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February 3, 2026

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Subject: **Addendum concerning "Good Faith" & "Serious" Efforts & UMTRCA Title II Site Transfer Process to "Homestake Mining Co. of CA - Land Acquisition White Paper, A Review of NRC Regulations, Guidance, Precedents: Status of Surface and Subsurface Ownership in Review and Approval of Groundwater ACLs" (ADAMS Accession No. ML25141A037), Radioactive Materials License SUA-1471, Docket 040-08903**

Ms. Wong,

In anticipation of the upcoming pre-application audit for the Alternate Concentration Limit License Amendment Request resubmittal in March 2026, Homestake Mining Company of California is submitting the referenced white paper addendum to facilitate the audit discussion.

Thank you for your consideration of the attached information. We look forward to a constructive audit and continued cooperation and collaboration on all matters related to the GRP. If you have any questions, please contact me via e-mail at eburch@barrick.com or via phone at 775.934.1766.

Respectfully,

Eric Burch

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attachment

Review of NRC Regulations, Guidance, and Precedents: Status of Surface and Subsurface Ownership in Review and Approval of Groundwater ACLs

Addendum Concerning "Good Faith" & "Serious" Efforts & UMTRCA Title II Site Transfer Process

Prepared for:

U.S. Nuclear Regulatory Commission

February 2026

Prepared By:

HOMESTAKE MINING COMPANY OF CALIFORNIA
Grants Reclamation Project

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ABBREVIATIONS AND ACRONYMS

ACL	Alternate Concentration Limit
AEA	Atomic Energy Act of 1954
APD	Application for Permit to Drill
BLS	U.S. Bureau of Labor Statistics
BLM	U.S. Bureau of Land Management
CAP	Corrective Action Program
C.F.R.	U.S. Code of Federal Regulations
CRR	Completion Review Report
CPI	Consumer Price Index
DOE	U.S. Department of Energy
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
IC	Institutional Control(s)
IAEA	International Atomic Energy Agency
LM	Office of Legacy Management, U.S. Department of Energy
LTCF	Long-Term Care Fee
LTSC	Long-Term Surveillance Charge
LTSF	Long-Term Surveillance Fee
LTSP	Long-Term Surveillance Plan
LTSB	Long-Term Surveillance Boundary
NEPA	National Environmental Policy Act of 1969
NRC	U.S. Nuclear Regulatory Commission
POC	Point of Compliance
POE	Point of Exposure
QMC	Quivira Mining Company
RIS	Regulatory Issue Summary
TER	Technical Evaluation Report
UMTRCA	Uranium Mill Tailings Radiation Control Act of 1978
U.S.C.	United States Code
USD	United States dollar (currency)
WDEQ	Wyoming Department of Environmental Quality
WNI	Western Nuclear, Inc.

I. Executive Summary

This White Paper is an Addendum to the April 2025 White Paper prepared by the Homestake Mining Company of California (Homestake or HMC) concerning U.S. Nuclear Regulatory Commission (NRC or Commission) regulations, guidance, and precedents related to the review and approval of groundwater alternate concentration limits (ACLs) for former conventional uranium mills.[1] Relevant background information on Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), conventional uranium mills, uranium mill tailings, associated groundwater contamination, and efforts undertaken to remediate the mills are provided in the ACL Whitepaper, which will be referenced as appropriate.

The purposes of this White Paper Addendum are three-fold: (1) to identify the "good faith" and "serious" efforts an ACL applicant must undertake to acquire surface and subsurface rights within the proposed long-term surveillance boundary (LTSB) of a former uranium mill site; (2) to identify the enforceable, durable, and legally defensible institutional controls (IC) established by licensees on land parcels when they are not able to acquire the surface or subsurface estate(s); and (3) to summarize the steps needed to complete the UMTRCA Title II site transfer from the NRC licensee to the long-term care custodian (i.e., the U.S. Department of Energy (DOE)).

Good faith and serious efforts: With respect to good faith and serious efforts undertaken to acquire surface and subsurface rights within the LTSB, applicable authorities, guidance, and precedent expect that licensees should seek to own clear title to surface lands and subsurface estates (i.e., mineral and water rights). The efforts undertaken by licensees to acquire surface lands and subsurface estates include purchase offers for parcels greater than the appraised and/or assessed values; land parcel swaps where a licensee exchanges land outside the LTSB for land inside the LTSB; negotiated acquisition of state lands offered for sale; consolidation of grazing and water rights associated with adjacent ranch properties; and the exercise of existing purchase options to expand the controlled area.

Institutional controls: Where such ownership is not feasible (essentially because third party private landowners refuse to sell), licensees have established institutional controls, including recorded restrictive covenants and groundwater-use prohibitions, permanent easements granting government access for inspection and monitoring, and compensation or alternate water-supply arrangements to ensure protection of human health and the environment.

The following table summarizes good faith and serious efforts undertaken to acquire surface and subsurface estates/rights, and the institutional controls implemented when those estates/rights could not be acquired, in the precedent detailed later in this White Paper Addendum:

[1] The Homestake Mining Company of California, Review of NRC Regulations, Guidance, Precedents: Status of Surface and Subsurface Ownership in Review and Approval of Groundwater ACLs (April 2025), NRC ADAMS Accession No. ML25141A037 (hereinafter "2025 ACL White Paper").

Good Faith Efforts	Institutional Controls
• Retained legal counsel to conduct and document multi-year negotiations with individual landowners • Established fair market property values using state-licensed appraisers • Offered multiple purchase structures – cash, land, life estate, subsurface rights • Offered compensation exceeding appraised market and/or assessed values • Made final written offers immediately before license termination • Covered landowner relocation and improvement removal expenses • Proposed structured annual cash payments to offset seller expenses • Permitted sellers to retain or remove on-site improvements before sale • Exchanged licensee-owned lands for privately held parcels • Purchased state- and privately-held lands and properties • Purchased state grazing leases and federal grazing allotments • Purchased subsurface, mineral, and groundwater rights • Submitted property acquisition status reports and supporting documentation to NRC and DOE • Coordinated LTSB expansion with state and federal regulators	• Recorded restrictive covenants on well installation and operation and groundwater use • Recorded subsurface ownership covenant prohibiting groundwater access • Recorded access easements on restricted parcels to grant DOE access • Coordinated continued BLM ownership of federal lands within and surrounding the LTSB

Steps to complete the site transfer process: The steps involved to complete site transfer from the licensee to DOE include NRC and Agreement State[2] verification that reclamation and groundwater remediation meet applicable standards; preparation by DOE of draft and final long-term surveillance plans for the site; payment by the licensee of a long-term care and surveillance fee; preparation and recordation of title transfer documentation; NRC termination of the licensee's specific license; and execution and recordation of a Warranty Deed conveying title to

[2] "Agreement States" are U.S. states that have entered into formal agreements with the NRC under Section 274(b) of the AEA to assume regulatory authority over byproduct, source, and certain small-quantity special nuclear materials within their borders. Once a state's program is found adequate and compatible, the NRC relinquishes its licensing function for those materials and continues oversight of the state's program. *See* NRC, Agreement States, https://www.nrc.gov/agreement-states (last updated July 17, 2025). Relevant here, the State of New Mexico is an Agreement State and exercises jurisdiction over some radiological activities in the state. However, in 1986, New Mexico relinquished back to the NRC its authority over the Homestake Grants Reclamation Project.

the United States of all property and associated interests required for long-term stability, as mandated by 10 C.F.R. Part 40 Appendix A Criterion 11(C). Upon receipt of the surveillance charge and confirmation of clear title, NRC issues a determination terminating the specific source material license and transferring custodial responsibility to DOE under a general license.

Section II below summarizes the statutory authority, agency implementing regulations, and agency guidance relevant to the issues discussed in this White Paper Addendum. Section III discusses UMTRCA Title II precedent where good faith and serious efforts were undertaken to acquire surface and subsurface estates and the institutional controls implemented where such estates could not be acquired. The primary site discussed is the Split Rock site in Wyoming. Section IV summarizes the steps in the site transfer process following the approval of an ACL. Section V briefly summarizes and concludes this Addendum.

II. Summary of Relevant Statutory Authority, Agency Implementing Regulations, and Agency Guidance

A. Statutory Authority

Title II of UMTRCA revised the Atomic Energy Act of 1954 (AEA) to provide, among other things, for the transfer of former uranium mill sites and their uranium tailings to DOE for long-term custody and care after those sites have completed remedial action under an NRC license.[3] The portions of the statute concerning transfer of uranium mill sites in operation at the time the law was passed are addressed in Title II of UMTRCA. These sites are typically referred to as "Title II sites." The statute was passed on November 8, 1978, and the portions of the law pertaining to Title II sites took effect on November 8, 1981.[4]

Uranium mill tailings are the leftover sand-like residues from processing uranium ore to extract uranium. These residues are radiologically and chemically contaminated. Such tailings are typically kept in a large pile that ultimately will be covered and disposed of within the license site boundary.

UMTRCA Section 201 revised the AEA's definition of "byproduct material" to include "the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content."[5] UMTRCA Title II Section 202(b)(1) in turn provides that the Commission shall require by rule, regulation or order that "title to land, including any interests therein . . . which is used for the disposal of any byproduct material . . . shall be transferred to the United States, or the State in which such land is located . . ."[6] This authority applies to sites whose NRC license was in effect at the time of the passage of UMTRCA, such as Homestake's Grants site.[7] Under UMTRCA Section 202(b)(2), the DOE is

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[3] 42 U.S.C. § 2111(a) – (b). The statute specifically allows for transfer of the site to the United States or the State in which the site resides. For purposes of this White Paper Addendum, the discussion will assume transfer to the United States, and more specifically, to DOE.

[4] *See* 42 U.S.C. § 2113.

[5] 42 U.S.C. § 2014(e).

[6] 42 U.S.C. § 2111(b)(1)(A)(i).

[7] 42 U.S.C. § 2111(b)(4)

to assume title and custody to such land on behalf of the United States, unless another agency is designated by the President.[8] For sites whose license was in effect at the time the statute was enacted, Section 202(b)(4) further provides that the Commission "take into consideration the status of the ownership of such land and interests therein and the ability of the licensee to transfer title and custody thereof to the United States . . . ."[9]

B. NRC Regulations Implementing UMTRCA Title II

The Commission has promulgated regulations in 10 C.F.R. Part 40 to carry out UMTRCA's statutory commands. For example, 10 C.F.R. § 40.28 establishes a general license for custody and long-term care of uranium and thorium byproduct materials disposal sites authorizing DOE, another federal agency designated by the President of the United States, or a state where the disposal site is located as the licensee. This general license "becomes effective when the Commission terminates, or concurs in an Agreement State's termination of, the current specific license and a site Long Term Surveillance Plan . . . has been accepted by the Commission."[10]

The Commission also promulgated Appendix A to Part 40, which contains requirements specific to the disposition of uranium mill tailings. Most relevant to the purposes of this White Paper Addendum is Criterion 11, which prescribes requirements for site and tailings (byproduct material) ownership. More specifically, Criterion 11(C) requires that "[t]itle to the byproduct material licensed under this Part and land, including any interests therein (other than land owned by the United States or by a State) which is used for the disposal of any such byproduct material, or is essential to ensure the long term stability of such disposal site, must be transferred to the United States."[11] Criterion 11 acknowledges that "ownership of certain severable subsurface interests (for example, mineral rights) may be determined to be unnecessary to protect the public health and safety and the environment."[12] Nonetheless, Criterion 11 still requires that the "applicant/operator must demonstrate a serious effort to obtain such subsurface rights."[13] The land and material transferred to the United States must be transferred without cost other than administrative or legal costs associated with that transfer.[14]

Criterion 11 also prescribes actions a site owner must take if it is not able to acquire those certain, severable subsurface rights. The owner must "provide notification in local public land records of the fact that the land is being used for the disposal of radioactive material and is subject to either an NRC general or specific license prohibiting the disruption and disturbance of the tailings."[15] And mirroring language in the UMTRCA statute, Criterion 11(C) permits the Commission to "take into account the status of the ownership of such land, and interests therein, and the ability of a licensee to transfer title and custody thereof to the United States or a State"

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[8] 42 U.S.C. § 2111(b)(2).

[9] 42 U.S.C. § 2111(b)(4).

[10] 10 C.F.R. § 40.28(b).

[11] 10 C.F.R. Part 40 Appendix A Criterion 11(C).

[12] *Id.* (emphasis added).

[13] *Id.* (emphasis added).

[14] 10 C.F.R. Part 40 Appendix A Criterion 11(E).

[15] 10 C.F.R. Part 40 Appendix A Criterion 11(C).

for uranium mill licenses "issued before November 8, 1981,"[16] the date on which UMTRCA took effect.

