



Department of Energy

Washington, DC 20585

July 10, 2020

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Deputy Director
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Subject: U.S. Department of Energy Responses to U.S. Nuclear Regulatory Commission Staff Comments on the *2019 Annual Site Inspection and Monitoring Report for Uranium Mill Tailings Radiation Control Act Title II Disposal Sites*

To Whom It May Concern:

In response to the U.S. Nuclear Regulatory Commission's (NRC) letter dated February 5, 2020 regarding the NRC Staff Review of the *2019 Annual Site Inspection and Monitoring Report for Uranium Mill Tailings Radiation Control Act (UMTRCA) Title II Disposal Sites*, to Mark Kautsky from Dominick Orlando, the U.S. Department of Energy (DOE) Office of Legacy Management's (LM) responses to NRC's comments are provided as follows.

NRC Comment 1

For the Sherwood site, the inspection report states that the cover system was designed to withstand up to 10 feet of settlement. The inspection report further states that settlement has not exceeded 4.4 feet near the pond since construction of the disposal cell. This appears to be based on information in the report entitled "Settlement Survey and Analysis Sherwood, Washington, Disposal Site" dated June 2018 (ADAMS Accession Number ML18206A479). The June 2018 report states that cell-cover surface settlement at the site was calculated using the 2016 measurement data and adjusted data from the 1997 completion report. The June 2018 settlement report also indicates that settlement near the pond has not increased by visually comparing the extent of the pond shoreline over time (i.e., areal imagery from 2006, 2009, 2011, 2013, and 2015). In that the report relies on a calculated estimate of settlement and expansion of the pond as an indicator of additional settlement it may be useful for DOE to include an actual measurement of the depth of the pond as an indicator of additional settlement during inspections. Documenting the depth of the pond could provide another data point and help verify that the overall settlement of the cover remains less than 10 feet. The inspection report also indicates that DOE will be performing a baseline aerial survey of the site in the near future. The information obtained in the aerial survey could prove useful in further evaluating settlement near the pond.

DOE Comment 1 Response

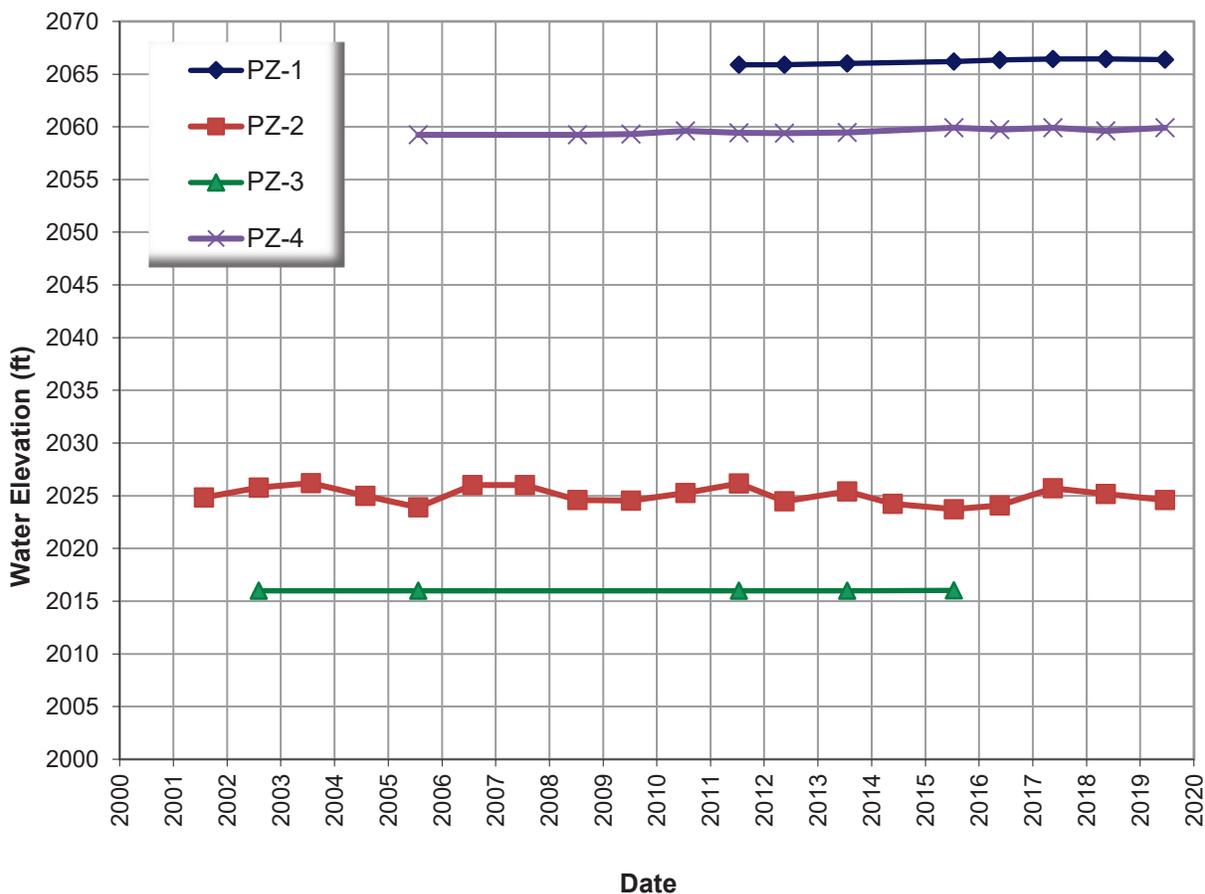
DOE is scheduled to conduct a baseline aerial survey in 2021 to collect high-resolution topographic survey data. Aerial survey quality control monuments were installed at the disposal cell in August 2019. The aerial survey will be performed in late summer/early fall when the seasonal pond is dry. The primary driver for the survey is to verify any possible surface settlement. Follow-up aerial surveys will reoccur every five years and will also be conducted when the pond is dry. A change analysis will be completed over the entire site to identify any potential variation between the datasets. DOE will share the results of the change analysis to NRC as soon as the information is available. It is the position of DOE that pond depth measurements will not represent an accurate indicator of settlement on the disposal cell. As noted in the referenced DOE report titled *Settlement Survey and Analysis Sherwood, Washington, Disposal Site* dated June 2018, ADAMS Accession Number ML18206A479, variations in seasonal weather, snowmelt, and the timing of the inspections can affect the overall extent and depth of the pond. DOE will continue to visually inspect the extent of the pond during site visits and to examine the area when the pond is dry for evidence of holes or depressions. As identified in the June 2018 report, the estimate of the current cover thickness does not include significant clean fill material (up to 6 feet) that was used to raise the subgrade prior to final cover placement. This clean fill over the tailings would lead to cell-cover thicknesses that are greater than those indicated by the 2016 survey and June 2018 report.

