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February 1, 2023

Arturo Duran, Designated Agency Manager
Environmental Management, U.S. Department of Energy
Los Alamos Field Office
1200 Trinity Drive, Suite #400
Los Alamos, New Mexico 87544

RE: APPROVAL WITH MODIFICATIONS
DRILLING WORK PLAN GROUNDWATER REGIONAL AQUIFER MONITORING WELL R-80
LOS ALAMOS NATIONAL LABORATORY
EPA ID#NM0890010515
HWB-LANL-22-092

Dear Mr. Duran,

The New Mexico Environment Department (NMED) received the United States Department of Energy's (DOE) *Drilling Work Plan for Groundwater Regional Aquifer Monitoring Well R-80* (Workplan) on November 29, 2022 to fulfil Fiscal Year 2022 Milestone No. 6, Appendix B of the 2016 Order on Consent. The Workplan is dated November 29, 2022 and referenced as EM2022-0782. In the *Regional Aquifer Monitoring Well R-45 Corrective Action Plan*¹ DOE described the rationale for Regional Well R-80 due to increasing chromium concentrations in R-45 Screen 2.

NMED approves the Workplan with the following modifications:

1. DOE shall adhere to the purpose, design, and construction criteria for regional aquifer monitoring wells as set forth in NMED's November 3, 2020 amended approval letters^{2,3} for regional aquifer monitoring wells and the June 11, 2021 Final Decision letter⁴.
2. Screen 1 of well R-80 shall be placed in Pumiceous Puye (Tpf(p)) Formation along groundwater flow paths that are connected to R-45 screen 2 to monitor and determine nature and extent of contaminant migration in the chromium plume. Examination of potentiometric maps of the regional aquifer and groundwater flow modeling from R-45 to the anticipated location of R-80 should be included as part of the analysis for effectively placing R-80 screen 1.

¹ Letter from A. Duran to J. Ball, September 30, 2022, "*Regional Aquifer Monitoring Well R-45 Action Plan*."

² Letter from K. Pierard to A. Duran, November 3, 2020, "*Amended Approval Letter Drilling Work Plan for Regional Well R-72*."

³ Letter from K. Pierard to A. Duran, November 3, 2020, "*Amended Approval Letter Drilling Work Plan for Chromium Groundwater Project Regional Aquifer Monitoring Well R-71*."

⁴ Letter from K. Pierard to A. Duran, June 11, 2021, "*Final Decision, Response to Amended Approval Letter for Drilling Work Plan for Chromium Groundwater Project Regional Aquifer Monitoring Well R-71 and Amended Letter for Drilling Work Plan for Chromium Groundwater Project Regional Aquifer Monitoring Well R-72*."

3. DOE shall provide NMED and NMOSE with daily reports each morning, including weekends and holidays, as was provided during the drilling operations for installing regional aquifer monitoring well R-73.
4. DOE shall hold weekly meetings with NMED and NMOSE to provide updates and planned activities on the drilling status from initiation of drilling operations to collection of initial groundwater samples collected either from the vadose zone or regional aquifer.
5. DOE shall allow for groundwater sampling at the end of each drilling run, estimated to be about every 20 feet, during the drilling operation conducted within all groundwater-bearing units, specifically in the vadose zone and regional aquifer. NMED will collect groundwater samples after each run during the drilling operation, or the samples may be collected by DOE under NMED's chain-of-custody protocol as done during drilling of regional aquifer monitoring well R-71. In accordance with Section XXVII of the 2016 Order on Consent, DOE shall allow any authorized NMED representative to enter the Facility to obtain environmental samples.
6. The analytical suite for groundwater samples collected during drilling and prior to final well development shall include dissolved major cations and anions, fluoride, bromide, low-level perchlorate, total organic carbon, low-level tritium, and metals/trace elements. Analyses of groundwater for volatile and semi-volatile organic compounds is not required at R-80 until routine monitoring is initiated. Field parameters (pH, specific conductance, dissolved oxygen, turbidity, and oxidation-reduction potential) shall be measured throughout well development at R-80. Stability of all field parameters shall determine when well development is complete. Chlorination of R-80 during well development is prohibited.
7. NMED shall review DOE's recommendations within five business days, excluding weekends and state holidays.
8. Step-Drawdown Testing shall be replaced with a Standard Operating Procedure for conducting single-well aquifer tests using NMED-Hazardous Waste Bureau's Aquifer Test Guidance. DOE shall submit an appropriate standard operating procedure for NMED's review and comment before submitting workplans to conduct NMED-approved hydraulic testing⁵. NMED will not accept any report that contains the hydraulic testing methodology, rationale, and analyses used in the past at monitoring well R-70⁵.
9. DOE shall provide NMED access and 15-day written notice per Section XXVII.B. to collect initial groundwater samples.
10. DOE shall include the driller's Well Record and Log in the well completion report.
11. DOE shall share all groundwater chemistry results for samples collected during drilling, well development, and hydraulic testing of regional aquifer well R-80 with NMED as soon as results are received from analytical laboratories.

⁵ Letter from K. Pierard to A. Duran, May 25, 2021, *Notice of Disapproval – Completion Report for Regional Aquifer Well R-70, Revision 1, and the Response to the New Mexico Environment Department's Draft Comments on the Completion Report for the Regional Aquifer Well R-70*.

Should you have any questions regarding this correspondence, please contact Michael Petersen (505) 690-5107.

Sincerely,

**Rick
Shean**

Rick Shean

Chief

Hazardous Waste Bureau

Digitally signed by

Rick Shean

Date: 2023.02.01

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