Although Commission regulations require both the transfer of title to the land and byproduct material and a serious effort to obtain subsurface rights, Criterion 11(D) allows—after title transfer—the Commission to permit the use of the surface and/or subsurface estates so long as such use "will not endanger the public health, safety, welfare, or environment."[17]

C. NRC and DOE Guidance

Both the NRC and DOE have published guidance on how to implement their obligations under UMTRCA Title II. The NRC published NUREG-1620 (Rev. 1), "Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of UMTRCA."[18] However, NUREG-1620 also states that the requirements set forth in Criterion 11(C) regarding the transfer to the United States of title to land and byproduct material are "[n]ot applicable" to the standard review plan.[19] Nevertheless, NUREG-1620 contains statements relevant to the transfer process, which are summarized in the section immediately below.

For its part, DOE published its guidance in Doc. No. S05096, which is entitled the "Process for Transition of UMTRCA Title II Disposal Sites to DOE for Long-Term Surveillance and Maintenance." Relevant portions of Doc. No. S05096 are summarized in a subsequent section below.

1. NRC NUREG-1620

As previously noted, NUREG-1620 does not contain much guidance applicable to the transfer of title to land and byproduct material to the United States. When NUREG-1620 does speak to this issue, it essentially reiterates the requirements spelled out in the NRC's regulations at 10 C.F.R. § 40.28 and Part 40 Appendix A. For example, NUREG-1620 states in relevant part,

> At the termination of a uranium mill license, the mill tailings impoundment and some adjoining land will be turned over to the U.S. Department of Energy (DOE), another Federal agency designated by the President, or the State in which the site is located for long-term care. Requirements applicable to a license consist of the regulations in 10 C.F.R. Part 40, Appendix A to 10 C.F.R. Part 40, and any license conditions.[20]

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[16] *Id.*

[17] 10 C.F.R. Part 40, Appendix A, Criterion 11(D).

[18] NRC, *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*, NUREG-1620, Rev. 1 (June 2003), NRC ADAMS Accession No. ML032250190 (hereinafter "NUREG-1620").

[19] NUREG-1620, Appendix A at A-5.

[20] *Id.* Appendix A at xi.

For another example, NUREG-1620 Appendix E provides guidance to the NRC Staff on the termination process for conventional uranium mill licenses. NUREG-1620 Appendix E states in relevant parts:

- [T]itle to the site and byproduct materials should be transferred to either (1) the [DOE]; (2) a Federal agency designated by the President; or (3) the state in which the site is located . . . ."[21]
- "It is expected that the DOE will be the custodial agency for most, if not all, of the sites."[22]
- "[T]he Atomic Energy Act, as amended, provides that title to the byproduct material and associated land to be transferred to the care of the United States . . . ."[23]
- "The long-term custodian, for its part, should be prepared to accept title to the land and byproduct material."[24]

Although most of the guidance contained in NUREG-1620 is not specifically applicable to the title transfer process, it does provide guidance specific to a circumstance not expressly contemplated in the NRC's regulations. This circumstance is where the "Point of Exposure" (POE) for an UMTRCA II site lies beyond the license site boundary "Point of Compliance" (POC).

As detailed in the 2025 ACL White Paper, an applicant will propose a license amendment to obtain an alternate concentration limit (ACL) for hazardous constituents in groundwater where the concentration of such constituents at the Point of Compliance exceeds applicable limits.[25] The licensee will establish a Point of Exposure away from the Point of Compliance, such that when measured at the Point of Exposure, the hazardous constituent concentration has attenuated to a level that is protective of human health and the environment.[26]

This means that there will be an area of land (including the relevant groundwater aquifer) between the Point of Compliance and the Point of Exposure that is necessary to assure reduction in the concentration of the hazardous constituents. NUREG-1620 provides specific guidance on what a licensee who applies for an ACL must do in this circumstance:

> [A] <u>good-faith effort</u> must be made to acquire the land between the license area boundary and the point of exposure, for ultimate transfer to the long-term custodian. If the land cannot be acquired through a good-faith effort, then institutional controls other than ownership by the long-term custodian may be initiated. These institutional controls must be enforceable, durable, and legally

[21] NUREG-1620, Appendix E at E-2.

[22] *Id.*

[23] *Id.* Appendix E at E-8.

[24] *Id.* Appendix E at E-13.

[25] 2025 ACL White Paper at 6.

[26] *Id.* at 6 (quoting NUREG-1620 4-26).

> defensible; and will be applied in addition to the numerical limits of the proposed alternate concentration limit.[27]

In other words, the ACL applicant is to transfer title to land and byproduct material that it already owns and make good faith effort to acquire the additional land between the license boundary and the Point of Exposure, to the extent that it already does not own that land. If it cannot acquire title to the land between the license boundary and the Point of Exposure, it must initiate other institutional controls that, when implemented, would limit exposure to the hazardous constituents. And these institutional controls must be "enforceable, durable, and legally defensible."[28]

This "good faith effort" to be undertaken described in NUREG-1620 appears substantially similar to the "serious effort" that a licensee must undertake to obtain certain subsurface rights under Criterion 11. Subsequent sections of this Addendum will explore (1) what efforts have been deemed "good faith" efforts by NRC in acquiring such title; and (2) what enforceable, durable, and legally defensible institutional controls have been approved by NRC and DOE.

2. DOE Doc. No. S05096.

As an initial matter, DOE Doc. No. S05096 confirms that NRC regulations implement UMTRCA Title II's statutory commands governing the transfer of land and byproduct material (uranium tailings) to DOE for long-term custody and care. DOE has not promulgated parallel regulations under the statute. Specifically, Doc. No. S05096 states that "NRC regulations address the licensee's obligation to secure the mineral rights for all land transferred to DOE in fee. Applicable regulations are at 10 C.F.R. 40, Appendix A, Criterion 11 C, D, and E; and 10 C.F.R. 40.28 (d)(1), (2), and (3)."[29]

DOE Doc. No. S05096 outlines the process by which the site owner may transfer title to all land and byproduct material in accordance with controlling regulations under 10 C.F.R. Part 40 Appendix A, Criterion 11, and 10 C.F.R. § 40.28. For example, DOE Doc. No. S05096 states in part,

> For land and mineral interests owned by the licensee in fee, DOE will acquire clear title at transition under a warranty deed transferring the land and property interests to DOE. Any mineral rights, including oil and gas, held by the licensee will be transferred with the fee land transfer . . . . Surface or water rights necessary for long-term management will also be transferred. A water right not

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[27] NUREG-1620 at 4-32 (emphasis added).

[28] NUREG-1620 also discusses the circumstance involving a "distant point of exposure" where "human or environmental exposure is effectively impossible" due to, for example, the terrain surrounding the tailings pile. *Id*. at 4-33. This circumstance is not applicable to Homestake's Grants site and is not further addressed in this paper.

[29] DOE Doc. No. S05096 at 27.

> needed for long-term care will be returned to the agency with jurisdiction over the right.[30]

For another example, DOE Doc. No. S05096 states in part,

> The licensee must ensure that all real property interests needed for long-term care are in place at the time of transition, including both onsite and offsite wells needed for groundwater monitoring . . . Transition of the site requires "perpetual unfettered" access to the site. If access to the site is acquired from BLM, the licensee must ensure that the permit for the access route is transferable to DOE. If access is over private land, the licensee will secure a permanent right-of-entry in accordance with 10 C.F.R. 40.28.[31]

DOE Doc. No. S05096 also provides guidance on the meaning of the "serious effort" required to be taken under Criterion 11(C) to obtain certain severable subsurface interests in land to be transferred to DOE. For example, Doc. No. S05096 states that applicable regulations

> require the licensee to make a "serious effort" to obtain all outstanding third-party mineral rights. The "serious effort" to obtain the mineral rights required by the regulations should (1) inform the owners that the surface estate is being used for the disposal of radioactive materials under NRC's jurisdiction, (2) inform the owners of the regulatory protections in place applicable to the encapsulated materials, and (3) include a defensible "best and final" offer to obtain the minerals that is based on current market valuations. The regulations state that, 'in the event that certain rights cannot be obtained, provide notification in local public land records of the fact that the land is being used for the disposal of radioactive materials and is subject to either an NRC general license or specific license prohibiting the disruption and disturbance of the tailings.[32]

DOE Doc. No. S05906 also provides guidance on how to address the circumstance where the surface land estate is severed from the subsurface mineral estate, and the "serious effort" that must be undertaken to obtain the mineral estate. Specifically, the guidance explains,

> At many sites, the surface and mineral estates are severed. A mineral right is severed if the surface owner does not own all or part of the minerals. For privately held land at the Title II sites, the licensee may not own all of the mineral interests under the surface of the land they will transfer to DOE. For federal land, subsurface interests such as mineral and oil and gas rights may be held by others prior to DOE securing the withdrawal of mining and mineral leasing. According to NRC regulations, the licensee must make a <u>serious effort</u> to secure the mineral estate under the private land to be transferred. Should the licensee be unsuccessful, the regulations state that a deed notice must be filed stating the land

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[30] *Id.* at 27.

[31] *Id.*

[32] *Id.*

is being used for disposal of radioactive materials and is subject to an NRC general license.[33]

The guidance goes on to explain the importance of these measures to the agency. It explains that the U.S. Bureau of Land Management (BLM) "is obligated to administer active leases on the federal land transfers that are senior to DOE's withdrawal" and that it "is essential for all parties to know and understand NRC's and DOE's protections against interference or encroachment on disposal cells and the associated structures."[34] Subsequent sections of this Addendum will explore what efforts have been deemed acceptable "serious efforts" undertaken to acquire severed subsurface fee estates.

DOE Doc. No. S05906, does not provide guidance specific to the circumstance where the Point of Exposure is set away from the Point of Compliance, as the NRC's NUREG-1620 does. Nonetheless, if a "good faith" effort must be made to obtain the land parcels between the Point of Compliance and Point of Exposure per the guidance in NUREG-1620, then it is more than likely that a "serious effort" must also be undertaken to obtain any severed subsurface/mineral rights estate for those same land parcels because these land parcels are to be transferred to the long-term custodian (i.e., DOE) for long-term care.

III. Precedent

This section describes how the NRC and the DOE evaluated and applied the "good faith effort" and "serious effort" requirements in the context of the NRC's review and approval of an ACL application. In summary, the NRC found that licensees had made sufficient "good faith efforts" where the record demonstrated reasonable at- or above-market value offers for private land, multiple rounds of negotiations with affected landowners, and offers of alternative forms of compensation (e.g., relocation assistance, land exchanges, payments reflecting on-site improvement values, etc.) when direct cash payments were not accepted. In parallel, the DOE found licensees had made sufficient "serious efforts" where the record demonstrated defensible attempts to obtain outstanding subsurface or mineral rights or record appropriate deed notifications where such rights could not be obtained.

Section III. A. below summarizes the "good faith efforts" and Criterion 11(C) "serious efforts" undertaken by Western Nuclear, Inc. (WNI) to secure surface land parcels and associated subsurface rights within the long-term surveillance boundary for its Split Rock site in Jeffrey City, Wyoming.

Whether such efforts were undertaken at other UMTRCA II sites was also researched. As discussed in the prior 2025 ACL White Paper, the NRC accepted for detailed technical review ACL applications for the L-Bar and the Ambrosia Lake sites, notwithstanding the fact that the licensee in each case did not own all of the land parcels within the respective LTCBs at the time of ACL application submittal. Based on our research, it appears that the licensee for each site was not required to demonstrate it had taken "good faith" or "serious" efforts to acquire the land parcels and associated subsurface estates. For the L-Bar site, this was because the licensee was

[33] *Id*. at 42 (emphasis added).

[34] *Id*. at 42.

already in the process of exercising an option to purchase the additional parcels to be transferred to DOE. For Ambrosia, this was because the state government owned the relevant land parcels not already owned by the licensee. Included in Section III. B. is a brief discussion of these two sites.

Also included in Section III. B. is a brief discussion of the Bear Creek site. That site has not yet been transferred to DOE for long-term care under UMTRCA II. However, federal surface and subsurface rights at Bear Creek are subject to existing oil-and-gas leasing activity. A brief discussion of these issues and the objections DOE has raised concerning them is included below.

