March 1, 2024

Mr. James Smith
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

Ms. Rachel Miller
Oklahoma Department of Environmental Quality
707 North Robinson
Oklahoma City, OK 73101

Re: Docket No. 07000925; License No. SNM-928
Cimarron Environmental Response Trust
Proposed Revision to Annual Environmental Monitoring Program

Dear Recipients:

Solely as Trustee for the Cimarron Environmental Response Trust (CERT), Environmental Properties Management LLC (EPM) submits herein a request to modify the requirements of the annual environmental monitoring program for the Cimarron site. Section 15 of the Cimarron Radiation Protection Plan (RPP) specifies how we perform annual environmental monitoring. It contains two aspects of monitoring: 1) surface water and groundwater sampling and analysis, and 2) environmental dosimetry.

The surface water and groundwater sampling and analysis component of the annual environmental monitoring program was developed long before the CERT was established. Samples were analyzed for gross alpha activity, gross beta activity, and activity concentration for uranium isotopes (U-234, U-235, and U-238). The analytical results for isotopic uranium activity were used to determine both the activity concentration and the enrichment of uranium (the only known radioactive contaminant when these analytes were established) in groundwater. Gross alpha and beta results were intended to confirm the reasonableness of the uranium activity concentration results.

In the 1990s, gross alpha and gross beta activity data were useful because in some areas, the gross beta activity exceeded the alpha activity by a factor of three or more. This could not be attributed to the licensed material, because there aren't that many more beta emitters than alpha emitters in the decay chain. This elevated beta activity indicated there was another beta-emitting radionuclide present in groundwater at the site. In 1996, it was determined that the elevated beta activity was due to the presence of technetium-99 (a beta-emitting radionuclide) in groundwater.

Technetium 99 (Tc-99) concentrations in groundwater have been less than the NRC Criterion of 3,790 picocuries per liter (pCi/L) site wide for 20 years. Gross alpha and gross beta activity data are no longer needed to search for locations where Tc-99 concentrations may exceed license

criteria. The NRC requested EPM to incorporate analysis for Tc-99 in the proposed post-remediation monitoring program in *Facility Decommissioning Plan – Rev 3* (the D-Plan, accession number ML22287A079) only to verify that Tc-99 concentrations in groundwater comply not only with the NRC Criterion, but with the State Criterion of 900 pCi/L site wide.

In 2013, EPM added analysis for isotopic mass concentration to the list of analytes in the annual environmental monitoring program for two reasons:

- To generate the mass concentration data needed for groundwater treatment system design, and to
- To evaluate the analytical error associated with isotopic activity concentration results versus that of isotopic mass concentration results.

In a letter dated May 4, 2017 (accession number ML17128A093), EPM submitted a technical memorandum demonstrating that isotopic mass concentration analysis "… produces more consistent results with significantly less error (as defined by "mean +/- 2σ" uncertainty). The D-Plan only specifies analysis for mass concentration when samples are analyzed for uranium, therefore there is no benefit to continuing to analyze uranium groundwater samples for both activity concentration and mass concentration.

Groundwater samples collected from Burial Area #1 (BA1) have been analyzed for nitrate and fluoride every year. However, nitrate and fluoride results have for decades demonstrated that neither of these constituents is present in groundwater in BA1 at concentrations above background.

If analysis for gross alpha and gross beta activity and uranium activity concentration was removed from the list of analytes for annual groundwater monitoring, and nitrate and fluoride were eliminated from the analyte list for BA1, analytical costs associated with the annual environmental monitoring program would be significantly reduced, with no adverse impact on the usefulness of the data. The following table presents analytical costs for the 2023 environmental monitoring event and the estimated analytical costs for 2024, including the proposed changes to the analyte list. Unit costs for 2024 assume a 4% cost escalation relative to 2023 costs.

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Analytical Cost for Groundwater Analysis						
Parameter	2023			2024 (4% Escalation)		
	Unit Cost	Quantity	Total Cost	Unit Cost	Quantity	Total Cost
U-235, U-238 (EPA 200.8)	$112.35	34	$3,819.90	$116.84	34	$3,972.70
U-234, U-235, U-238 (HASL 300)	$174.15	34	$5,921.10	$181.12	0	$0.00
Gross Alpha & Beta (EPA 900.0)	$73.05	34	$2,483.70	$75.97	0	$0.00
Nitrate/Nitrite (EPA 353.2)	$18.60	34	$632.40	$19.34	17	$328.85
Fluoride (EPA 300.0)	$23.25	34	$790.50	$24.18	17	$411.06
Subtotal			$13,647.60			$4,712.60
Waste Management Fee*			$818.86			$282.76
Total Cost			$14,466.46			$4,995.36

* The waste management fee is 6% of the total analytical invoice amount.

EPM believes it is in the best interest of the U. S. Nuclear Regulatory Commission (NRC) and the Oklahoma Department of Environmental Quality (DEQ) to approve the removal of the following analyses from the annual environmental monitoring program:

- For all surface water locations and monitor wells at the site: gross alpha activity, gross beta activity, and uranium isotopic activity concentration
- For all monitor wells in BA1: nitrate and fluoride concentration

The annual environmental monitoring sampling event is scheduled for the week of April 15th. Consequently, your approval to implement these changes as soon as practical is requested herein.

If you have any questions or desire clarification, please contact me as soon as possible.

Sincerely,

Jeff Lux

Jeff Lux
Project Manager
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