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MEMORANDUM

To: Larry Corte, Western Nuclear, Inc.

From: Jeffrey S. Merrifield
Timothy J. V. Walsh

Date: August 12, 2022

Re: Concerns Regarding the NRC's Split Rock Long-Term Care Fee Determination

On July 15, 2022, the Nuclear Regulatory Commission (NRC) Staff issued its Long-Term Care Fee (LTCF) determination for Western Nuclear, Inc.'s (WNI's) Split Rock, WY site.¹ The NRC Staff determined that \$4.2 million was the appropriate fee for cover costs associated with long-term site surveillance and maintenance in accordance with Criterion 10 of 10 C.F.R. Part 40 Appendix A.² The NRC's fee determination is supported by a Technical Evaluation Report (TER) that provides the NRC's bases for setting the fee at that level.³

We understand that WNI has determined to accept and pay the \$4.2 million fee assessed under the regulatory authority of the NRC. Nonetheless, you have requested that we evaluate the NRC's determination and memorialize any concerns we have with that determination in this memorandum, and our recommendations on how to potentially address those concerns for the mutual benefit of all stake holders in this process.

I. Background

The Split Rock site is regulated under Title II of the Uranium Mill Tailings Radiation Control Act (UMTRCA).⁴ In brief overview, Title II sites are required to be decommissioned by the NRC licensee. Once the NRC confirms decommissioning is complete and has accepted the site-

¹ Letter from Bill Von Till, Branch Chief, Uranium Recovery and Materials Decommissioning Branch, Division of Decommissioning, Uranium Recovery, and Waste Program, Office of Nuclear Material Safety and Safeguards, Nuclear Regulatory Commission, to Larry Corte, President, Western Nuclear, Inc. (July 15, 2022) (the "NRC LTCF Determination").

² Id.

³ NRC Technical Evaluation Report, Long-Term Care Fee Determination, Western Nuclear Incorporated Split Rock (Accession No. ML22157A415) (the "TER") at 4.

⁴ 42 U.S.C. § 7901 et seq.

specific Long-Term Surveillance Plan developed by the Department of Energy (DOE), the DOE will assume responsibility for the site under a general NRC license for long-term care and custody by the DOE Office of Legacy Management.

Per NRC requirement, a Title II site licensee must pay a fee to the United States Treasury to offset expected costs associated with DOE's long-term care and custody, so long as such costs have a nexus to radiological safety.⁵ The minimum fee is \$250,000 in 1978 dollars,⁶ which is approximately \$1.2 million today.⁷

The fee can be increased above the minimum amount to pay for costs associated with long-term site surveillance and maintenance activities if "site surveillance or control requirements at a particular site are determined, on the basis of a site-specific evaluation, to be significantly greater" than those specified in Criterion 12 of Appendix A (e.g., annual inspections to confirm site integrity).⁸

By statute and implementing regulation, the NRC has the sole responsibility for determining the fee amount, but may consider input from DOE and the licensee to inform its decision.⁹

For Split Rock, DOE estimated a \$9 million fee (2022 dollars) to cover its expected long-term surveillance and maintenance costs included in its long term surveillance plan.¹⁰ This proposed fee is based on DOE's "Annual Cost Estimate Summary" for the long-term surveillance and maintenance costs for the Split Rock site,¹¹ which estimate was based on the long-term surveillance and maintenance activities identified in DOE's Long-Term Surveillance Plan for the Split Rock site.¹² The DOE Annual Cost Estimate Summary calculated approximately \$89.4 thousand (2022 dollars) in direct and indirect annual costs for surveillance and maintenance activities at Split Rock, including site management; site inspection; groundwater and surface water monitoring; maintenance (such as well bladder pump replacement, 12,500 feet of linear fencing replacement, monitoring well replacement, noxious weed control, and rangeland health assessment); a 15% contingency; and NRC oversight.