A. Western Nuclear, Inc. Split Rock Site

The Split Rock former uranium mill site was owned and operated by WNI under NRC Source Material License SUA-56 from 1957 to 1981. The site is located about two miles northeast of Jeffrey City in unincorporated Fremont County, Wyoming.[35] The property encompasses approximately 5,431 acres bordered to the north by the Sweetwater River, which lies roughly one-half mile from the disposal cell.[36] The engineered disposal cell occupies 265 acres in the central portion of the site and contains mill tailings and process wastes generated over twenty-five years of uranium production.[37] During operations, the facility processed about 7.7 million tons of ore obtained from nearby open-pit and underground mines within a twenty-mile radius.[38] Tailings and mill liquids were discharged into three unlined impoundments, which allowed seepage into the underlying aquifer and caused long-term groundwater contamination.[39]

WNI began site reclamation activities in 1988.[40] The work included encapsulating radioactive tailings to limit radon emissions, dismantling mill infrastructure, regrading disturbed areas to match the surrounding topography, and eventually commencing groundwater corrective action through installation of extraction and treatment wells.[41]

On April 8, 1988, WNI submitted to the NRC a plan for accelerated dissipation of tailings-pond water and proposed alternate concentration limits (ACLs) for groundwater.[42] At that point in time, the NRC deferred review of the proposed ACLs pending issuance of draft ACL guidance.[43]

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[35] DOE Office of Legacy Management (LM), Fact Sheet: Split Rock, Wyoming, Disposal Site at 1 (Nov. 2024) (hereinafter "DOE LM Split Rock Fact Sheet").

[36] *Id.* at 2.

[37] DOE LM Split Rock Fact Sheet at 1.

[38] *Id.*

[39] *Id.*

[40] *Id.*

[41] *Id.* at 1–2.

[42] WNI, Letter from Lawrence J. Corte, Manager, WNI, to John J. Surmeier, Chief, Uranium Recovery and Low-Level Waste Branch, NRC, RE: Docket No. 40-1162, License No. SUA-56, transmitting Site Closure Plan and Ground Water Characterization and Evaluation Report (Oct. 29, 1999), ADAMS Accession No. ML003672392.

[43] WNI, Letter from Lawrence J. Corte, Manager, WNI, to John J. Surmeier, Chief, Uranium Recovery and Low-Level Waste Branch, NRC, RE: Docket No. 40-1162, License No. SUA-56, transmitting Site Closure Plan and Ground Water Characterization and Evaluation Report (Oct. 29, 1999), ADAMS Accession No. ML003672392 (hereinafter "WNI Ground Water Report Transmittal Letter").

Over time, WNI refined its groundwater modeling and began addressing the ownership and control requirements necessary for final site closure. The following sections describe the sequence of steps WNI took to prepare and submit its ACL application and supporting documentation required by federal and state regulators; to demonstrate good faith efforts to obtain property and establish institutional controls; to demonstrate serious efforts to resolve mineral rights under Criterion 11(C); and to comply with NRC and DOE regulatory requirements to enable the transfer of the Split Rock site to DOE Office of Legacy Management (LM) for long-term custody.

1. The Split Rock ACL Application

On October 29, 1999, WNI submitted to the NRC its Site Closure Plan and Groundwater Characterization and Evaluation Report for the Split Rock site.[44] The submittal proposed amendments to License SUA-56 and requested approval of ACLs for groundwater at the facility. Supporting documents included hydrogeologic characterizations, contaminant transport modeling, and proposed numerical standards for six hazardous constituents identified in the groundwater.

At the time of the application, WNI owned four principal parcels encompassing the mill, the tailings impoundments, and surrounding buffer lands.[45] These lands accounted for approximately 3,465 of the 3,470-acre area proposed for inclusion within the proposed long-term surveillance boundary (LTSB).[46] **Figure 1** below depicts the Split Rock site, including the location of the tailings and the proposed LTSB.

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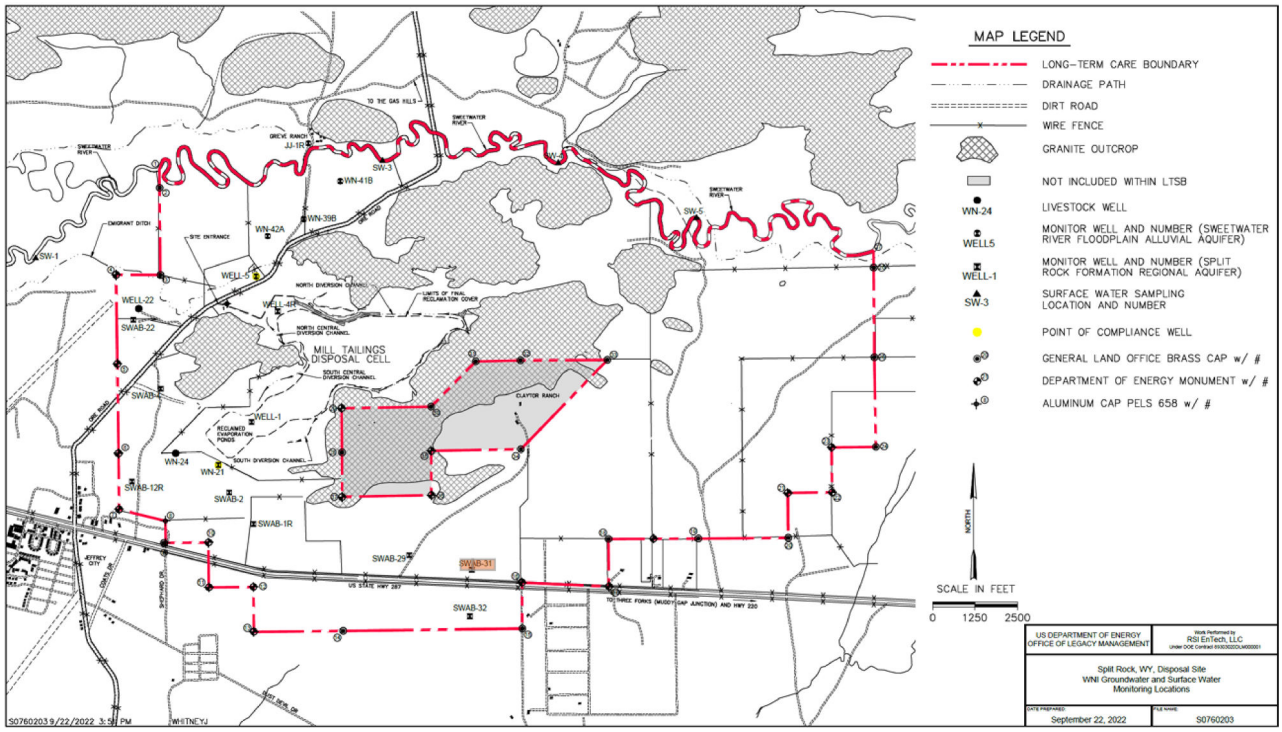
[44] *Id.*

[45] *See* Affidavit of John H. Licht re: Western Nuclear, Inc., License No. SUA-56 2(Mar. 27, 2003), ADAMS Accession No. ML031400802 (hereinafter "Affidavit of John Licht").

[46] *See* WNI, Letter from Lawrence Corte, WNI to Gary S. Janosko re current land ownership status of the Red Mule Property, 1 (Feb. 10, 2005), ADAMS Accession No. ML051220100 (hereinafter "WNI Red Mule land ownership status letter"). *See also* NRC, Technical Evaluation Report, Alternate Concentration Limits, Western Nuclear, Inc., Split Rock Site, Jeffrey City, Fremont County, Wyoming 3 (Sept. 28, 2006), ADAMS Accession No. ML062910216 (hereinafter "NRC TER for Split Rock ACLs").

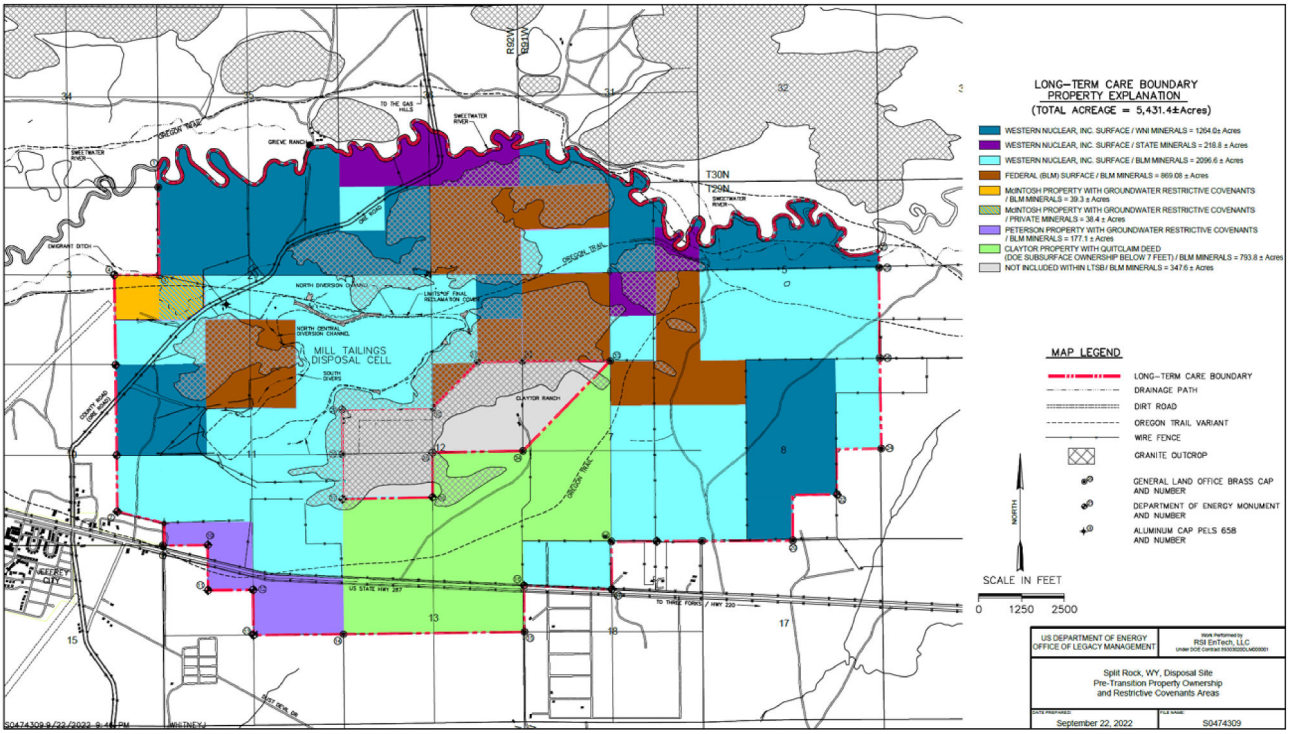
Figure 1: Split Rock, Wyoming Disposal Site and WNI Groundwater and Surface Water Monitoring Locations



Source: DOE LM, Long-Term Surveillance Plan for the Split Rock, Wyoming, UMTRCA Title II Disposal Site, Jeffrey City, Wyoming E-3 (Figure E-1) (Aug. 2023).

Before WNI had submitted its ACL application, it had already undertaken significant good faith efforts to obtain parcels within the proposed boundary. These efforts occurred primarily from 1995 to 1998 for the private and state-owned properties shown in **Figure 2**, below, which depicts the surface property ownership and subsurface restrictive covenants for parcels held by public and private entities within the Split Rock LTSB prior to the site being transferred to the DOE LM for long-term care:

Figure 2: Pretransition Property Ownership and Restrictive Covenants Areas for the Split Rock, Wyoming Disposal Site



Source: DOE LM, Long-Term Surveillance Plan for the Split Rock, Wyoming, UMTRCA Title II Disposal Site, Jeffrey City, Wyoming A-32 (Figure A-1) (Aug. 2023).

For one large tract held as a ranching operation that WNI needed for long-term site monitoring, private landowners were initially unwilling to sell the requested segments because they were essential to their winter-pasture operation.[47] Over the course of one year, WNI negotiated an arrangement under which the landowners sold to WNI a subsurface ownership interest and agreed to impose institutional controls consisting of permanent, enforceable restrictions on groundwater use beneath the property.[48] In exchange, WNI offered a cash payment, conveyance of approximately 200 acres of WNI-owned rangeland adjacent to the landowners' ranch, and a lease granting continued grazing rights on other WNI lands.[49] This agreement allowed WNI to obtain the interests required for the surveillance boundary while preserving the landowners' ongoing ranching operations.

In another case involving ranch properties, a religious organization owned a large contiguous ranch that included grazing leases and surface water rights.[50] When approached by WNI, the

[47] Affidavit of John Licht at 2.

