

March 8, 2017

Mr. Ken Kalman  
Project Manager  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852-2738

Re: Docket No. 70-925; License No. SNM-928  
Groundwater Assessment Report

Dear Mr. Kalman:

Groundwater treatability tests were performed at the Cimarron Site in 2013 using groundwater from Monitor Well TMW-13. Over a period of several months, the groundwater obtained from this monitor well repeatedly yielded over 4,000 pCi/L total uranium, averaging approximately 4,500 pCi/L uranium.

In 2015, Kurion conducted treatability testing, once again using groundwater obtained from Monitor Well TMW-13. However, in 2015, the groundwater from Monitor Well TMW-13 yielded only slightly over 600 ug/L uranium (equivalent to slightly over 600 pCi/L). This dramatic reduction in uranium concentration, in a monitor well located in the center of the uranium plume in Burial Area #1, triggered an evaluation of past concentration data for groundwater obtained from this monitor well. Review of historical data indicated that there had been similar large swings in concentration over time.

During preparation of the December 2015 *Facility Decommissioning Plan*, groundwater samples were collected and analyzed from over 200 monitoring wells at the Cimarron site. This data was used to delineate uranium, nitrate, and fluoride in groundwater. In some areas, numerous wells yielded groundwater for which comparatively low uranium concentrations were reported relative to the concentrations reported in 2013. This indicated a need to evaluate historical analytical groundwater data to determine if there is a relationship between concentration and saturated thickness or time of year.

It was thought possible that uranium concentrations are higher during dry times, when the depth to groundwater is greater and the dissolved uranium is contained in a thinner zone of saturation. Similarly, it was thought possible that there is a “repetitive” relationship between concentration and season, based on a similar assumption (i.e., drier summers may correlate with higher concentrations, or wetter springs may correlate with lower concentrations).

EPM committed to obtain additional data spread throughout the year to provide a fuller data set for this evaluation. Beginning with the first quarter of 2016, groundwater samples were obtained from 45 monitor wells on a quarterly basis. The selected monitor wells are screened in different formations in different areas of the site. Samples were analyzed for uranium, nitrate, or fluoride, whichever are compounds of concern in that area. Burns & McDonnell compiled this quarterly groundwater data with historical data extending back to 2002 and evaluated the

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correlation (or lack thereof) between concentration and depth to groundwater (or season). A letter report presenting that evaluation is attached.

The report concludes that there is no correlation between uranium concentration and either depth to groundwater or season. Collection and analysis of groundwater samples from these locations will continue on a quarterly basis, and the report will be updated and submitted on or around the end of 2017.

If you have questions or desire clarification on this evaluation, please contact me at 405-642-5152 or [jlux@envpm.com](mailto:jlux@envpm.com).

Sincerely,



Jeff Lux, P.E.  
Project Manager

Enclosure

cc: J. Paul Davis, Oklahoma Department of Environmental Quality  
Dr. Gerald Schlapper, US Nuclear Regulatory Commission, Region IV  
NRC Document Control Desk (electronic copy only)