⁵ 10 C.F.R. Part 40, Appendix A, Criterion 10. The NRC Staff first proposed to assess such fee in NUREG-0706, the Final Generic Environmental Impact Statement On Uranium Milling, Project M-25 (Sept. 1980) (Accession No. ML103440295). The Staff explained that establishing a set fee for all sites was "fair, simple, and efficient" and consistent with the "general principal . . . that the waste generator should pay all costs for waste disposal, including any long-term costs incurred." NUREG-0706 at 14-12.

⁶ 10 C.F.R. Part 40, Appendix A, Criterion 10.

⁷ NRC LTCF Determination at 1.

⁸ 10 C.F.R. Part 40, Appendix A, Criteria 10 and 12.

⁹ 10 C.F.R. Part 40, Appendix A, Criterion 10; NUREG 1620, Rev. 1, Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites under Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (June 2003), Appendix E at E-10. See also TER at 4.

¹⁰ TER at 1, 5.

¹¹ US Department of Energy Office of Legacy Management, Split Rock, WY, UMTRCA Title II Site, Long-Term Surveillance and Maintenance, Annual Cost Estimate Summary (Nov. 15, 2021) (Accession No. ML21323A183) ("DOE Annual Cost Estimate Summary"); see TER at 5.

¹² November 2021 Preliminary Final Long-Term Surveillance Plan for the Split Rock, Wyoming UMTRCA Title II Disposal Site, Jeffrey City, Wyoming (Accession No. ML21323A184) ("Preliminary Final LTSP").

WNI proposed to the NRC that the minimum fee (\$1.2 million in 2022 dollars) should be assessed for Split Rock because (among other reasons) the long-term surveillance and maintenance activities planned for Split Rock are substantially similar to other Title II sites that were assessed the minimum fee when they were transferred to DOE for long-term care.¹³ WNI also argued that many of the costs assumed in the DOE fee estimate did not have a sufficient nexus to radiological health and safety, and that DOE's estimate inappropriately assumed annual costs for activities that would occur intermittently over the 1,000 year compliance period.¹⁴

On July 15, 2022, the NRC issued its LTCF Determination of a \$4.2 million fee. The NRC explained that it "increased the LTCF from the minimum amount in Criterion 10" because it determined that there would be direct costs related to activities that are "significantly greater" than those specified in Criterion 12 of Appendix A.¹⁵ In particular, the NRC determined that the fee amount should be increased above the minimum amount to account for increased costs associated with site management, site inspection, groundwater and surface water monitoring and evaluation, minor maintenance (including bladder pump replacement and fencing around the impoundment areas), monitoring well replacement, and vegetation monitoring and deep-rooted vegetation control at the tailings impoundment.¹⁶

However, the NRC fee determination excluded or adjusted certain items from DOE's proposal, including DOE's indirect costs that did not have a clear nexus to radiological health and safety; rangeland maintenance costs (including control of invasive and noxious weeds at the site); and adjustment of the NRC inspection interval from 5 years to 10 years.¹⁷ In addition, the NRC used the time-phased expenditure of costs proposed by WNI, finding that such approach "is a generally accepted accounting practice for activities that do not occur annually," and which use "resulted in a reduction of the LTCF."¹⁸ The NRC fee determination also included costs for a 15 percent contingency.¹⁹

II. Concerns with NRC LTCF Determination

Our primary concern with the NRC LTCF determination is that it appears to include costs for surveillance and maintenance activities and financial assurance that were not included in fee determinations previously made for other Title II sites. This appears to be a change in NRC policy and practice, for which WNI had no prior notice. A related concern is that, even if the NRC Staff has a reasonable basis for including new costs in its LTCF determination, the basis for such inclusion does not appear to be publicly available, and thus WNI cannot evaluate the reasonableness of NRC's determination to include such costs in the LTCF.

¹³ Letter from Western Nuclear, Inc. to NRC Regarding the Western Nuclear, Inc. Split Rock Site Long-Term Care Fee (Jan. 25, 2022) (Accession No. ML22026A092) ("WNI January 25, 2022 Letter").