[48] *Id.*

[49] *Id.*

[50] *Id.* at 3.

organization indicated it would not divide or sell portions of its holdings.[51] WNI then offered to purchase the entire ranch property and all associated grazing and surface water rights instead of only those sections within the anticipated surveillance boundary.[52] The organization accepted this proposal after protracted negotiations, allowing WNI to complete the full acquisition of the ranch and related interests and secure permanent control over the land area.[53]

Another ranchland property unowned by WNI included a family residence and surrounding acreage within the surveillance boundary.[54] WNI offered to purchase the parcel outright at fair market value based on an independent appraisal and additionally proposed a land exchange of comparable value.[55] The owners declined to sell, explaining that the land contained their family home and they did not wish to relocate.[56] In response, WNI negotiated an agreement that imposed institutional controls—permanent restrictions prohibiting the use of groundwater for domestic or agricultural supply—and provided for several years of annual cash payments to the owners.[57]

In another instance involving ranch land, a family-owned property immediately adjacent to the disposal area.[58] WNI offered to purchase the land at fair market value and subsequently increased its offer after the family declined the initial proposal.[59] The family rejected all offers and declined any form of sale or exchange.[60] To ensure continued protection of groundwater resources, WNI negotiated a permanent groundwater-use restriction comparable to those obtained for other privately retained tracts.[61] This restriction prevented any future domestic or agricultural use of the groundwater underlying the property.

In addition to WNI's good faith efforts to acquire private ranch and homestead properties, or implement institutional controls where it was unable to acquire the properties, WNI also acquired state lands situated within the proposed surveillance boundary.[62] Specifically, the State of Wyoming completed three separate sales of approximately 1,080 acres to WNI in 1994, 1997, and 1999 while retaining subsurface mineral rights.[63] Given the administrative efforts that would have been required, WNI did not acquire a limited number of federal lands within the same boundary which were managed by the BLM.[64]

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[51] *Id.*

[52] Affidavit of John Licht at 3.

[53] *Id.*

[54] *Id.*

[55] *Id.*

[56] *See id.*

[57] *Id.*

[58] *Id.*

[59] *Id.*

[60] *Id.*

[61] *See id.*

[62] *Id.* at 4.

[63] *Id.*

[64] *Id.* at 3.

The private lands within the LTSB that WNI did not own at the time it submitted its ACL application mainly consisted of parcels southeast of the disposal area within the Red Mule subdivision (located directly east of the "SWAB-31" monitoring well and directly downgradient of the "SWAB-32" monitoring well[65] identified in **Figure 1**), which WNI had acknowledged were outside its ownership but within the area affected by the modeled groundwater plume.[66] The land not owned by WNI totaled less than three percent of the land within WNI's proposed long-term control boundary.[67]

2. WNI's Proposal to Use Institutional Controls & NRC/DOE Concerns

WNI's preferred approach for addressing the fact that it did not own certain lands within the proposed boundary emphasized institutional controls and alternate water supply provisions as needed.[68] As specific institutional controls, WNI's ACL application proposed: (i) the transfer of title for lands owned by WNI to the long-term custodian; (ii) transfer of control and management of lands owned by the BLM to the long-term custodian; and (iii) enforceable restrictive covenants and/or equitable servitudes on access to or use of groundwater under lands owned by third parties within the long-term surveillance area."[69] WNI also identified possible water use classification restrictions by the Office of the Wyoming State Engineer and possible use of deed annotation and notification in local public land records.[70] For the small remainder of privately held lands, WNI proposed to provide "an alternate drinking water supply… if and when it becomes necessary."[71]

The NRC accepted the ACL application for detailed technical review in December 1999 but promptly raised legal and regulatory concerns about the company's reliance on institutional controls over privately owned lands located outside of the disposal site's licensed site boundary (i.e., "off-site" and not co-located at the actual disposal area) but within the area that WNI proposed as its long-term control area (which was later designated by NRC and DOE as within

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[65] DOE LM, Long-Term Surveillance Plan for the Split Rock, Wyoming, UMTRCA Title II Disposal Site, Jeffrey City, Wyoming E-35, E-41 (Figure A-1) (Aug. 2023) (hereinafter "DOE Final LTSP for Split Rock").

[66] *See* Affidavit of John Licht 2. *See also* WNI, Letter from Harley W. Shaver, Counsel to WNI, to Gary S. Janosko, Chief, Fuel Cycle Facilities Branch, NRC, re: WNI Efforts to Acquire Certain Properties in the Red Mule Subdivision 2 (Feb. 9, 2005), ADAMS Accession No. ML051220100 (hereinafter "Harley Shaver Letter").

[67] WNI, Site Ground Water Characterization and Evaluation Report (part II) 115-16 (PDF pp. 28-29) (Oct. 29, 1999), ADAMS Accession No. ML003672400.

[68] *See id.* at 95 (explaining that the ICs would "eliminate[s] the potential future human exposure pathway . . . and eliminate[s] access to ground water for human consumption within the proposed long-term care boundary.").

[69] *Id.* at 114–115. Although WNI's Report and ACL application described title transfer to the long-term custodian as an "institutional control," NRC guidance in NUREG-1620 considers institutional controls to be an alternative to title transfer and ownership by the long-term custodian. *See* NRC, NUREG-1620 at 4-32 (explaining that "a good-faith effort must be made to acquire the land between the license area boundary and the point of exposure, for ultimate transfer to the long-term custodian. If the land cannot be acquired through a good-faith effort, then institutional controls other than ownership by the long-term custodian may be initiated.").

[70] *Id.* at 115.

[71] *Id*. at 116.

the LTSB).[72] Consequently, the NRC required WNI to provide additional legal and technical information in order to continue its review and referred the issue to the Office of General Counsel for a formal opinion on the legality and durability of WNI's proposed institutional controls for these private properties.[73]

In an internal email to the NRC Office of the General Counsel, the NRC's Chief of the Uranium Recovery and Low-Level Waste Branch asked whether WNI's proposed administrative or adjudicatory institutional controls over the use of groundwater on private property would provide a legally defensible, enforceable and durable means of protecting human health and the environment in lieu of the specific requirements of 10 C.F.R. Part 40, Appendix A.[74] Six months later, NRC Staff noted that WNI's proposed institutional controls were "not within [the] specific regulatory framework of Title II UMTRCA and could be viewed as an 'alternative to specific requirements.'"[75] The Staff thus emphasized that no precedent existed for using deed restrictions on third-party property in lieu of ownership.

While the NRC generally agreed that WNI's plan to transfer its own fee lands to DOE was acceptable, it questioned the enforceability of WNI's proposed private-property institutional controls in the Red Mule Acres subdivision where "no agreement has been reached for institutional controls."[76] DOE expressed similar concerns regarding WNI's proposed institutional controls for private lands, noting that it did not know how the DOE (as the long-term custodian) could enforce the controls or accept their conditions.[77]

3. WNI's Further Good Faith Efforts and Proposed Institutional Controls

In response to the NRC's and DOE's concerns with the use of institutional controls, WNI and its counsel submitted additional information and a legal memorandum addressing the enforceability of institutional controls and related property rights. WNI explained that it had negotiated permanent groundwater use restrictions and access agreements with private landowners where fee acquisition was not possible, supported by compensation and land exchanges to secure cooperation.[78] WNI's counsel further described these measures as part of a broader good faith acquisition program, noting that the company had made multiple written offers and alternative

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[72] *See* Letter from Anthony J. Thompson & Warren U. Lehrenbaum, Shaw Pittman, to Thomas H. Essig, Chief, Uranium Recovery and Low-Level Waste Branch, NRC, re: Adequacy of Institutional Controls Proposed for Western Nuclear, Inc.'s Split Rock Facility, Source Material License No. SUA-56 (Feb. 1, 2000), ADAMS Accession No. ML14303A250. *See* NRC, Memorandum from Philip Ting, Branch Chief, Fuel Cycle Licensing Branch, to Stuart Treby, Assistant General Counsel, Office of General Counsel, Use of Institutional Controls on Private Properties at the Western Nuclear Incorporated (WNI) Split Rock, Wyoming Uranium Mill Site 5 (Nov. 29, 2000), ADAMS Accession No. ML010680208 (hereinafter "Philip Ting Memo").

[73] *See* Philip Ting Memo Attachment 3 at 5.

[74] *Id*. Attachment 1 at 3.

[75] *Id*. Attachment 2 at 4.

[76] Philip Ting Memo Attachment 2 at 4.

[77] *Id*.

[78] *See* Affidavit of John Licht at 4–5.

arrangements to ensure long-term groundwater protection and federal access within the boundary. [79]

Specifically, WNI undertook additional efforts in 2002 and 2005 to acquire residential lots within the Red Mule Acres subdivision located southeast of the tailings cell.[80] WNI's acquisition efforts were extensive and individualized across multiple parcels. More specifically, for some parcels, WNI offered several thousands of dollars, or tens of thousands of dollars, above the appraised values for those parcels.[81] In another case, WNI purchased the parcel while allowing the sellers to retain or remove existing improvements.[82] For another lot which had been vacant and in disrepair since 1999, WNI purchased the property from the owner's conservator for $10,000 following court approval of the sale.[83] Another parcel WNI sought to acquire had suffered a total loss when its residence was destroyed by fire in 2002. After the owners rebuilt a new residence and shop on the 40-acre parcel, WNI negotiated an exchange consisting of 79 acres of WNI-owned land together with a cash payment, while allowing the owners to remove the new residence while the shop remained in place.[84]

Despite these successful acquisitions, one five-acre parcel within the subdivision remained privately owned and became the focus of more than a year of negotiation.[85] WNI made four separate offers including: (i) the outright purchase of the property for approximately $158,000 above its appraised value; (2) the purchase of subsurface rights and the abandonment of the existing well and installation of a new domestic well at WNI's own expense; (3) the conveyance of 20 acres of WNI-owned land plus a cash payment approximately $138,000 above the property's appraised value along with the right for the owners to move or sell existing improvements; and (4) the purchase of the property while allowing the owners to retain a life estate.[86] The owners rejected each proposal and submitted multiple counteroffers, beginning with an offer in April 2004 to sell the property for approximately $750,000 over its appraised value; followed by a proposal in July 2004 for WNI to construct a new home for the sellers on 20 acres of the owners' choosing.[87] The sellers' final counteroffer in January 2005 proposed that WNI purchase the property for approximately $560,000 over its appraised value and to construct a new home on 20 acres of land.[88] WNI declined these terms as unreasonable, noting that they were disproportionate to both the appraised value and the prices paid for all other properties in the subdivision.[89]

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[79] *See* Harley Shaver Letter at 1–4.

[80] *See* NRC Split Rock EA.

[81] Harley Shaver Letter at 2–4.

[82] *Id.*

[83] *Id.*

[84] *Id.*

[85] *Id.*

[86] *Id.*

[87] *Id.*

[88] *Id.* at 3–4.

[89] *Id.* at 4.

To resolve the impasse, WNI proposed enforceable institutional controls in lieu of fee acquisition.[90] The proposal included installation of a replacement domestic well and pipeline prior to license termination, recordation of perpetual easements granting DOE access for groundwater monitoring and maintenance, and an increase in the long-term surveillance fund by the appraised value of the property to allow DOE to purchase the parcel or condemn it if it later became available.[91] WNI reiterated these commitments in its transmittal to NRC on February 10, 2005, confirming that this single five-acre parcel was "the only remaining property not owned or controlled" and that WNI's offers "were well in excess of the appraised value of the property and of that paid to other landowners for similar property."[92]

4. Approvals of Property Acquisition Efforts and Institutional Controls

To formalize resolution of the outstanding parcel, NRC Staff prepared agency paper SECY-05-0200, which described two paths for completing WNI's decommissioning and transfer of the Split Rock site.[93] Of the two options outlined therein, Option 1 would continue to require WNI to provide durable and enforceable institutional controls for the one remaining privately owned five-acre parcel in the Red Mule Acres subdivision and to install an alternate water supply before license termination.[94] This approach was consistent with the a prior Commission staff requirements memorandum but was considered impractical because the property owners were unwilling to agree to such controls and DOE determined that an alternate supply offered no benefit.[95] By contrast, Option 2 provided a streamlined closure path under which WNI would make one final purchase offer for the privately owned Red Mule parcel immediately before site transfer.[96] If that offer were unsuccessful, WNI would be required to deposit funds equal to that offer into the long-term-surveillance fund. As approved by NRC Staff, WNI would also be required to either relocate monitoring wells located outside of the disposal site area, redefine the long-term care boundary to include all wells currently located outside of the disposal site area, or implement institutional controls needed to ensure DOE access to the wells and enforce use restrictions.[97] Option 2 would thereby allow the WNI license to be terminated without WNI first obtaining enforceable deed restrictions or providing an alternative water source. The enclosure to SECY-05-0200 set out the steps and milestone timelines for implementing both approaches.[98]

On November 28, 2005, a majority of the Commission approved Option 2, concluding that WNI had made a good faith effort to acquire the remaining property and that institutional controls and

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[90] *See id*. at 4.

[91] *See id*. at 4. *See* WNI Red Mule land ownership status letter 1–2.

[92] WNI Red Mule land ownership status letter at 1–2.

