



**Department of Energy**  
Washington, DC 20585

March 18, 2016

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Deputy Director  
Mail Stop T8-F5  
Washington, DC 20555-0001

Subject: U.S. Department of Energy Office of Legacy Management (DOE-LM) Response to U.S. Nuclear Regulatory Commission (NRC) Letter dated August 27, 2015 ["U. S. Nuclear Regulatory Commission Staff Review of U. S. Department of Energy Reports for the Riverton, Wyoming, Processing Site" (Docket WM-00060)]

To Whom It May Concern:

In response to NRC's letter dated August 27, 2015 regarding "U.S. Nuclear Regulatory Commission Staff Review U. S. Department of Energy Reports for the Riverton, Wyoming, Processing Site" (WM-00060), Department of Energy, Office of Legacy Management responses to NRC's comments are provided as follows:

**NRC Comment 1**

*Domestic tap location 0814 has not been sampled for the past several sampling events because the house is vacant. The DOE may want to consider eliminating this location from the sampling regime and choose an alternate location to replace location 0814.*

**DOE-LM Response 1**

Domestic tap location 0814 should remain on the sampling list because the home is located in an area of concern (middle of the groundwater plume) to the Tribes and could become occupied at any time. In addition, this location is specified in the planning document that is used to implement the flushing and monitoring program – Alternate Water Supply System Flushing Plan Riverton, Wyoming, Processing Site (DOE 2013) that was approved by the Tribes.

**NRC Comment 2**

*The derivation of the background threshold value (BTV) for uranium in surficial samples is unclear. The DOE states that the BTV is derived from the 95 percent upper simultaneous limit from the data set for location 0794 using samples collected since 1997. The BTV for uranium is stated as 0.011 milligrams per liter (mg/L) (Table 3). However, the Time Concentration Graph on page 125 shows that the uranium concentration at location 0794 has never exceeded 0.01 mg/L and is typically much less than 0.01 mg/L. Therefore, it would seem that the value used as the background values should be much lower.*

NM5520



**DOE-LM Response 2**

The upper simultaneous limit (USL) is based on an established background data set and represents a statistic such that all observations from the background data set are less than the USL with a confidence coefficient of 0.95. It is expected that all current or future observations coming from the background population will be less than or equal to the USL, and, if a future background observation is above the USL, it is considered an outlier; therefore, the USL is useful as a BTV – if a downstream value is greater than the USL, then the downstream value is considered significantly elevated and not a natural fluctuation of background. EPA's ProUCL statistical software is used to calculate the USL, which was added in the latest version of the software to accommodate data sets with non-detects and variable detection limits. For these reasons, this method of determining a BTV for surface water has been used in LM data validation packages for past couple of years. Information on EPA's ProUCL statistical software can be found at:

[http://www.epa.gov/sites/production/files/2015-03/documents/proucl\\_v5.0\\_tech.pdf](http://www.epa.gov/sites/production/files/2015-03/documents/proucl_v5.0_tech.pdf)

It should be noted that the uranium concentration from the sample collected at upstream location 0794 in 2015 equaled the BTV at 0.011 mg/L, so the calculated USL will likely result in a higher BTV in the 2016 data validation package.

**NRC Comment 3**

*Page 39 lists results for well 431; however, this well is not listed in the work order or on the sample location map. The staff suggests DOE review the data to determine if it is in error.*

**DOE-LM Response 3**

Location 0431 was not a planned sampled location; therefore, it was not listed in the work order or sampling location map. The decision to sample this well was made in the field after conversation with the homeowner. The homeowner indicated that the shallow well is used for stock watering and was sampled in the past. DOE-LM made the decision to sample the well during this sampling event as a check on current conditions.

**NRC Comment 4**

*It appears that the institutional controls for the site may not be effective, as a new domestic well (0876) was installed within the institutional control boundary without notification to the DOE. The report indicates that the DOE will evaluate the institutional controls for the site. Please provide the status of the DOE's evaluation, as the results were not discussed in the March 2015 verification report for the site.*

**DOE-LM Response 4**

Following are the results of the evaluation of institutional controls (ICs) for the site.

The new domestic well inside the institutional control boundary (0876) was discovered by Tribal environmental personnel as part of their routine field-inspection of institutional controls at the site, which is a task specified in the cooperative agreement with DOE-LM.

The Wyoming State Engineer's Office (SEO) confirmed and apologized that this well was missed during the permitting process, but they reiterated their intent to work cooperatively with DOE-LM to manage well installation within the Notification Area (an area that encompasses the IC boundary). Their process includes: 1) determining if a proposed well falls within the Notification Area; 2) providing a copy of the well permit application to DOE-LM for comment if a proposed well is within the Notification Area; and 3) providing the well applicant a copy of the Fact Sheet with the completed well permit. This process is included in the SEO procedures and training manual, and all new employees receive training to ensure awareness of this process. The process worked as intended when the first proposed well was installed within the Notification Area in 2013.

This oversight reinforces the need for multiple layers of ICs such as routine inspections inside the IC boundary (which discovered this well), monitoring of domestic wells that are used for potable water within the IC boundary to verify protection of human health, and verification of ICs on an annual basis to ensure viability.

It should be noted that well 0876 was sampled upon discovery and was added to the long-term monitoring program. This well is located hydrologically upgradient from the former mill site, is completed in the Wind River Formation at a depth of 175 feet, and is separated from the shallow alluvial aquifer by a confining layer; therefore, groundwater impacts from the former mill site are not expected. Sampling results confirmed that concentrations of molybdenum and uranium were below their respective maximum contaminant level (MCL) established by EPA.

Please call me at (970) 248-6484 if you have any questions. Please address any correspondence to:

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Sincerely,



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cc:

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