¹⁴ Letter from Western Nuclear, Inc. to NRC Regarding the Western Nuclear, Inc. Split Rock Site Long-Term Care Fee (Apr. 1, 2022) (Accession No. ML22095A156); Letter from Western Nuclear, Inc. to NRC Regarding Responses to NRC Questions and Requests for Clarification (Apr. 20, 2022) (Accession No. ML22111A133).

¹⁵ NRC LTCF Determination at 2.

¹⁶ Id.

¹⁷ Id. at 2-3.

¹⁸ Id. at 3.

¹⁹ TER at 11.

By letter dated January 25, 2022, WNI communicated its position to the NRC Staff that the Split Rock LTCF should be calculated in the same manner as the six Title II sites previously assessed a long term care fee.²⁰ WNI understands that these six sites, when transferred to the DOE for long-term care, were assessed an LTCF amount roughly equivalent to the minimum charge of \$250,000 (1978 dollars) identified in Criterion 10.²¹

More specifically, WNI understands that these sites were assessed the following long-term care fees:

- L-Bar (New Mexico) Long-term Surveillance Charge - \$698,194²²
- Edgemont (South Dakota) Long-term Surveillance Charge - \$581,610²³
- Arco Bluewater (New Mexico) Long-term Surveillance Charge - \$635,165²⁴
- Maybell West (Colorado) Long-term Surveillance Charge - \$800,173.56²⁵
- Sherwood (Washington) Long-term Surveillance Charge - \$666,030.61²⁶
- Shirley Basin South (Wyoming) Long-term Surveillance Charge - \$862,614²⁷

WNI reviewed the DOE monitoring programs for these sites and determined that several of them (including Bluewater, Sherwood, and Shirley Basin South) have monitoring and inspection programs of comparable scope and frequency as that identified in the Draft Final LTSP for the WNI Split Rock Site.²⁸ For these reasons, and in view of the fact that the Commission had taken no formal policy action to change the methodology for calculation of these costs, WNI requested that the NRC Staff impose fee for the Split Rock site consistent with the formula specified in Criterion 10 (i.e., a “minimum charge of \$250,000 (1978 dollars)”, or approximately \$1.2 million in 2022 dollars.²⁹

²⁰ WNI January 25, 2022 Letter at 2.

²¹ Id.

²² Janosko, Gary S., U.S. Nuclear Regulatory Commission, letter to John Trummel, Kennecott Energy Company, September 8, 2004, ADAMS Accession No. ML042580457.

²³ Holonich, Joseph J., U.S. Nuclear Regulatory Commission, letter to Patrick Carier, Tennessee Valley Authority, June 27, 1996, ADAMS Accession No. ML20113C396.

²⁴ Holonich, Joseph J., U.S. Nuclear Regulatory Commission, letter to Joseph Virgona, U.S. Department of Energy, August 29, 1997, ADAMS Accession Nos. ML103410026, ML20217Q983.

²⁵ McConnell, Keith I., U.S. Nuclear Regulatory Commission, letter to Raymond Plieness, Department of Energy, March 11, 2010, ADAMS Accession No. ML100570213.

²⁶ Ting, Philip, U.S. Nuclear Regulatory Commission, letter to Arthur Kleinrath, U.S. Department of Energy, March 9, 2001, ADAMS Accession No. ML010800340.

²⁷ Owens, Mark R., Pathfinder Mines Corporation, letter to Keith McConnell, U.S. Nuclear Regulatory Commission, October 1, 2013, ADAMS Accession Nos. ML13282A267, ML13277A017.

²⁸ WNI January 25, 2022 Letter at 2.

²⁹ Id.

In the TER, the Staff acknowledges that the long-term care fee for four of these six sites “was based only on the \$250 K (1978 dollars) minimum in Criterion 10 of 10 CFR Part 40, Appendix A.”³⁰ For two of the sites (Bluewater and L-Bar), the fee was increased above the minimum amount to address costs associated with groundwater monitoring and sediment control.³¹ But as is evident from the fees assessed those sites, the increase above the minimum charge was modest.