[93] NRC, SECY-05-0200, Policy Issue Notation Vote – Efforts by Western Nuclear, Inc., to Acquire Off-Site Properties in Conjunction with Decommissioning its Uranium Recovery Site and the Need for Institutional Controls 1–3 (Oct. 28, 2005), ADAMS Accession No. ML052410171 (hereinafter "NRC SECY-05-0200 Policy Issue Notation Vote").

[94] NRC SECY-05-0200 Policy Issue Notation Vote at 4.

[95] *Id.*

[96] *Id*. at 5.

[97] *Id*..

[98] NRC, Encl. 3 to SECY-05-0200, Staff Commitments and Schedules for Options 1–2 (Oct. 28, 2005), ADAMS Accession No. ML052660203.

surveillance-fund provisions would satisfy regulatory requirements.[99] Consistent with the Commission's direction, NRC Staff completed the environmental review for the ACL licensing action and issued the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI), which documented that WNI's proposed ACLs and land-control framework met the applicable Appendix A criteria.[100] On September 28, 2006, NRC issued License Amendment No. 99 to SUA-56, incorporating the ACLs and authorizing WNI to proceed toward license termination and custodial transfer.[101]

In summary, WNI's actions demonstrated that the company negotiated in good faith with each property owner and provided alternative compensation where needed to reach voluntary agreements in the form of land transfers and infrastructure improvements. These comprehensive and well-documented efforts satisfied the NRC's regulatory expectation that a licensee make good faith efforts to obtain or control all land within the LTSB. When voluntary conveyance could not be achieved, WNI implemented legally enforceable institutional controls that both assured perpetual governmental access and protection consistent with NRC requirements and provided the basis for DOE's acceptance of the site for long-term custodial care.[102]

The following table summarizes the good faith efforts WNI undertook to acquire land parcels within the LTSB owned by other private parties and the institutional controls implemented for land parcels WNI did not own:

Good Faith Efforts	Institutional Controls
• Retained legal counsel to conduct and document multi-year negotiations with individual landowners • Established fair market property values using state-licensed appraisers • Offered multiple purchase structures – cash, land, life estate, subsurface rights • Offered compensation exceeding appraised market and/or assessed values • Made final written offers immediately before license termination • Covered landowner relocation and improvement removal expenses • Proposed structured annual cash payments to offset seller expenses • Permitted sellers to retain or remove on-site improvements before sale	• Recorded restrictive covenants on well installation and operation and groundwater use • Recorded subsurface ownership covenant prohibiting groundwater access • Recorded access easements on restricted parcels to grant DOE access • Coordinated continued BLM ownership of federal lands within and surrounding the LTSB

[99] NRC, Commission Voting Record re SECY-05-0200 1–2 (Nov. 28, 2005), ADAMS Accession No. ML053260082.

[100] NRC Split Rock EA at 8.

[101] NRC, License Amendment No. 99 to Source Material License SUA-56 1 (Sept. 28, 2006), ADAMS Accession No. ML062910222.

[102] *See* NRC Split Rock EA at 8.

- Exchanged WNI-owned lands for privately held parcels
- Purchased state- and privately-held lands and properties
- Purchased state grazing leases and federal grazing allotments
- Purchased subsurface, mineral, and groundwater rights
- Submitted property acquisition status reports and supporting documentation to NRC and DOE
- Coordinated LTSB expansion with state and federal regulators

5. WNI's Serious Efforts under Criterion 11(C)

Criterion 11(C) of Appendix A to 10 C.F.R. Part 40 requires that a licensee make "a serious effort to obtain all outstanding third-party interests" in land used for byproduct disposal and, if such efforts are unsuccessful, provide enforceable record notice or controls that assure long-term protection of public health and the environment. WNI's 1999 ACL application and supporting reports proposed recorded restrictive covenants on private tracts, transfer of fee lands to the long-term custodian, and deed notifications in public land records consistent with Criterion 11(C).[103] Subsequent submissions documented WNI's completion of those efforts and its implementation of legally binding groundwater-use restrictions and compensation agreements for the few remaining privately retained parcels.[104] These actions ensured that nearly the entire long-term-surveillance boundary was either owned by WNI or subject to permanent, recorded institutional controls.

Although NRC correspondence did not contain a separate analysis labeled as a Criterion 11(C) determination, the Commission's acceptance of Option 2 and subsequent license amendment constituted its formal acknowledgment that WNI's actions satisfied that requirement.[105] In approving this framework via License Amendment No. 99, NRC determined that WNI's documented negotiations, recorded restrictions, and funding mechanisms collectively met the regulatory expectations for land control and demonstrated the "serious efforts" required by Criterion 11(C).[106]

[103] WNI, Ground Water Characterization and Evaluation Report Volume I (Oct. 29, 1999), ADAMS Accession No. ML003672396.

[104] *See* Affidavit of John Licht. *See* Harley Shaver Letter.

[105] NRC, SECY-05-0200 at 3.

[106] NRC Split Rock EA at 8.

B. Other Sites

L-Bar. The L-Bar former uranium mill site is located near Seboyeta in Cibola County, New Mexico.[107] From 1977 to 1981, the facility was owned and operated by Sohio Western Mining Company ("Sohio") under NRC Source Material License SUA 1472. The 740-acre facility[108] was part of the L-Bar Ranch which previously covered roughly 120,000 acres in Cibola, Sandoval, and McKinley counties.[109] The facility included the 100-acre tailings impoundment, groundwater monitor well network, engineered diversion channels, and other site improvements[110] The site's tailings impoundment contained roughly 700,000 cubic yards of tailings.[111]

On Aug. 28, 1998, Kennecott Energy Company (on behalf of Sohio) submitted an ACL application for uranium and selenium in groundwater.[112] At the time of the ACL application, Sohio owned the principal 543.6-acre "Tract 1" but not the adjoining approximately 200-acre "Option Tract," which it proposed to acquire and add to the controlled area for transfer to the DOE for long-term custody.[113] Following the NRC's technical review, the Commission issued a FONSI on March 3, 1999 which concluded that Sohio's proposed ACLs "will not pose a substantial present or potential future hazard to health and the environment.[114] Roughly two months later on May 21, 1999, the NRC approved the ACLs via License Amendment 31 with a supporting TER and EA.[115] The approval of the Amendment was expressly conditioned on Sohio's successful acquisition of the Option Tract property.[116]

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[107] DOE LM, Long-Term Surveillance Plan for the U.S. Department of Energy L-Bar, New Mexico, (UMTRCA Title II) Disposal Site, Seboyeta, New Mexico (DOE-LM/GJ709-2004) at 2-1 to 2-4, Appendix A at A-1 to A-3 (Sept. 2004) (hereinafter "DOE LM LTSP for L-Bar).

[108] DOE LM LTSP for L-Bar § 2.3.1 at 2-4.

[109] Kennecott Energy Co., Alternate Concentration Limits Application for the L-Bar Site 1.2 at 2 (Aug. 24, 1998), ADAMS Accession No. ML20151S129.

[110] DOE LM LTSP for L-Bar § 2.3.3 at 2-4 to 2-5.

[111] Kennecott Energy Co., Alternate Concentration Limits Application for the L-Bar Site 1.2 at 3 (Aug. 24, 1998), ADAMS Accession No. ML20151S129.

[112] Kennecott Energy Co., Alternate Concentration Limits Application for the L-Bar Site (Aug. 24, 1998) ADAMS Accession No. ML20151S129.

[113] Kennecott Energy Co., Alternate Concentration Limits Application for the L-Bar Site ii (Aug. 24, 1998), ADAMS Accession No. ML20151S129 (noting that Sohio was "in the process of exercising an existing property acquisition option and adding approximately 200 acres to the controlled area along the western margin of the project. This property would also be included in property deeded to DOE for long-term custody.").

[114] 64 Fed. Reg. 10,331 (Mar. 3, 1999).

[115] *Id.* *See* NRC, Acceptance of Groundwater Alternate Concentration Limits and Technical Evaluation Report 4–5 (May 21, 1999) ADAMS Accession No. ML20195D124. *See* NRC, Environmental Assessment for Alternate Concentration Limits for Groundwater, Amendment Request for Sohio Western L-Bar Facility 1–2 (May 21, 1999), ADAMS Accession No. ML20195D147. *See* NRC, Materials License SUA-1472, Amendment No. 31 (May 21, 1999) ADAMS Accession No. ML092400288.

[116] NRC, Acceptance of Groundwater Alternate Concentration Limits for the L-Bar Site, Amendment 31 to License SUA-1472 1 (May 21, 1999), ADAMS Accession No. ML20195D124.

Upon acquiring the property, the roughly 740 acres of both Tracts were conveyed from Sohio to DOE by a Warranty and Quitclaim Deed that was recorded on November 13, 2002.[117] In doing so, Sohio transferred to the DOE all rights, title, and interest in the surface estate while reserving to itself all water rights and interests as well as non-assignable rights of access over and across the property.[118] Because NRC's approval was conditioned on Sohio's acquisition of the Option Tract prior to transfer to DOE, and Sohio successfully did so, no additional "good faith" land-acquisition efforts or "serious effort" determinations under Criterion 11(C) were required beyond the completion of formalities associated with the acquisition and the DOE's acceptance of custodial responsibility.

Ambrosia Lake. The Ambrosia Lake uranium mill facility is located about 25 miles north of Grants, New Mexico, and was operated by Quivira Mining Company (QMC) under NRC Source Material License SUA-1473.[119] The mill processed uranium ore from 1957 until the early 1980s, generating tailings and process solutions that were discharged to large impoundments and evaporation ponds across several hundred acres in McKinley County.[120] By the mid-1990s, ownership of the disposal-site lands had transferred to the State of New Mexico, which held title pending conveyance to the federal government upon NRC concurrence that remedial action was complete.[121] QMC filed separate ACL petitions in February 2000 (bedrock)[122] and May 2001 (alluvial materials),[123] requesting amendment of the license to substitute site-specific limits for uranium, molybdenum, selenium, and sulfate supported by groundwater-flow and solute-transport modeling. At the time of the February 2000 ACL application, the State of New Mexico owned Section 36 and most of Section 32 where Point of Compliance wells were located.[124] QMC owned Section 30 beyond the operational restricted area.[125]

NRC completed its technical review and issued a FONSI and EA in January 2006, approving the ACLs through License Amendment 56 on February 24 2006 upon concluding that the limits were

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[117] *See* DOE LTSP for L-Bar, Appendix A, Exhibit A to Warranty & Quitclaim Deed (Nov. 13, 2002).

[118] *See id*. Appendix B, Exhibit B to Warranty & Quitclaim Deed.

[119] *See* NRC, Amendment of Source Materials License SUA-1473 for Alternate Concentration Limits, Rio Algom Mining, LLC, Ambrosia Lake Site, McKinley County, New Mexico, Amendment 56 (TAC L51921) (Feb. 24, 2006), ADAMS Accession No. ML060380387.

[120] NRC, Environmental Assessment for Amendment of Source Materials License SUA-1473, for Ground Water Alternate Concentration Limits, Rio Algom Mining LLC, Ambrosia Lake, New Mexico §§ 1.1–1.2 (Jan. 2006), ADAMS Accession No. ML060130091.

[121] DOE, Long-Term Surveillance Plan for the Ambrosia Lake, New Mexico Disposal Site § 1.4 (July 1996), DOE/AL/62350-211, Rev. 1.

[122] AVM Environmental Services, Inc. and Applied Hydrology Associates, Inc., Corrective Action Program and Alternate Concentration Limits Petition for upper Most Bedrock units, Ambrosia Lake Uranium Mill Facility Near Grants, New Mexico (Feb. 15, 2000) ADAMS Accession No. ML003687843 (hereinafter "Ambrosia Lake Bedrock CAP and ACL Petition".

[123] QMC, Application for Alternate Concentration Limits for the Alluvial Materials, Quivira Mill Facility, Ambrosia Lake, New Mexico (May 30, 2001), ADAMS Accession No. ML011690068.

[124] Ambrosia Lake Bedrock CAP and ACL Petition at EX-1.

[125] *Id*.

protective of human health and the environment.[126] At the time of the ACL application, Sections 32 and 36 within the LTSB were owned by the State of New Mexico while Section 30 was owned by QMC.[127] Because the non-QMC parcels were State-owned lands already incorporated within the proposed long-term surveillance boundary and their inclusion was coordinated with State of New Mexico and the DOE before custodial transfer,[128] no additional "good faith" land acquisition efforts or "serious effort" determinations under Criterion 11(C) were required beyond NRC's final custodial transfer determinations.

