Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

August 5, 2016

Ms. Sue Smiley
Fernald Preserve Site Manager
DOE-LM-20.2
10995 Hamilton Cleves Highway
Hamilton, Ohio 45030

Re: Fernald Preserve
Remediation Response
Project Records
Remedial Response
Hamilton County
531000297

Subject: Comments – Fernald Preserve 2015 Site Environmental Report, dated May 2016

Ms. Smiley:

Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Fernald Preserve 2015 Site Environmental Report" dated May 2016. Ohio EPA's comments are enclosed.

If you have any questions, please contact me at (937) 285-6466.

Sincerely,

Thomas A. Schneider
Fernald Preserve Project Manager
Division of Environmental Response and Revitalization
Federal Facilities Section

TS/ls

ec: Bill Hertel, Navarro, Incorporated
Matt Justice, DDAGW, Ohio EPA-SWDO
David Seely, US EPA

OHIO EPA COMMENTS ON THE FERNALD PRESERVE 2015 SITE ENVIRONMENTAL REPORT DATED MAY 2016

1. Commenting Organization: Ohio EPA

   Section: 3.1 Pg#: 33 & Figure 11 Line#:

   Comment: In the last paragraph of page 33 in the Summary of the Nature and Extent of Groundwater Contamination, please provide additional clarification concerning Figure 11. The discussion explains that the uranium plume depicted is the area within the 30 ug/L FRL. Additional text and a legend item are recommended to explain that the referenced "modules" (cross-hatched areas) are the three (3) areas of active ground water extraction.

2. Commenting Organization: Ohio EPA

   Section: 3.3 Pg#: 39 Line#:

   Comment: Ohio EPA recommends the third paragraph provide additional discussion concerning Figure 14. Specifically, the section should clarify that the screen type of each well is represented by the first digit of its ID number.

3. Commenting Organization: Ohio EPA

   Section: 3.3.1.1 Pg#: 45 Line#:

   Comments:

   a. Ohio Environmental Protection Agency (Ohio EPA) recommends future reports begin discussing the trend in uranium plume average concentration, area and mass to improve demonstration of remedy efficiency. Trends in average annual concentration, plume area and mass can be obtained from regression line slope. In addition to comparing change from the previous year, an assessment of trend through time will improve projection of whether Final Remediation Level (FRL) attainment is on schedule.

   b. In this 2015 Site Enviornmental Report (SER), United States Department of Energy (U.S. DOE) began reporting change in uranium plume center of mass through time. The same gridding software now being used to track plume center of mass, Surfer, can be used to readily calculate the annual average concentration within the defined plume boundary, the FRL of 30 ug/L. Using Surfer, the plume's grid volume (m^2 x ug/L) can be divided by the plume's planar area (m^2) to calculate the average concentration above the specified FRL plume boundary concentration (see A Practical Method to Evaluate Ground Water Contaminant Plume Stability; Ricker, J.; Ground Water Monitoring and Remediation 28, no. 4, Fall 2008, pages 85-94). The resulting concentration should then be added to the FRL value of 30 ug/L to obtain the actual average concentration.

c. In future reports, annual plume mass removed reported as 519 lbs. in year 2015, should be compared to updated estimates of remaining uranium mass. One way to estimate remaining soluble mass is to multiply plume area (within the 30 ug/L FRL contour) by the average plume concentration, the plume thickness and the aquifer porosity (A Practical Method to Evaluate Ground Water Contaminant Plume Stability; Ricker, J.; Ground Water Monitoring and Remediation 28, no. 4, Fall 2008, pages 85-94). Uranium cross-sectional profiles, such as the gridded profiles in Attachment A.2, should provide a useful means for estimating plume thickness and thereby calculating remaining soluble mass.

4. Commenting Organization: Ohio EPA

   Section: 3.3.1.5 Pg#: 51 Line#:

   Comment: Regarding the statement that the uranium plume in excess of the FRL declined by 2.8 acres in year 2015, subsequent reports should discuss whether area decline rates are on target to meet the FRL in year 2035. The discussion should be supported with a chart, plotting plume area in excess of the FRL (30 ug/L) versus time. The trend and projected FRL attainment year should be discussed.

   Should the reported decline rate of 2.8 acres per year (year 2015) remain steady into the future, then 38.6 years at a minimum would be needed for FRL attainment (108.1 acres divided by 2.8 acres/year). This is a concern because attainment would be achieved in year 2053 (year 2015 + 38.6 years) rather than year 2035 as projected in the Operation and Maintenance plan. Attainment could extend even further because mass removal rates typically decline rather than remain steady with time. As dissolved phase is removed through ground water extraction with time, the slow process of desorption will become increasingly dominant. Mass area decline rates should be expected to decline even further as periphery extraction wells with fixed locations become progressively removed from the plume center of mass.

Appendixes

1. Commenting Organization: Ohio EPA

   Section: Appendix A, Attachment A.1 Pg#: 2 and 41 Line#:

   Comment: Please address the discrepancy between the page 2, Section A.1.1 "updated model prediction cleanup date" for the waste storage area, compared to the label on page 41 map, Figure A.1-2. The table at the top of page 2 states that the updated FRL attainment year prediction for the waste storage area module is year 2032. Yet the Figure A.1-2 map label states the attainment year as 2033. The recent U.S. DOE Fourth Five Year Review report response to Ohio EPA comment projects an attainment year of 2035.

2. Commenting Organization: Ohio EPA

   Section: Appendix B Pg#: B-4 and B-15 Line#:

   Comment: Please modify the Figure B-2 legend to clarify whether the two (2) Great Miami River locations, G2 and G10, are the page B-4 referenced uranium sediment sample locations. Also, please provide additional justification to eliminate future uranium sediment sampling. Specifically, justification should address whether the river-bed sediments sampled are those most susceptible to sorption. Typically, fine grained, clay rich sediments and organic rich sediments are much more susceptible to uranium sorption than sandy sediments.

3. Commenting Organization: Ohio EPA

   Section: Appendix D Pg#: D-27 to D-38 Line#:

   Comment: In the Inspection Findings tables D-13 through D-20, do these include findings from previous years inspections that were not resolved? Will any finding marked with "to be addressed" on these tables be listed in next years 2016 SER?