

March 9, 2015

Mr. Richard Bush, Program Manager
U.S. Department of Energy
Office of Legacy Management
2597 Legacy Way
Grand Junction, CO 81503

SUBJECT: GROUND WATER TREATMENT PLANT SHUTDOWN AT THE TUBA CITY,
ARIZONA, URANIUM MILL TAILINGS RADIATION CONTROL ACT SITE
(WM-00073)

Dear Mr. Bush:

I am writing in response to your letters, dated November 5, 2014, and January 7, 2015, discussing the shutdown of the ground water treatment plant at the Tuba City, Arizona, Uranium Mill Tailings Radiation Control Act site (Agencywide Document Access and Management System (ADAMS) Accession Numbers ML14314A858 and ML15030A034). On January 13, 2015, the U.S. Nuclear Regulatory Commission (NRC) staff provided comments on the report entitled "Alternatives Analysis of Contaminated Groundwater Treatment Technologies, Tuba City, Arizona, Disposal Site" that was included in the November 5, 2014, letter (ML14353A082).

In your letters you state that the U.S. Department of Energy (DOE) has decided to cease operating the ground water treatment plant at the site, because the treatment system has proven to be ineffective at achieving the remediation goals, despite 10 years of operation. You also state that there is no immediate or imminent danger to the environment or the public as a result of the shutdown of the treatment system.

NRC staff has reviewed the two letters and enclosures, the DOE Fact Sheet on the site, the DOE report entitled "Annual Groundwater Report, April 2013 Through March 2014, Tuba City, Arizona, Disposal Site" dated September 2014 (ML14364A209), has discussed the site conditions with you and has concluded that shutdown of the ground water treatment system should not pose an immediate threat to public health and safety or the environment at this time because:

- The ground water contamination is limited primarily to the middle terrace aquifer within about 1,500 ft. south-southwest of the disposal cell, and the contaminant plume is moving at an average rate of about 10-12 ft. per year;
- There are no domestic or livestock wells within the contaminant plume and nearby residences get their water from a Navajo Tribal Utility Authority well approximately 1.5 miles northwest and hydraulically upgradient from the Tuba City site;

- The only surface water associated with the site is found in seeps located approximately 4,000 feet south of the site in the Moenkopi Wash. Water from the Wash may be used for stock watering and agricultural use; but, to date, annual monitoring has found no contamination in the seeps;
- The lower terrace appears to be outside of the horizontal capture zone created by the extraction system. In addition, based on vertical capture zone information from previous DOE annual ground water reports, cessation of ground water extraction should result in decreasing downward hydraulic gradient between Horizons C and E in the lower terrace area, and thereby, slow the downward spread of any possible plume.
- DOE will continue to monitor the ground water at the site and is in the process of developing an interim treatment plan to address ground water contamination at the site.

However, there is a small probability of the existence of a fracture-dominated hydraulic connection between the disposal cell and the lower terrace (near wells 691 and 1003) and possibly the Moenkopi Wash. This could be a preferred pathway for contaminants to travel to the Moenkopi Wash and enter the Wash directly through the streambed, thereby bypassing any seeps. Preferred pathways are difficult to locate; and although the probability of preferred pathway transport to the Wash is low, sampling the Wash slightly upstream and downstream of the Tuba City disposal site, e.g., near sampling locations 902 and 965, would provide additional confidence that contaminants are not entering the Wash at levels threatening public health and safety. Therefore, we request that the DOE sample the Moenkopi Wash upstream and downstream of the disposal site and include the results in your Data Validation Packages and Annual Groundwater Report for the site.

In addition, if, based on the ongoing ground water monitoring and modeling that the DOE is conducting at the site, the DOE determines that the contaminants may pose a threat to the public health and safety or the environment, the NRC expects the DOE to address the threat in a timely manner.

Finally, during Navajo/Hopi/DOE quarterly meeting on February 18, 2015, you stated that the DOE believed that the NRC's concurrence on the Groundwater Compliance Action Plan for the site was for "active remediation." You also stated that, if the DOE decided to change the technology being used for ground water treatment, or if another active treatment approach was envisioned at the site, NRC concurrence on the new approach or technology would not be necessary. The NRC's concurrence on the GCAP for the site dated March 10, 2000 is limited to the active treatment being used at the site i.e., extraction of contaminated ground water, treatment of the contaminated ground water by distillation and injection of the treated ground water to control plume migration (ML003685824). Therefore, if the DOE intends to use an alternate treatment approach at the site, the NRC will need to review the new approach and, if the approach is acceptable, concur on the new approach.

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>.

R. Bush

3

If you have any questions concerning this letter or the staff's evaluation, please contact me at 301-415-6749 or by email at Dominick.Orlando@nrc.gov.

Sincerely,

/RA/

Dominick A. 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-00073
cc: Tuba City dist. list

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3

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