NRC Comment 2

Additionally, for the Sherwood site, the inspection report discusses the containment dam evaluations using the results of the four piezometers at the site that are used to evaluate moisture conditions in the containment dam. Understanding the moisture condition trends in the containment dam is an important aspect of its performance. The inspection report only includes the current piezometer results and it would be useful if the DOE included the results for the piezometers since their installation in 2000 in the 2020 report (perhaps as a graph similar to the water elevation data presented in Figures 5-5 and 5-6). Presentation of such a graph would enhance the NRC staff's understanding of the moisture conditions in the containment dam.

DOE Comment 2 Response

In future annual inspection and monitoring reports, DOE will provide complete piezometer water elevation results since their installation in 2000. The chart requested is provided below. It should be noted that gaps in water elevation data indicate dry sample events.



NRC Comment 3

For the Shirley Basin South site, the paragraph on page 6-12 contains misleading or inaccurate information. Specifically, it cites a 2012 letter from NRC regarding suspension of the Alternate Concentration Limit evaluation program at the site. The correct citation for the NRC staff's recommendation is my March 25, 2014, letter to Scott Surovchak in which the NRC staff determined that the ACL evaluation should be suspended due to "uncertainty regarding the source of the radium in the ground water at the site (i.e., whether the radium is naturally-occurring or originating from the tailings impoundment), that the ground water is not a current or potential near-term source of drinking water, and that the source of livestock water at the site is from an aquifer that is not impacted by former milling operations. Because the ground water is not a current or potential future source of drinking water, we do not believe that there is an imminent threat to the public health and safety or the environment." (ADAMS Accession Number ML14017A069). In future reports, DOE should cite the 2014 letter and conclusions stated therein, specifically, that NRC concluded that no imminent threats were likely at this time. This conclusion differs from a "no risk" conclusion in that NRC's concurrence was based on the evaluation program being suspended rather than it being terminated.

DOE Comment 3 Response

DOE opted to correct the language and reference citation in the 2019 report to carry forward to future reports. DOE's revised language is as follows and will be included in the report posted to the LM website (on p. 6-12):

NRC staff has concluded that the current groundwater monitoring data do not demonstrate tailings impoundment leakage. Additionally, DOE's ACL evaluation program should be suspended such that DOE will no longer conduct additional evaluations concerning ACL exceedances at the site (Orlando 2014). NRC staff based this conclusion on the uncertainty regarding the source of the radium in the groundwater at the site, that the groundwater is not a current or potential near-term source of drinking water, and that the source of livestock water at the site is from an aquifer, the lower sand aquifer, which is not impacted by former milling operations. For these reasons, there is no imminent threat to the public health and safety or the environment posed by site groundwater contamination.

The corrected reference is as follows (on p. 6-24):

Orlando, 2014. Dominick Orlando, senior project manager, Special Projects Branch, Decommissioning and Uranium Recovery Licensing Directorate, Division of Waste Management and Environmental Protection, Office of Federal and State Materials and Environmental Management Programs, letter (about [September 11, 2013] U.S. Nuclear Regulatory Commission staff review of U.S. Department of Energy report entitled "Groundwater Evaluation and Recommended Monitoring for the Shirley Basin South, Wyoming, UMTRCA Title II Disposal Site") to Scott Surovchak, site manager, Office of Legacy Management, U.S. Department of Energy, March 25.

Please contact me at (970) 248-6018 or Mark.Kautsky@lm.doe.gov, if you have any questions. Please address any correspondence to:

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Sincerely,



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