Bear Creek. The Bear Creek uranium mill site near Powder River in Converse County, Wyoming, was licensed under NRC Source Material License SUA-1310.[129] Anadarko Petroleum Corporation submitted its Corrective Action Program (CAP) and ACL application on February 28, 1997, requesting NRC approval of site-specific alternative concentration limits supported by predictive groundwater modeling which demonstrated compliance at the proposed Points of Exposure.[130] NRC approved the ACLs on June 30, 1997 and later issued License Amendment No. 51 on February 27, 2013 approving revised ACLs.[131]

Although DOE already owns the fee land and wells at Bear Creek, DOE LM's 2025 Site Management Guide states that the Title II private license has not been terminated and that the site has not yet transferred to DOE under the general license; transfer will occur following NRC concurrence and acceptance of the Long-Term Surveillance Plan.[132] NRC's Bear Creek information page likewise indicates that the agency is still awaiting the Wyoming Department of Environmental Quality's (WDEQ) Completion Review Report, despite noting that surface lands were transferred to DOE on November 4, 2009.[133]

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[126] *See* NRC, Environmental Assessment for Amendment of Source Materials License SUA-1473, For Ground Water Alternate Concentration Limits, Rio Algom Mining LLC, Ambrosia Lake, New Mexico 1–2 (Jan. 20, 2006), ADAMS Accession No. ML060130084). *See* NRC, Amendment of Source Materials License SUA-1473, For Ground Water Alternate Concentration Limits, Rio Algom Mining LLC, Ambrosia Lake, McKinley County, New Mexico, Amendment 56 (Feb. 24, 2006), ADAMS Accession No. ML060380387.

[127] *See* Ambrosia Lake Bedrock CAP and ACL Petition.

[128] *See id.* at 2-38. *See* Maxim Technologies, Inc., Application for Alternate Concentration Limits in the Alluvial Materials at the Quivira Mill Facility, Ambrosia Lake, New Mexico 1-11 (May 30, 2001), ADAMS Accession No. ML011690068.

[129] NRC, License Amendment No. 45 to Source Material License SUA-1310 1 (July 3, 2001), ADAMS Accession No. ML011910515.

[130] Anadarko Petroleum Corp., Corrective Action Program and Alternate Concentration Limit Application for Bear Creek Uranium Mill Site 1 (Feb. 28, 1997), ADAMS Accession No. ML012680401.

[131] *See* NRC, Safety Evaluation Report, Alternate Concentration Limits, Anadarko Petroleum Corporation, Bear Creek Uranium Mill Site, Converse County, Wyoming 1 (2012), ADAMS Accession No. ML12145A471. *See* NRC, Letter to Harry Nagel, Anadarko, License Amendment No. 51 Approving Alternate Concentration Limits and Eliminating License Condition No. 47 for the Bear Creek Uranium Company Mill Site, License SUA-1310 1 (Feb. 27 2013), ADAMS Accession No. ML12145A201. *See* NRC, Final Environmental Assessment for Amendment to SUA-1310, Ground Water Alternate Concentration Limits, Anadarko Petroleum Corporation, Bear Creek Uranium Mill Site, Converse County, Wyoming 1 (2012), ADAMS Accession No. ML12145A264.

[132] DOE LM Site Management Guide 7 (May 2025), Doc. No. LM SMG Update 34.

[133] NRC, Bear Creek (last updated Oct. 28, 2022), https://www.nrc.gov/info-finder/decommissioning/uranium/bear-creek.

The site remains subject to WDEQ jurisdiction under Wyoming's Agreement State program.[134] Neither available WDEQ correspondence from 2019 authorizing plugging and abandonment of monitoring wells[135] nor other current WDEQ filings in the NRC record (including those associated with the state's regulatory oversight of the site)[136] reference mineral or oil-and-gas issues. However, DOE LM documentation confirms that federal surface and subsurface rights at Bear Creek are subject to existing oil-and-gas leasing activity.[137] DOE has corresponded with the Wyoming Oil and Gas Conservation Commission regarding Applications for Permit to Drill (APD) affecting lands within or near the LTSB and has objected to horizontal-well proposals intersecting DOE-controlled subsurface in Section 16.[138] Technical literature addressing subsurface development beneath uranium tailings cells, including a 2020 International Atomic Energy Agency (IAEA) paper authored by DOE LM staff, has identified Bear Creek as one of the Wyoming sites where horizontal drilling and hydrocarbon extraction could pose risks to long-term institutional controls and groundwater remedy protectiveness.[139]

Given that the site has not yet transferred and that federal oil-and-gas leasing appears to remain active, it is premature to conclude whether NRC or DOE will require "serious efforts" under Criterion 11(C) to resolve or acquire any subsurface mineral rights. That determination will likely depend on the forthcoming WDEQ Completion Review Report and the NRC–DOE transfer package once the site is formally prepared for long-term custody.

IV. Steps Taken to Effectuate Site Transfer to the DOE for Long-term Custody following NRC Approval of ACLs

Following NRC approval of site-specific ACLs and completion of groundwater corrective actions, a Title II uranium mill licensee must complete a series of coordinated regulatory steps before transferring the site to the DOE for long-term custody. These include NRC or Agreement State verification that reclamation and groundwater remediation meet the performance standards of 10 C.F.R. Part 40, Appendix A, preparation of a long-term surveillance plan for the site, payment of a long-term surveillance charge under Criterion 10 to fund perpetual DOE oversight, and preparation of a Warranty Deed conveying title to the United States of all property and associated interests required for long-term stability, as mandated by Criterion 11(C). Upon receipt of the surveillance charge and confirmation of clear title, NRC issues a determination to

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[134] *Id*.

[135] WDEQ, Letter to Katie Maness, Anadarko re Approval of TFN for Anadarko Bear Creek Source Material License SUA-1310, TFN 06/4/362 1 (Dec. 18, 2019), ADAMS Accession No. ML22034A021.

[136] *See* NRC, Bear Creek (last updated Oct. 28, 2022), https://www.nrc.gov/info-finder/decommissioning/uranium/bear-creek.

[137] DOE LM, Proposed Expansion of Withdrawn Public Land, Bear Creek Disposal Site, Converse County, Wyoming, Section106 Consultation under national Historic Preservation Act and Notification of the Preparation of an Environmental Assessment under the National Environmental Policy Act 1 (Oct. 4, 2016), ADAMS Accession No. ML16306A390.

[138] *See* DOE, Letter to Mark Watson, Wyoming Oil and Gas Conservation Commission, Request to Deny Applications for Permit to Drill Within Section 16 of the U.S. Department of Energy Title II Uranium Tailings Radiation Control Act Bear Creek, WY Disposal Site 1 (Dec. 21, 2018), ADAMS Accession No. ML19037A392.

[139] Jasso et al., Oil and Natural Gas Development near and beneath Uranium Tailings Cells and Other Remediated Sites WM-20358 (2020), IAEA INIS-US--21-WM-20358.

terminate the specific source material license and transfer custodial responsibility to DOE under the general license at 10 C.F.R. § 40.28(b).

This process, as detailed below, results in the formal handover of a fully reclaimed disposal site for perpetual federal management. The steps below do not necessarily occur in strict chronological order.

A. Resolution of Remaining Groundwater and Modeling Issues

Following NRC approval of site-specific ACLs and completion of groundwater corrective actions, a licensee must ensure that observed groundwater conditions remain consistent with the technical basis supporting the approved ACLs.[140] If post-remediation monitoring data reveal concentrations or flow behavior that differ materially from the assumptions underlying the approved ACL models, the licensee must perform supplemental analyses or provide updated documentation demonstrating that the limits remain protective under Criterion 5.[141] Where deviations are significant, the licensee may need to submit technical memoranda, updated modeling, or revised boundary documentation demonstrating that groundwater conditions remain stable and that the approved ACLs continue to satisfy the protective intent of the Appendix A performance standards.[142] Any necessary refinements to the long-term monitoring network and corresponding boundary documentation must first be submitted to the NRC, or in an Agreement State, to the state regulatory authority for review and approval. After the regulator verifies that the updated information demonstrates continued compliance with the Appendix A performance standards, the licensee must transmit the same documentation to DOE LM for inclusion in the LTSP.[143]

B. Request for License Termination and NRC or Agreement State Acceptance Review

Once post-ACL groundwater performance has been confirmed, the licensee must formally request termination of its specific source material license and transfer of the site to DOE for long-term custody under 10 C.F.R. § 40.28(b). This submission marks the start of the Title II termination and transfer process and must include documentation demonstrating that all 10 C.F.R. Part 40, Appendix A performance standards have been met. [144] After the licensee's

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[140] *See* 10 C.F.R. Part 40, Appendix A, Criterion 5 (requiring that licensees demonstrate continued compliance with groundwater protection standards or approved ACLs).

[141] *See* 10 C.F.R. Part 40, Appendix A, Criterion 5(a)(2) (requiring a monitoring program adequate to demonstrate continuing compliance with groundwater protection standards).

[142] *See* 10 C.F.R. Part 40, Appendix A, Criteria 5. *See also* DOE Final LTSP for Split Rock, Appendix B at B-4 (NRC Request for Additional Information ("RAI") requiring validation of model predictions and verification that the LTSB is protective and licensee provision of updated analytical modeling, license-amendment request to expand the site boundary with predicted concentrations, and map with revised flow lines and plume width).

[143] *See* 10 C.F.R. § 40.28(b) (authorizing license termination and transfer to DOE upon demonstration of compliance with Appendix A). *See* DOE Doc. No. S05096 at 3, 21, 33.

[144] *See* 10 C.F.R. § 40.28(b) (authorizing termination and transfer when compliance with Appendix A is demonstrated). *See also* 10 C.F.R. Part 40, Appendix A, Criterion 13 (conditioning license termination on Commission approval of final site disposition).

termination request, NRC conducts an acceptance review to identify missing approvals or documents before beginning the technical evaluation."[145]

During the acceptance-review phase, the licensee must respond to any NRC or Agreement State requests for supplemental information such as updated monitoring results, verification of institutional-control instruments, or corrections to property documentation.[146] Once the regulator accepts the termination request as complete, NRC or the Agreement State proceeds with the substantive technical evaluation.[147] After NRC or Agreement State acceptance, DOE LM begins coordinating its transition activities in parallel with the regulator's termination review.[148]

C. Completion Review Report or Technical Evaluation Report

Following the NRC or Agreement State acceptance of the licensee's termination request, either the Agreement State regulator prepares a Completion Review Report (CRR) for sites located in Agreement States, or the NRC prepares a Technical Evaluation Report (TER) for sites located in non-Agreement States.

For sites in Agreement States, state regulators are responsible for preparing a CRR to document the technical and regulatory basis for terminating a uranium mill source and or byproduct material license.[149] The CRR demonstrates that all reclamation, decommissioning, and groundwater corrective actions have been completed in accordance with the performance standards of 10 C.F.R. Part 40, Appendix A, and that the site is suitable for transfer to DOE for long-term custody under 10 C.F.R. § 40.28(b).[150] The state regulatory authority applies SA-900 guidance to verify compliance with requirements for stability, erosion protection, radiological cleanup, groundwater protection or ACLs, and institutional controls.[151] Once complete, the CRR is submitted to NRC for concurrence, and NRC's concurrence confirms that the state's termination decision is adequate to protect public health and safety and compatible with NRC standards.[152]

For sites in non-Agreement States, SA-900 does not apply because NRC retains direct regulatory authority over uranium mill licenses. In these cases, NRC documents its staff's technical evaluation in a TER or similar staff evaluation that forms part of the administrative record for the license termination review. The report verifies that all reclamation, groundwater cleanup, and other applicable performance standards under10 C.F.R. Part 40, Appendix A have been satisfied

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[145] *See* DOE Final LTSP for Split Rock, Appendix B at B-4 (Jan. 7, 2015 NRC letter: "Staff Acceptance Review of … Request for License Termination," noting that "all approvals for license termination have not been obtained" and "several required documents were not properly submitted,").

[146] *See id*. Appendix B at B-4 (showing NRC "Staff Acceptance Review" letter identifying missing approvals and institutional-control documentation in a licensee termination request).

[147] *See* NRC, Termination of Uranium Milling Licenses in Agreement States – Procedure SA-900 § V.B.1 & Appendix A at A-1 to A-3 (May 17, 2010) (ADAMS Accession No. ML101130527) (describing NRC review of Agreement-State documentation supporting license termination) (hereinafter "NRC Procedure SA-900").

[148] *See* DOE Doc. No. S05096 at 1–3.

[149] NRC Procedure SA-900 § V(D)(1).

[150] *Id.* Appendix A at A-1 to A-3.

[151] *Id.* Appendix A at A-1 to A-2.