In contrast, the \$4.2 million fee the NRC Staff has assessed for Split Rock—\$3 million higher than the minimum fee—is a marked departure from the long-term care fees assessed these other Title II sites. This increase appears to be based on costs associated with minor maintenance/fencing; groundwater and surface water monitoring program evaluation; deep-rooted vegetation; and the inclusion of a 15 percent contingency. Our concerns with the inclusion of these costs are summarized immediately below:

1. Minor maintenance/fencing. The NRC Staff-determined LTCF includes costs for the replacement of 12,500 linear feet of fencing at the site.³² The NRC Staff included the costs for such fencing around the tailings impoundment, finding that it had a nexus to radiological health and safety because (for example) “without a fence, all-terrain vehicles, utility-terrain, and other vehicles used for recreation and hunting could create tracks on the impoundment that could result in pathways for erosion of the impoundment cover.”³³ No other explanation is provided, nor is any reference made to any studies or assessments supporting the Staff’s assertion. To the best of our knowledge, this is the first time the Staff has included the costs of such fencing in its fee determination. The TER provides no explanation as to why fencing is required for Split Rock, but not any other prior Title II site.
2. Groundwater and Surface water Monitoring Program Evaluation.³⁴ This cost for a program *evaluation* is in addition to the annual groundwater and surface water monitoring program. The TER asserts that this program evaluation cost has a nexus to radiological health and safety,³⁵ without reference to any studies or assessments supporting the Staff’s assertion. To the best of our knowledge, this is the first time the Staff has included the costs of such evaluation in its fee determination. The TER provides no explanation as to why such evaluation is required for Split Rock, but not any other prior Title II site.
3. Deep-rooted vegetation.³⁶ The NRC Staff included costs for monitoring and control of deep-rooted vegetation at the tailings impoundment, finding it has a nexus to radiological

³⁰ TER at 4.

³¹ Id. at 4.

³² Id. at 9.

³³ Id. at 9.

³⁴ Id. at 8.

³⁵ Id. at 8.

³⁶ Id. at 9-10.

health and safety.³⁷ The NRC’s determination is based in part on a recent, generic guidance document (NUREG/CR-7288), which found (among other things) that such vegetation may adversely affect the performance of tailings impoundment covers by penetrating the radon barrier.³⁸

The DOE Preliminary Final LTSP The Split Rock acknowledges the presence of deep-rooted vegetation on the Split Rock Tailings impoundment, but identified “[n]o negative impacts of disposal cell performance” and thus did not propose any removal or control of deep-rooted vegetation under long-term management.³⁹ Nor does the DOE Annual Cost Estimate Summary identify any costs associated with such action.⁴⁰

Nonetheless, the NRC determined to include such costs in the Split Rock LTCF. The TER states that deep-rooted vegetation, including Rubber Rabbitbrush, is “now observed on the [Split Rock] disposal cell cover.”⁴¹ The TER references a non-public, April 20, 2022 DOE report⁴² and a subsequent, publicly available May 6, 2022 email communication from DOE to support its decision to include such costs.⁴³ The NRC concluded that monitoring and management of deep-rooted vegetation at Split Rock is needed because such vegetation may adversely impact the radon cover.⁴⁴

Suffice it to say that WNI has not had the opportunity to review the non-public DOE April 20, 2022 report or to assess its findings regarding the presence of deep-rooted vegetation at Split Rock, or its potential impacts to the radon cover. And WNI had knowledge of the May 6, 2022 DOE communication to NRC only after publication of the NRC LTCF Determination and the TER. Moreover, even assuming that the non-public DOE report’s observations are well-founded, to the best of our knowledge, this is the first time the Staff has included costs for monitoring and management of deep-rooted vegetation in its long-term care fee determination. The TER provides no explanation as to why such actions are required for Split Rock, but not any other prior Title II site.

