code: C
Comment: Page 3 explains that some surface water samples collected in intermittent puddles in the northwest corner of the north WSA uranium plume exceed the uranium FRL. Please address whether surface water infiltration through these ponds could act as a long term source to ground water, and thereby prolong attainment of the FRL.

Response: DOE will continue to evaluate the impact that the surface water infiltration through the ponds is having on the aquifer remediation and take action to address the infiltration if deemed appropriate in consultation with EPA and Ohio EPA. DOE will keep Ohio EPA advised on additional modeling planned for the Waste Storage Area to determine how the surface water infiltration in the area might impact the groundwater remedy. As discussed during the meeting on August 21, DOE will also evaluate means to enhance the impact that flooding of Paddys Run can have on the subject area in order to enhance the flushing of uranium from the unsaturated portion of the aquifer.

Action: As stated in the response.

10. Commenting Organization: Ohio EPA Commentor: DDAGW
Section: 3.3.1.6 Monitoring Results for Non-Uranium Constituents
Page: Line: Code: C
Comment: Ohio EPA requests that clarification be provided as to whether manganese concentrations in excess of the FRL (six wells) are associated with anaerobic reducing conditions. Uranium solubility is typically diminished under anaerobic conditions associated with elevated manganese. Manganese (IV) and ferric iron (III) reducing conditions which can diminish uranium mobility are typically characterized by depleted dissolved oxygen, negative oxidation reduction potential, depleted nitrates, and elevated total manganese and total iron.

Response: The addendum issued to the WSA Phase II Design reported on a manganese speciation study that was conducted in the WSA. The geochemical code EQ3NR was used to calculate the manganese speciation in groundwater collected at

