



## Department of Energy

Washington, DC 20585

January 31, 2025

Via email: [Kevin.Hayes@nrc.gov](mailto:Kevin.Hayes@nrc.gov)

Mr. Kevin Hayes  
U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Deputy Director  
Mail Stop T8-F5  
Washington, D.C. 20555-0001

Subject: Department of Energy Office of Legacy Management Response to U.S. Nuclear Regulatory Commission Comments on *August 2023, U.S. DOE, Office of Legacy Management, Annual Performance Report April 2021 Through March 2022, Shiprock, New Mexico, Disposal Site* Docket WM-00058

Dear Mr. Hayes:

This letter addresses the January 10, 2025, U.S. Nuclear Regulatory Commission (NRC) response to the *Annual Performance Report April 2021 Through March 2022, Shiprock, New Mexico, Disposal Site*. NRC comments and suggestions, along with the U.S. Department of Energy (DOE) Office of Legacy Management (LM) responses are as follows.

***NRC Comment:***

*Section 3.2.1, Spatial Distribution and Concentration Trends, states that the “highest concentrations of uranium in floodplain alluvium (0.8 – 0.9 mg/L) currently occur along the base of the escarpment just north of the disposal cell and in a zone traversing the floodplain in a line trending northward from the disposal cell”. A review of the baseline and current uranium floodplain plumes in Figure 15 and the uranium concentration trends in the floodplain wells from 2006 to 2022 indicates increasing concentrations in central group wells 0857 and 1136, located near the San Juan River. The two wells exhibited some of the highest uranium concentrations observed in the 2022 floodplain well sampling, with concentrations of 0.84 and 0.83 mg/L reported for the 0857 and 1136 wells, respectively. The wells are located approximately 500 to 800 feet to the southeast of the 1089/1104 extraction well locations. Gaps of several hundred feet in the floodplain monitoring well network in the areas surrounding both wells limit the ability to accurately determine concentration gradients in these areas, as well as determining the influence of the 1089/1104 extraction wells on the 0857 and 1136 monitoring wells. Additional monitoring well locations in the area and possibly additional extraction wells in closer proximity to the 0857 and 1136 wells may warrant consideration.*

**LM Response:**

In accordance with the Revised GCAP Work Plan, in the summer of 2022, DOE installed wells 1144, 1155, 1156, 1157, and 1158 between extraction wells 1089/1104 and monitoring well 1136 (DOE 2024a). The purpose of these wells was to enhance monitoring in the floodplain alluvium and the underlying transmissive Mancos Shale where statistically significant increasing trends of uranium, nitrate, and sulfate concentrations in groundwater were identified from well 1136 (DOE 2022, Appendix B). A location map and map of initial uranium results from sampling the alluvial wells are presented in the Annual Performance Report for the 2022 to 2023 sampling year (DOE 2024a Figures 12 and 13, respectively). Simulations with an ensemble of calibrated numerical groundwater flow and particle transport models suggests that the probability of groundwater capture between wells 1136 and 0857 by extraction wells 1089/1104 is likely low (DOE 2024b, Appendix C, Figure 33 Left Panel). This supports NRC's assertion that additional extraction wells may be warranted in this region. DOE will continue to evaluate groundwater data and efforts and consider additional extraction needs on the floodplain following the implementation of the interim treatment plan and understanding the fate of artesian well 0648 that controls groundwater flow on the floodplain (DOE 2024b, Appendix C).

DOE (U.S. Department of Energy), 2022. Revised Groundwater Compliance Action Plan (GCAP) Work Plan, Shiprock, New Mexico, Disposal Site, LMS/SHP/S28119, Office of Legacy Management, November.

DOE (U.S. Department of Energy), 2024a. Annual Performance Report, April 2022 Through March 2023 for the Shiprock, New Mexico, Disposal Site, LMS/SHP/44889, Office of Legacy Management, August.

DOE (U.S. Department of Energy), 2024b. FINAL Interim Treatment Plan for the Shiprock, New Mexico, Disposal Site, LMS/SHP/44869, Office of Legacy Management, August.

If you have any further questions, please contact the Interim Site Manager, Mary Young at (970) 248-6228 or at [Mary.Young@lm.doe.gov](mailto:Mary.Young@lm.doe.gov).

Sincerely,

**MARY  
YOUNG**

Mary Young  
Interim Shiprock Site Manager

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