4. 15 percent contingency. The NRC Staff included a 15 percent contingency in its Split Rock fee determination to ensure “that adequate funds are available to address unforeseen circumstances that have a nexus to radiological health and safety.”⁴⁵ The NRC Staff acknowledges that a “contingency factor is not included” in the Staff’s earlier generic

³⁷ Id. at 9.

³⁸ Id. at 9, citing NUREG/CR-7288, “Evaluation of In-Service Radon Barriers Over Uranium Mill Tailings Disposal Facilities (March 2022).

³⁹ Preliminary Final LTSP at 17.

⁴⁰ See DOE Annual Cost Estimate Summary.

⁴¹ TER at 9.

⁴² Id., citing “Plant abundance at Split Rock, Wyoming UMTRCA Title II Disposal Site, Jeffrey City, Wyoming, April 20, 2022, ML22118A018 (non-public).”

⁴³ Id., citing “DOE’s Split Rock Final Long-Term Surveillance Plan to include Vegetation Monitoring and Management and Fence Maintenance, Wyoming UMTRCA Title II Disposal Site, Jeffrey City, Wyoming, May 6, 2022, ML22147A049.”

⁴⁴ TER at 9-10.

⁴⁵ Id. at 11.

evaluations of uranium mill site long-term surveillance and management costs.⁴⁶ Nonetheless, the Staff asserts that it opted to include a contingency factor in its fee determination because such cost “has become a standard component of the NRC’s financial assurance programs,” referencing NUREG-1620 (Rev. 1).⁴⁷

We find that the Staff’s asserted basis for including a 15 percent contingency in the Split Rock LTCF lacks adequate support. We have reviewed the references to “contingency” made in NUREG-1620 and conclude that those references do not apply to the long-term care fee for Title II sites.

NUREG-1620 Section 4.4.3 discusses a “contingency” being “built into” the licensee-provided financial surety,⁴⁸ which surety must be maintained “for the cleanup of ground water, with the surety sufficient to recover the anticipated cost and time frame for achieving compliance, *before the land is transferred to the long-term custodian.*”⁴⁹ Later in its Appendix C (the “Outline Recommended by the U.S. Nuclear Regulatory Commission Staff for Preparing Site-Specific Facility Reclamation and Stabilization Cost Estimates for Review”), NUREG-1620 states in part that “*the licensee* should add a contingency amount to the total cost estimate for final site closure. The staff currently considers a 15 percent contingency to be an acceptable minimum amount.”⁵⁰

These are the sole references to a “contingency” discussed in NUREG-1620. These references on their face show that the contingency contemplated by NUREG-1620 is unrelated to any costs for long-term surveillance and maintenance of a Title II site *after* the site has been transferred to the long-term custodian (i.e., DOE Office of Legacy Management). Rather, it is clear that these contingency references concern the financial assurance required of the licensee while the site remains in the care and control of the licensee.

Thus, the NRC Staff’s stated rationale for including the 15 percent contingency in the Split Rock LTCF lacks an adequate basis. Further, the TER provides no explanation as to why such contingency is needed for the Split Rock site, but not any other prior Title II site. Indeed, the long-term surveillance and maintenance activities to be undertaken at Split Rock are tasks that have low uncertainty as to their scope and costs and should, therefore, be well understood and not warrant such a substantial contingency.

Finally, with respect to the Staff’s assertion that a contingency is needed to address unforeseen circumstances that have a nexus to radiological health and safety—this is clearly a change in policy by the Staff for which WNI had no notice. The Staff states that the long-term care fee can be increased above the minimum amount “based on its

⁴⁶ *Id.* at 11, citing NUREG-0706, Generic Environmental Impact Statement on Uranium Milling (Sept. 1980).

⁴⁷ *Id.* at 11, referencing NUREG-1620 (Rev. 1) Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites under Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (Jun. 2003) (Accession No. ML032250190).

⁴⁸ NUREG-1620 (Rev. 1) at 4-45.

