



Department of Energy

Washington, DC 20585

September 6, 2011

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Deputy Director
Mail Stop T8F5
Washington, DC 20555-0001

Subject: Response to U.S. Nuclear Regulatory Commission (NRC) Staff Comments on Riverton, Wyoming, Site

Reference: Letter, D. Orlando to R. Bush, "U.S. Department of Energy Reports on the Riverton, Wyoming Former Uranium Processing Site," May 17, 2011

To Whom It May Concern:

The purpose of this letter is to address NRC staff comments on several U.S. Department of Energy (DOE) documents concerning the Riverton, Wyoming former uranium processing site. Additional information for clarification is also provided on the issues raised in your letter.

1) With respect to the sulfate concentrations at well 0405, samples collected from this well have consistently exceeded the secondary maximum contaminant level (SMCL) standard in the past. The SMCL is a suggested level based on aesthetic qualities of the water such as taste and odor and is not based on health effects. These sulfate levels are typical of natural concentrations found regionally in the groundwater of the Wind River Formation and are not considered site-related.

2) With respect to the lack of analysis of the data regarding the approved compliance strategy, in previous years, assessment of the progress of natural flushing was conducted using three tools: comparison to hydrogeologic modeling predictions, trend analysis, and curve matching/interpolation techniques applied to temporal plots of concentrations at individual locations. These techniques were based on a site conceptual model of gradually declining contaminant concentrations after surface remediation of source material on the former millsite. Prior to 2010, these techniques indicated that natural flushing of the surficial aquifer, in total, was progressing. However, spikes in contaminant concentrations occurred in 2010 that were attributed to flooding of the Little Wind River, which mobilized contaminants in the unsaturated zone of the surficial aquifer. A new approach, therefore, is needed to refine the site conceptual model and to better assess natural flushing processes. To accomplish this, DOE is proposing to conduct additional characterization work and reconstruct the groundwater numeric model at the Riverton site.

FSME20



3) Regarding the additional information to be provided and considered in the groundwater model:

Surface water elevations will be considered in the model. Historic Little Wind River elevations will be derived from the US Geologic Survey's (USGS) gaging station located approximately 1.3 miles from monitoring well 0789. Discharge and stage data has been collected from this station since 1941. Surveys will be conducted along the river to collect elevation data to correlate river elevations adjacent to the site with the USGS gaging station data.

Based on watermarks, monitoring well 0707 was the only well in the sampling network that was inundated by the flood. Redevelopment was conducted immediately prior to sampling to remove any potential affects from flood water entering the well. Dilution from flood water was not a factor as the uranium concentration measured in the sample collected from this well was significantly higher than in recent years.

Datalogger data from the flood event are limited but will be included in the groundwater model, as appropriate. The datalogger in well 0707 was destroyed during the flood event.

4) NRC staff is correct that the uranium Maximum Concentration Limit (MCL) associated with the U.S. Environmental Protection Agency's National Primary Drinking Water Standard is 0.03 mg/L. However, the MCL referred to in the DOE reports is the 40 CFR 192 standard for Uranium Mill Tailings Radiation Control Act sites, which is 30 pC/L, equivalent to 0.044 ppm, based on secular equilibrium.

5) DOE expects to complete the data collection for reevaluation of the 100-year flushing approach early in FY-2012. Characterization and modeling work is planned to be completed by October 1, 2012, contingent on receipt of DOE's 2012 budget request. A definitive milestone date for the reevaluation has not yet been established. DOE will keep you informed regarding the schedule for activities related to the reevaluation.

September 6, 2011

Document Control Desk

-3-

Please note that I am the Site Manager for Riverton, Wyoming former uranium processing site and can be contacted at (970) 248-6020 if you have any questions. Please send any correspondence to:

U.S. Department of Energy
Office of Legacy Management
2597 Legacy Way
Grand Junction, CO 81503

Sincerely,

A handwritten signature in cursive script that reads "April Gil".

April Gil, Ph.D.
Site Manager

cc:

D. Orlando, NRC
R. Bush, DOE-LM (e)
S. Campbell, Stoller (e)
File: RVT 410.02 (rc grand junction)