

October 28, 2014

Mr. Mark Kautsky, Site Manager
U.S. Department of Energy
Office of Legacy Management
2597 Legacy Way
Grand Junction, CO 81503

SUBJECT: THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) STAFF REVIEW OF U.S. DEPARTMENT OF ENERGY (DOE) REQUEST FOR CONCURRENCE ON DOE'S PROPOSAL TO REDUCE GROUND WATER MONITORING FREQUENCY AT THE SHIPROCK, NEW MEXICO URANIUM MILL TAILINGS RADIATION CONTROL ACT SITE. (WM-00058)

Dear Mr. Kautsky:

I am writing in response to your letter dated September 9, 2014, requesting the U.S. Nuclear Regulatory Commission (NRC) concurrence in the U.S. Department of Energy's (DOE's) proposal to reduce the ground water monitoring frequency at the Shiprock, New Mexico, Uranium Mill Tailings Radiation Control Act (UMTRCA) site (Agencywide Document Access and Management System (ADAMS) Accession Number ML14261A104). Specifically, you are requesting NRC concurrence on a reduction in ground water monitoring at all sample locations at the Shiprock, New Mexico site from a semiannual to annual frequency.

The NRC staff has reviewed your request and the basis for concluding that a reduction in the frequency of ground water monitoring is warranted. Based on our review, we have concluded that clarification regarding the basis for your conclusion that a reduction in the frequency of ground water monitoring is warranted will be necessary before NRC staff can complete its evaluation of your request. The issues requiring clarification are discussed below.

1. The letter states "The July 2002, Final Ground Water Compliance Action Plan for Remediation at the Shiprock, New Mexico, UMTRA Site (GCAP) allowed for sampling to change from semiannual to annual in 2012, (Appendix B). The GCAP requires semiannual monitoring for the initial 7 years, of remediation (i.e., after active pumping began in 2003), followed by annual monitoring for the next 5 years, then monitoring every 5 years thereafter. The seventh year of semiannual monitoring was in 2009, and monitoring frequency could have been reduced to annual starting in 2010."

Appendix B "Ground and Surface Water Monitoring Plan" of the 2002 Ground water Compliance Action Plan for the Shiprock site (ML022240683) describes the ground water monitoring plan and the basis for establishing the frequency of ground water monitoring for the site. It states on page B-1 "Ground water modeling has predicted that after about 7 years of active remediation in the terrace east system, recharge from terrace east to terrace west should be hydraulically cut off, and the source of milling related contamination will no longer affect the terrace west area."

It further states on page B-1 “Monitoring of ground and surface water is necessary for the first 7 years to evaluate the success of contaminant removal from the two floodplain wells and active remediation on terrace east.” Thus, the DOE GCAP appears to contemplate that semiannual ground water monitoring will continue during the active remediation phase of the GCAP. The premise that the active remediation will be completed in 7 years is repeated on pages B-5, B-6, B-7, and B-8.

However, it is not clear if the hydraulic connection between the east terrace and the west terrace has been cut. It is difficult to determine from previous reports if the screened interval of current monitoring wells in the terrace are sufficiently deep to show if the hydraulic connection exists or not. The contaminated groundwater in the terrace exists in the alluvium, the weathered Mancos Shale, and the unweathered Mancos Shale; however, it appears as if most of the screened intervals of the wells are located exclusively in the alluvium or in the lower alluvium and upper weathered Mancos Shale. West of U.S. Highway 491, only three wells exist sufficiently deep to monitor the upper weathered Mancos Shale. Contaminated water would occur at least as far down as the lower boundary of the weathered Mancos Shale, but the interface between the weathered and unweathered shale is not known, and it is therefore difficult to determine when the hydraulic connection in the weathered Mancos Shale between the east and west terrace has been cut.

In addition, as active remediation has not been completed at the site, it is not clear if the conditions described in the GCAP for reducing the frequency of ground water monitoring have been achieved.

If DOE wishes to reduce the frequency of ground water monitoring, DOE should describe how the conditions described in the GCAP for reducing the frequency of ground water monitoring have been achieved, or DOE could propose revised conditions for reducing the ground water monitoring and provide a revised GCAP outlining these revisions.

2. The DOE report entitled “Optimization of Sampling at the Shiprock, New Mexico, Site” (March 2013) (ML131280419) provides the basis for annual sampling at the Shiprock site and recommends that sampling at locations that have been added since the GCAP was initiated be changed from semiannual to annual. However, the results of the temporal redundancy analysis appear to indicate that semiannual sampling at most of the locations is warranted. Based on our understanding of Table 9, the results of the Floodplain and Terrace Visual Sample Plan (VSP) are interpreted as any cells that are Red indicates optimal sampling of more than semiannual, Yellow indicates sampling between semiannual and annual (i.e., more than semiannual but not more than annual) and Green indicates sampling less often than annual. Therefore, in order to conclude that annual sampling is optimal, the number of Green cells should be greater than the number of Red and Yellow cells. However, for the floodplain the number of Red, Yellow and Green cells are 20, 125 and 79, respectively and for the terrace the number of Red, Yellow and Green cells are 0, 205 and 79. Thus, it would appear from the DOE report that semiannual sampling is optimal.

If DOE intends to use the March 2013, report “Optimization of Sampling at the Shiprock, New Mexico, Site” as a basis for concluding that semiannual sampling is

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optimal for the Shiprock site, this apparent discrepancy between statements in the report and the results presented in Table 9 should be explained.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions concerning the NRC comments please feel free to contact me at 301-415-6749 or at Dominick.Orlando@nrc.gov.

Sincerely,

/RA/

Dominick Orlando, Senior Project Manager
Materials Decommissioning Branch
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket No.: WM-00058

Shiprock dist. List

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ML14288A599

OFFICE	NMSS	NMSS	NMSS	NMSS	NMSS
NAME	NOrlando	CHolston	HARt	MNorato	NOrlando
DATE	10/20/14	10/21/14	10/23/14	10/27/14	10/28/14

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