⁴⁹ *Id.* at 4-53 (emphasis added).

⁵⁰ *Id.*, Appendix C at C-4 (emphasis added).

evaluation of the site and necessary post termination surveillance and maintenance activities” and “as warranted by *site-specific* circumstances.”⁵¹ But it appears that the Staff has unilaterally determined to apply a contingency factor in its long-term care fee calculation not because of any site specific considerations, but only because the Staff routinely applies a contingency in other financial assurance programs. Our view is that such a determination is a policy issue that should be reviewed by the Commission.

Review of the Staff’s earlier guidance demonstrates that the ability to adjust the fee to cover costs associated with identified, site-specific long-term care actions was itself the only “contingency” contemplated by the Staff when it first determined to impose a long-term care fee. And it was an “unlikely contingency” at that. In NUREG-0706, the Staff explained that in “some rare cases” some degree of active care might be required at a site.⁵² To address such a scenario, the Staff provided that the “regulations on long-term funding, therefore, should provide for such an *unlikely contingency*, allowing for charges greater than the equivalent of \$250,000 in 1978 dollars to be levied *if extenuating circumstances warrant this*.”⁵³

Notwithstanding these statements, the Staff has determined to compound the original contingency contemplated in NUREG-0706—the ability to adjust the fee to cover site-specific costs—with a blanket 15 percent multiplier. This adjustment is has no clear connection specific to the Split Rock site, and appears to be a cost-escalator that the Staff intends to apply to all Title II sites going forward, regardless of site-specific considerations.

III. Recommendations

Although WNI has decided to pay the \$4.2 million LTCF for Split Rock, we recommend that WNI take the following actions to address the concerns identified in this memorandum. These recommended actions are intended to improve the Title II site closure and transfer process going forward for the mutual benefit of all stake holders in this process.

1. We recommend that WNI communicate its concerns to the Commission (including providing this non-privileged memorandum to the Commission). For the NRC to begin to address these concerns, preferably well in advance of the fee determination process for the next Title II site, it must be aware of them.
2. We recommend that WNI request that the Commission direct the NRC Staff to update all of its guidance documents related to long-term care fee determinations to incorporate lessons learned from Split Rock. This would allow future Title II licensees to have adequate notice of items that the NRC Staff may include in its cost determinations, such as impoundment area fencing, monitoring program evaluations, and deep-rooted vegetation.

⁵¹ TER at 4 (emphasis added).

⁵² NUREG-0706 at 14-13.

⁵³ NUREG-0706 at 14-13.

3. We recommend that WNI request that the Commission direct the NRC Staff to update guidance pertaining to the Title II site license termination and fee determination processes. Licensees should have clarity and certainty on what steps will be taken, by whom, and when. Licensees should also have clarity and certainty on what information will form the cost basis of NRC's fee determination. Here, a key cost consideration—deep-rooted vegetation—was included in the Split Rock LTCF based on a non-public DOE report submitted to NRC after WNI had provided its presumptively last set of comments to the NRC on the DOE Annual Cost Estimate Summary, the Preliminary Final LTSP, and the overall fee determination. Because the licensee is responsible for paying the fee amount, the licensee should be informed of all the inputs going into the fee calculation before the fee is determined.

4. We recommend that WNI request that the Commission direct the NRC Staff to undertake a rulemaking for the identified concerns that cannot be addressed merely by updating guidance documents. For example, the 15 percent contingency in the Staff's fee determination is not a site-specific cost and therefore is not contemplated by 10 C.F.R. Part 40 Appendix A Criteria 10 and 12. We believe that a notice and comment rulemaking is the appropriate regulatory mechanism for addressing that concern. In addition, the Staff's reliance on non-public reports prepared by DOE for cost determinations also should be addressed in a rulemaking to assure other Title II licensees that they will have the ability to review all technical bases for and inputs into fee determinations well in advance of a determination being made.

Please let us know if you have any questions on the content of this memorandum. We would be happy to address them.