[152] *Id.* Appendix A at A-2 to A-3.

and provides the technical basis for NRC's concurrence with license termination.[153] NRC staff conduct these evaluations consistent with the methods and acceptance criteria described in NUREG-1620[154] and may prepare additional TERs to evaluate the DOE LTSP or other related licensing actions.[155]

D. Draft Long-Term Surveillance Plan

The typical next step in the UMTRCA Title II site transfer process is the preparation of a Draft LTSP, which defines the framework for DOE's perpetual custodial responsibilities once the specific NRC license is terminated.[156] The LTSP describes how DOE will carry out long-term surveillance and maintenance under the general license at 10 C.F.R. § 40.28(b) and is predicated on the site's compliance with the performance standards of 10 C.F.R. Part 40, Appendix A.[157] DOE LM prepares the draft after the licensee, the regulator, and DOE agree that reclamation and groundwater corrective actions are complete and that license termination can be achieved within the transition period. At that stage, DOE LM reviews the technical basis for closure, including the surface reclamation record, groundwater remedy, and proposed long-term monitoring program, and incorporates these findings into the LTSP as part of its due-diligence review[158]

DOE develops the draft LTSP in coordination with the NRC and, where applicable, the Agreement State. The document establishes the long-term care boundary, inspection and maintenance requirements, and institutional controls that will remain in effect under DOE's general license.[159] Once complete, DOE submits the draft LTSP to NRC for technical review and concurrence consistent with the inter-NRC-DOE protocols.[160] NRC may distribute the draft to the licensee and the Agreement State for courtesy review, but all comments are consolidated and returned through NRC for final resolution.[161] Preparation and review of the draft LTSP typically occur within the structured, two-year transition period preceding license termination.[162]

E. Preliminary Final Draft Long-Term Surveillance Plan

The Preliminary Final LTSP is not a formally defined step in DOE's 2016 transition procedure but represents the version of the LTSP completed after NRC and Agreement State technical

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[153] *See, e.g.*, NRC TER for Split Rock ACLs 1. *See* NRC, Technical Evaluation Report for the Ambrosia Lake Site, New Mexico 1 (Feb. 24, 2006), ADAMS Accession No. ML060590024. *See* NRC, Technical Evaluation Report for Site Transfer of the WNI Split Rock Site to DOE for Long-Term Care 1 (Nov. 7, 2023), ADAMS Accession No. ML23271A189 (hereinafter "NRC TER for Split Rock Site Transfer").

[154] *See* NRC, NUREG-1620, Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites xiii–xiv & § 1.1 (June 2003), ADAMS Accession No. ML032250190.

[155] *See* DOE Doc. No. S05096 at 21 (noting that ". . . LM will submit the draft LTSP to NRC for review of the technical content per the Protocol.… All comments on the LTSP should be submitted to NRC for consideration."). *See also* NRC TER for Split Rock Site Transfer.

[156] *See* 10 C.F.R. Part 40, Appendix A, Criterion 12.

[157] DOE Doc. No. S05096 at 21.

[158] *Id.* at 2–4.

[159] *Id.* at 21.

[160] *See* DOE Doc. No. S05096 at 21.

[161] *Id.*

[162] *See id.* at 3.

comments on the draft have been resolved and before NRC's formal concurrence under the DOE–NRC License Termination/Site Transfer Protocol (1998).[163] In practice, DOE LM prepares this updated version to document the final agreed-upon custodial boundary, inspection and maintenance commitments, and long-term groundwater monitoring requirements. The agency office submits the draft LTSP to NRC for technical review under the Protocol and finalizes the document after NRC concurrence and completion of the real-property transactions.[164]

The Preliminary Final Draft LTSP reflects DOE's near-final custodial management framework, incorporating the results of NRC's technical review, DOE's due-diligence findings, and completion of real property transfers and long-term care cost estimates.[165]

F. Long-Term Surveillance Charge

The Long-Term Surveillance Charge (LTSC), also referred to as the Long-Term Surveillance Fee (LTSF) or the Long-Term Care Fee (LTCF), is the one-time payment that each Title II licensee must provide to fund DOE's perpetual custody, monitoring, and maintenance of a reclaimed uranium mill tailings site. The fee requirement is set forth 10 C.F.R. Part 40 Appendix A, Criterion 10, which directs licensees to pay a charge "sufficient to the costs of long-term surveillance" prior to license termination.[166] Criterion 10 establishes a minimum charge of $250,000 (1978 U.S. dollars (USD), equivalent to roughly $1.25 million in inflation-adjusted 2025 USD)[167] and also authorizes the NRC to specify a higher fee based on site-specific evaluations.[168] The regulations further stipulate that the charge will be adjusted annually for inflation.

Under DOE's transition process, DOE LM and NRC consult to determine the LTSC amount based on LM's cost estimate for post-transfer monitoring, maintenance, and inspection activities.[169] The DOE LM prepares and submits an estimate of long-term care costs to NRC that includes both expected annual surveillance and reporting costs and allowances for nonroutine maintenance or extraordinary expenses.[170] The DOE estimate is not necessarily the final

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[163] *See id*.

[164] *Id.* at 20–22.

[165] *See, e.g., id.* at 2–3.

[166] 10 C.F.R. Part 40, Appendix A, Criterion 10.

[167] Under 10 C.F.R. Part 40, Appendix A, Criterion 10, the base amount of the LTSC must be escalated for inflation to current-year dollars using the Consumer Price Index for All Urban Consumers (CPI-U) published by the U.S. Bureau of Labor Statistics.

[168] 10 C.F.R. Part 40, Appendix A, Criterion 10 requires that the $250,000 (1978 USD) LTSC be adjusted for inflation using the change in the Consumer Price Index ("CPI", specifically the CPI for All Urban Consumers or "CPI-U") published by the U.S. Department of Labor, Bureau of Labor Statistics ("BLS"). The inflation-adjusted 2025 LTSC can be calculated as follows: $Adjusted\ LTSC = \$250{,}000 \times \frac{CPI-U_{2025}}{CPI-U_{1978}} = \$250{,}000 \times \frac{326}{65.2} \approx \$1.25\ million\ (2025\ USD)$. *See* BLS, Economic News Release – Consumer Price Index Summary, https://www.bls.gov/news.release/cpi.nr0.htm.

[169] DOE Doc. No. S05096 at 21.

[170] *Id.* at 22.

number, however. The NRC will evaluate the estimate and reach its own determination in accordance with controlling regulations at 10 C.F.R. Part 40 Appendix A.[171]

As clarified in NRC guidance, only activities that have a direct nexus to the radiological safety and performance of the disposal cell may justify inclusion in or an increase of the surveillance charge because the NRC's statutory authority under UMTRCA extends solely to protecting public health, safety, and the environment from radiological hazards.[172] Activities lacking that nexus, such as general land management, fencing for non-safety purposes, or aesthetic site upkeep, cannot be included in the LTSC basis.[173]

NRC may also apply a contingency factor (typically about fifteen percent) to ensure sufficient coverage for unforeseen post-closure needs. Although DOE LM has a vested interest in ensuring that the charge is adequate, NRC makes the final determination of the LTSC amount, including any increase above the minimum specified in Criterion 10.[174] DOE LM identifies NUREG-0706, Appendix R (1980),[175] NUREG-1620, Appendix E (2003),[176] and NRC's Regulatory Issue Summary (RIS) 2011[177] as the primary sources for LTSC determination and review.[178]

G. NRC Environmental Assessment and Finding of No Significant Impact

For sites under NRC jurisdiction (i.e., in non-Agreement States), the NRC prepares an EA and, if appropriate, a FONSI under the National Environmental Policy Act of 1969 (NEPA) before terminating a Title II license and approving the DOE LTSP.[179] NEPA requires federal agencies to evaluate the environmental effects of proposed actions before making decisions.[180] NRC implements NEPA through 10 C.F.R. Part 51 and, before terminating a Title II license and acting on the LTSP, must evaluate the proposed action to determine the appropriate level of review. Depending on the circumstances, NRC may apply a categorical exclusion[181] or prepare an EA that can support a FONSI.[182]

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[171] 10 C.F.R. Part 40, Appendix A, Criterion 10.

[172] NRC, Letter to Raymond Plieness, DOE, Determination of Long-Term Care Fee for Uranium Mill Tailings Radiation Control Act Title II Sites 1 (June 17, 2010), ADAMS Accession No. ML100670337.

[173] *Id.* at 1–2.

[174] DOE Doc. No. S05096 at 21–22.

[175] *See* NRC, Final Generic Environmental Impact Statement on Uranium Milling, NUREG-0706 (Sept. 1980).

[176] *See* NUREG-1629, Appendix E.

[177] NRC, Regulatory Issue Summary 2011-11: Regarding the Long-Term Surveillance Charge for Conventional or Heap Leach Uranium Recovery Facilities Licensed Under 10 C.F.R. Part 40 (Sept. 29, 2011).

[178] DOE Doc. No. S05096 at 21–22.

[179] National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321–4370h. *See also* 10 C.F.R. §§ 51.20(b)(2), 51.21 (requiring NRC to prepare an EA for actions not otherwise categorically excluded).

[180] NEPA, 42 U.S.C. § 4332(2)(C).

[181] 10 C.F.R. § 51.22(c)(11).

[182] 10 C.F.R. § 51.1 et seq. (as amended through Oct. 2025) (Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions) (codifying the rules of the U.S. Nuclear Regulatory Commission under the National Environmental Policy Act of 1969).

The EA analyzes the potential environmental consequences of the proposed license termination and DOE's long-term custodial care program as described in the LTSP.[183] If NRC concludes that the action will not have a significant effect on the environment, it issues a FONSI which explains the basis for that conclusion and the supporting environmental findings.[184] DOE guidance notes that NRC conducts these NEPA evaluations " . . . for the specific license termination action and addresses NEPA requirements in accordance with 10 C.F.R. 51.22(c)(11) prior to accepting the LTSP and terminating the licensee's specific byproduct material license."[185] If NRC prepares an EA and reaches a FONSI, it publishes a notice of availability of the EA and FONSI in the Federal Register[186] If a categorical exclusion applies, no EA or FONSI is required.[187]

In Agreement States, NRC concurs in the state's CRR under Procedure SA-900 to support license termination[188] and separately conducts its own NEPA review of the DOE LTSP as a Federal action.[189] That review may include preparation of an EA and issuance of a FONSI under 10 C.F.R. §§ 51.31–51.32.[190]

H. Real Property Transfer and Documentation

An important milestone in the Title II site-transfer process is the completion and documentation of all real property transactions required for long-term federal custody.[191] The DOE LM cannot finalize its LTSP until real property transactions are complete and ownership is documented.[192] In prior Title II site transfers, real property transactions included the execution and recordation of Warranty or Quitclaim deeds, the conveyance of access easements, establishment of restrictive covenants or equitable servitudes, the withdrawal of applicable federal lands, and the filing of IC notices in local land records.[193] NRC verifies that these conveyances satisfy Criterion 11(C) of Appendix A to 10 C.F.R. Part 40 before concurring in DOE's acceptance of title and finalizing the site transfer.[194]

I. Final Long-Term Surveillance Plan

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[183] *See* 10 C.F.R. § 51.14(a).

[184] *See* 10 C.F.R. § 51.31(a)–(c).

[185] DOE Doc. No. S05096 at 18.

[186] *See* 10 C.F.R. § 51.119.

[187] 10 C.F.R. § 51.22(d).

[188] NRC, NRC Procedure SA-900 § III.

[189] *See* NRC, Environmental Assessment for the Approval of the Long-Term Surveillance Plan for the Split Rock Uranium Mill Tailings Site § 1.3 (Oct. 2023), ADAMS Accession No. ML23236A452 (noting "The general license would become effective for the site if the NRC (1) concurs on the Agreement State's determination that reclamation requirements have been satisfied, (2) accepts a site-specific LTSP, and (3) verifies that the licensee paid the long-term surveillance charge. The NRC's Federal action is the review and approval of the LTSP.").

[190] *See, e.g., id.* §§ 1.3, 6.0.

[191] *See* DOE Doc. No. S05096 at 21.

[192] *See id*.

[193] *See* DOE Doc. No. S05096, Appendix A at A-1 to A-32.

[194] *See id.* at 21. *See* DOE and NRC License Termination and Site Transfer Protocol.

The Final LTSP is completed after all regulatory, technical, and real property actions are finished and DOE has submitted the draft plan to NRC for review and comment. DOE Doc. No. S05096 guidance explains that LM submits the draft LTSP to NRC for review once reclamation and groundwater remedies have been implemented, regulatory concurrence confirmed, and the post-closure care program defined. The guidance further states that NRC may share the draft with the licensee and Agreement State for courtesy review and that all comments are returned to NRC for consideration, but that the LTSP "cannot be finalized until the real property transaction is complete and ownership is documented in the LTSP."[195]

The Final LTSP consolidates all requirements needed to manage the site and identifies LM's responsibilities as the long-term custodian, including compliance with environmental or land-management obligations not directly related to radiological safety, such as weed control. The stewardship activities described in the plan continue the licensee's pre-transfer maintenance obligations, and the LTSP requirements correspond to the estimated costs of post-closure care.[196]

J. NRC Letters to Agreement State and DOE for Site License Termination and Transfer to Long-Term Care

The final step in the UMTRCA Title II site transfer process is the issuance of NRC correspondence formally documenting termination of the site-specific source material license and transfer of custody to DOE for long-term care under the general license at 10 C.F.R. § 40.28(b). This correspondence serves as NRC's administrative record of the termination and transfer decision.[197]

While this correspondence is not explicitly required by regulation or guidance, the practice serves as the administrative record of NRC's determination under 10 C.F.R. § 40.28(b).[198] In Agreement States, Procedure SA-900 directs NRC to provide a written concurrence letter to the state confirming agreement with the termination decision.[199] In non-Agreement States, NRC's termination and transfer letters perform the same administrative function of finalizing the agency's decision to end the specific license and place the site under DOE's general license for

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[195] DOE Doc. No. S05096 at 21.

[196] *Id*.

[197] DOE and NRC, License Termination/Site Transfer Protocol Between the U.S. Department of Energy and the U.S. Nuclear Regulatory Commission 3–4 (Jan. 7, 1998) ADAMS Accession No. ML111640659 (describing NRC's responsibility to ensure all requirements are met and a suitable LTSP is submitted before license termination and DOE's assumption of long-term surveillance responsibilities) (hereinafter "DOE and NRC License Termination and Site Transfer Protocol").

[198] DOE and NRC License Termination and Site Transfer Protocol 4 (requiring DOE to provide NRC documentation of title transfer and Criterion 10 payment, evidencing the agencies' exchange of closing correspondence).

[199] *See* NRC Procedure SA-900 § V(B) ("NRC will concur in an Agreement State decision to terminate a specific license.").

long-term custody.[200] In practice, NRC has issued such correspondence in multiple Title II site transfers, including for L-Bar,[201] Ambrosia Lake,[202] and Split Rock Disposal Sites.[203]

K. Example: Steps Taken to Effectuate the Transfer of the Split Rock Site to the DOE Long-term Custodian

The Split Rock case serves as an example of how the Title II transfer process proceeds. The sequence of actions below shows when regulatory, technical, and property milestones were completed to effectuate long-term custody.

September 2018: On September 25, 2018, the NRC and the State of Wyoming signed an Agreement State accord under AEA Section 274b establishing the framework for Wyoming to assume regulatory authority over uranium and thorium milling and byproduct material.[204] On September 30, 2018, Wyoming formally assumed regulatory authority from the NRC over uranium and thorium milling facilities and 11e.(2) byproduct material through the WDEQ, marking its transition to full Agreement State status.[205]

March 20, 2020, Completion Review Report / Request for License Termination and Acceptance Review: WDEQ issued its CRR, concluding that reclamation, surface stabilization, and groundwater corrective actions were completed per the license and recommending license termination and transfer to DOE.[206]

September 16, 2021, DOE Long-Term Surveillance Maintenance Cost Estimate: DOE LM prepared the *Split Rock, WY, UMTRCA Title II Site Long-Term Surveillance and Maintenance Annual Cost Estimate Summary* projecting an annual surveillance and maintenance cost of $89,438.47. DOE based this estimate on recorded pretransition costs from April 2019 through March 2021 and on projected routine activities such as site management, inspections,

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[200] *See* NRC, Letter to DOE Office of Legacy Management Accepting the Final Long-Term Surveillance Plan for the Split Rock Uranium Mill Tailings Disposal Site 1 (Nov. 7, 2023), reprinted in DOE Final LTSP for Split Rock, Appendix F at F-1 to F-2 ("The NRC concludes that all actions required for the termination of the WNI license have been completed. The NRC hereby accepts the final LTSP for the Split Rock site and establishes the site in the custody and long-term care of DOE under the general license specified in 10 C.F.R. 40.28.").

[201] *See* NRC, Letter to Sohio Western Mining Company Re: Termination of License SUA-1472 and Transfer to DOE for Long-Term Care 1 (May 21, 1999), ADAMS Accession No. ML092400288.

[202] *See* NRC, Letter to Rio Algom Mining LLC Re: License Termination and Transfer of the Ambrosia Lake Site to DOE for Long-Term Care 1 (Feb. 24, 2006), ADAMS Accession No. ML060380387.

[203] *See* NRC, Letter to DOE Office of Legacy Management Accepting the Final Long-Term Surveillance Plan for the Split Rock Uranium Mill Tailings Disposal Site 1 (Nov. 7, 2023), ADAMS Accession No. ML23271A192.

[204] *See* NRC, Wyoming: Agreement State Information, https://www.nrc.gov/agreement-states/wyoming (last updated July 17, 2025).

[205] *See id*.

[206] WDEQ, Letter from Kyle Wendtland, WDEQ to Michael Layton, NRC re: Submittal of Completion Review Report (CRR) for the license termination of Source Material License WYSUA-0056 Western Nuclear Split Rock (Mar. 24, 2020), ADAMS Accession No. ML20093A729.

groundwater monitoring, maintenance, and limited vegetation control.[207] Using DOE's annual cost estimate would result in a LTCF of approximately $9 million.[208]

November 2021, Draft Long-Term Surveillance Plan: DOE LM issued its Preliminary LTSP which outlined institutional controls, monitoring, and DOE's transition framework.[209]

January 25, 2022, WNI Long-Term Care Fee Proposal: WNI submitted comments to NRC on the Split Rock LTCF, arguing that the LTCF should be set at the minimum $250,000 charge (in 1978 USD) specified in 10 C.F.R. Part 40, Appendix A, Criterion 10.[210]

April 1, 2022, Additional Information for WNI Long-Term Care Fee Proposal: WNI submitted additional correspondence to NRC regarding calculation of the LTSC for the Split Rock Site, arguing that the LTSC should equal the minimum amount required (approximately $1.1 million in 2022 USD). WNI justified this position by emphasizing that (i) NRC had historically applied the same inflation-adjusted minimum charge to other Title II sites with comparable long-term care requirements; (ii) DOE's proposed higher estimate improperly included costs not tied to radiological safety or surveillance (e.g., weed control, rangeland assessments); and (iii) no Commission policy change had been adopted to alter the established methodology.[211]

July 15, 2022, NRC Long-Term Care Fee Determination: The NRC determined that the lump-sum LTCF for the Split Rock site would be $4.2 million, to be paid by WNI to the U.S. Treasury. NRC based its determination on DOE LM's cost estimates and WNI's submitted comments and increased the fee above the regulatory minimum (approximately $1.2 million in April 2022 USD) to account for site-specific surveillance and maintenance requirements significantly greater than those in Criterion 12 of Appendix A. NRC's final amount reflected inclusion of activities with a clear nexus to radiological health and safety (e.g., site management, inspections, groundwater and surface water monitoring, minor maintenance, well replacement, vegetation monitoring) and the exclusion of indirect and rangeland-maintenance costs.[212]

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[207] DOE LM, Split Rock, WY, UMTRCA Title II Site Long-Term Surveillance and Maintenance Annual Cost Estimate Summary 1 (Sept. 16, 2021), ADAMS Accession No. ML21326A001.

[208] NRC, Technical Evaluation Report: Long-Term Care Fee Determination for Western Nuclear Incorporated, Split Rock UMTRCA Title II Site, Jeffrey City, Wyoming 1 (July 15, 2022), ADAMS Accession No. ML22157A451.

[209] DOE LM, Long-Term Surveillance Plan for the Split Rock, Wyoming, UMTRCA Title II Disposal Site, Jeffrey City, Wyoming (Nov. 2021), ADAMS Accession No. ML21323A184.

[210] WNI, Letter from Lawrence J. Corte, WNI to Jane Marshall, NRC, Western Nuclear Inc. Split Rock Site, NRC Radioactive Materials License no. SUA-0056; Comment on NRC's determination of the Long-Term Care Fee (Jan. 25, 2022), ADAMS Accession No. ML22026A092.

[211] *See* WNI, Letter from Lawrence J. Corte, WNI to John Lubinski, NRC re Western Nuclear, Inc. Split Rock Site, NRC Radioactive Materials License No. SUA-0056; Additional Comments on NRC's Determination of the Long-Term Care Fee (Apr. 1, 2022), ADAMS Accession No. ML22095A156.

[212] NRC, Letter to WNI re Long-Term Care Fee for the Western Nuclear Incorporated Split Rock Uranium Mill Tailings Disposal Site, Wyoming 1–3 (July 15, 2022), ADAMS Accession No. ML22157A450.

August 26, 2022, WNI Payment of Long-Term Care Fee: The NRC confirmed receipt of WNI's $4.2 million LTCF payment. WNI submitted payment to NRC on August 16, 2022, and the NRC transmitted it to the U.S. Treasury, which confirmed receipt on August 24, 2022.[213]

August 2023, Final Long-Term Surveillance Plan: DOE's 2023 Final LTSP for the Split Rock site states that the NRC accepted the LTSP, concurred with the State of Wyoming's termination of WNI's radioactive material's license, and included the site under the NRC's general license for long-term custody pursuant to 10 C.F.R. § 40.28(b).[214]

August, 16, 2023, Real Property Transfer and Documentation: NRC issued its *Schedule Update for Transitioning the Split Rock Site to the DOE for Long-Term Care*, confirming receipt of DOE's Final LTSP containing BLM realty information and establishing the final sequence for license termination and site transfer.[215]

October 30, 2023, NRC Environmental Assessment and Finding of No Significant Impact: NRC completed the Environmental Assessment and issued a Finding of No Significant Impact for DOE's Final LTSP.[216]

November 7, 2023, Letters to Agreement State and DOE for License Termination and Transfer: NRC issued its final letter to DOE accepting the Final LTSP and establishing the Split Rock site under DOE custody pursuant to the general license at 10 C.F.R. § 40.28(b).[217]

V. Summary

Applicable NRC regulations and guidance require a Title II uranium mill licensee to demonstrate both "good faith" and "serious" efforts to obtain ownership or durable control of all surface land property and subsurface interests necessary to ensure long-term site stability. "Good faith" efforts, as outlined in NUREG-1620, consist of documented attempts to acquire or control land and groundwater between the Point of Compliance and the Point of Exposure or, where acquisition is infeasible, to establish enforceable institutional controls that are durable and legally defensible. "Serious efforts," as required by Criterion 11(C) of Appendix A to 10 C.F.R. Part 40, apply to severed subsurface or mineral rights within the long-term surveillance boundary and obligate the licensee to obtain those rights or record deed notifications if acquisition cannot be achieved. These complementary requirements ensure that the federal custodian receives the authority and control needed to protect public health and the environment in perpetuity.

The governing framework established under UMTRCA Title II, implemented through 10 C.F.R. § 40.28 and Part 40, Appendix A, and guided by NUREG-1620 and DOE's Doc. No. S05096,

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[213] NRC, Letter to WNI re Confirmation of U.S. Treasury's Receipt of Payment of Long-Term Care Fee for the Split Rock Uranium Mill Tailings Disposal Site, Wyoming 1 (Aug. 26, 2022), ADAMS Accession No. ML22237A030.

[214] DOE Final LTSP for Split Rock 27.

[215] NRC, NRC's Schedule Update for the Transitioning of the Western Nuclear, Inc. (WNI) Split Rock Site to the U.S. Department of Energy for Long-Term Care (Aug. 16, 2023).

[216] NRC, Environmental Assessment for Site Transfer of the WNI Split Rock Site to DOE for Long-Term Care 1–2 (Oct. 30, 2023), ADAMS Accession No. ML23271A189.

[217] NRC, Letter to DOE Office of Legacy Management Accepting the Final Long-Term Surveillance Plan for the Split Rock Uranium Mill Tailings Disposal Site 1 (Nov. 7, 2023), ADAMS Accession No. ML23271A192.

defines the respective roles of NRC and DOE in verifying compliance and effecting site transfer. The precedent at the Split Rock site shows how a licensee satisfied ownership and control requirements through documented property acquisitions, land exchanges, or enforceable institutional controls when property acquisition was not feasible.

Following NRC approval of alternate concentration limits, transfer of a Title II site to DOE for long-term custody proceeds through verification of reclamation and groundwater corrective actions; preparation of a Completion Review Report or Technical Evaluation Report; development and NRC review of the Long-Term Surveillance Plan; determination and payment of the Long-Term Surveillance Charge under Criterion 10; completion of real-property conveyances; environmental review and issuance of a Finding of No Significant Impact; and final license termination and transfer of custodial responsibility to DOE under the general license at 10 C.F.R. § 40.28(b). Collectively, these measures ensure that decommissioned uranium mill sites are transferred with clear title, adequate financial assurance, and enforceable institutional controls that provide enduring protection of human health and the environment.