NRC FORM 374

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and the applicable parts of Title 10, Code of Federal Regulations, Chapter I, Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 39, 40, 51, 70, and 71, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Lost Creek ISR, LLC	3. License Number SUA-1598, Amendment No. 7
2. 5880 Enterprise Drive, Suite 200 Casper, WY 82609	4. Expiration Date: August 31, 2021 5. Docket No. 040-9068 Reference No.

6. Byproduct Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum amount that Licensee May Possess at Any One Time Under This License
a. Natural Uranium b. Byproduct material as defined in 10 CFR 40.4	a. Any b. Unspecified	a. Unlimited b. Quantity generated under operations authorized by this license

SECTION 9: Administrative Conditions

9.1 The authorized place of use shall be the licensee's Lost Creek Project in Sweetwater County, Wyoming. The licensee shall conduct operations within the license area boundaries shown in Figure 1.3-1 of the approved license application.

9.2 The licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the license application dated March 31, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML081060525), which is supplemented by the submittals dated December 12, 2008 (ML090080451), January 16, 2009 (ML090360163), February 27, 2009 (ML090840399), August 5, 2009 (ML092310728), April 22, 2010 (ML102100263, ML102420249), May 14, 2010 (ML101600528), June 17, 2010 (ML101720161), June 24, 2010 (ML101820155), November 11, 2010 (ML103210590), November 16, 2010 (ML103280186), December 3, 2010 (ML103490862), September 13, 2011 (ML112580267), November 8, 2011 (ML11319A196), January 6, 2012 (ML120470353), February 10, 2012 (No. ML12048A678), February 17, 2012 (ML12053A326), March 5, 2012 (120670278), July 27, 2012 (ML12219A076), July 31, 2012 (ML12244A404), November 8, 2012(ML13029A734), November 29, 2012 (ML12335A016), March 27, 2013 (ML13100A138), January 16, 2015 (ML15029A423), March 3, 2015 (ML15076A380), July 28, 2015 (ML15218A055), August 17, 2015 (ML15239A726), January 26, 2016 (ML16043A365), February 8, 2016 (ML16042A069), November 17, 2017 (ML17339A110), and February 6, 2018 (ML18043A086). The approved application and supplements are, hereby, incorporated by reference, except where superseded by specific conditions in this license. The licensee must maintain the approved license application on site.

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Whenever the word "will" or "shall" is used in the above referenced documents, it shall denote a requirement. The use of "verification" in this license with respect to a document submitted for U.S.

Nuclear Regulatory Commission (NRC) staff review means a written acknowledgement by NRC staff that the specified submitted material is consistent with commitments in the approved license application, or requirements in a license condition or regulation. A verification will not require a license amendment.

[Applicable Amendment: 1, 2, 3, 4, 5, 6]

9.3 All written notices and reports sent to the U.S. Nuclear Regulatory Commission (NRC) as required under this license and by regulation shall be addressed as follows: ATTN: Document Control Desk, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. An additional copy shall be submitted to: Deputy Director, Division of Decommissioning, Uranium Recovery and Waste Programs, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Mail Stop T-05A10, 11545 Rockville Pike, Two White Flint North, Rockville, MD 20852-2738. Incidents and events that require telephone notification shall be made to the NRC Operations Center at (301) 816-5100 (collect calls accepted).

[Applicable Amendment: 2, 3, 7]

9.4 Change, Test, and Experiment License Condition

A) The licensee may, without obtaining a license amendment pursuant to 10 CFR 40.44, and subject to conditions specified in (B) of this condition:

i Make changes in the facility as described in the license application (as updated);

ii Make changes in the procedures as described in the license application (as updated); and

iii Conduct tests or experiments not described in the license application (as updated).

B) The licensee shall obtain a license amendment pursuant to 10 CFR 40.44 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would:

i Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);

ii Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a facility Structure, Equipment, or Monitoring System (SEMS) important to safety previously evaluated in the license application (as updated);

iii Result in more than a minimal increase in the consequences of an accident previously evaluated in the license application (as updated);

iv Result in more than a minimal increase in the consequences of a malfunction of an SEMS important to safety previously evaluated in the license application (as updated);

v Create a possibility for an accident of a different type than any previously evaluated in the license application (as updated);

vi Create a possibility for a malfunction of an SEMS important to safety with a different result than previously evaluated in the license application (as updated);

vii Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the Final Safety Evaluation Report (FSER), Environmental Impact Statement (EIS), Environmental Assessment (EA) or Technical Evaluation Reports (TERs) or other analysis and evaluations for license amendments.

viii For purposes of this paragraph as applied to this license, SEMS important to safety means any SEMS that has been referenced in a staff SER, TER, EA, or EIS and supplements and amendments thereof.

C) Additionally, the licensee must obtain a license amendment unless the change, test, or experiment is consistent with the NRC's previous conclusions, or the basis of or analysis leading to those conclusions, regarding actions, designs, or design configurations analyzed and selected in the site or facility SER, TER, and EIS or EA. This includes all supplements and amendments, and SERs, TERs, EAs, and EISs issued with amendments to this license.

D) The licensee's determinations concerning (B) and (C) of this condition shall be made by a Safety and Environmental Review Panel (SERP). The SERP shall consist of a minimum of three individuals. One member of the SERP shall have expertise in management (e.g., a Plant Manager) and shall be responsible for financial approval for changes; one member shall have expertise in operations and/or construction and shall have responsibility for implementing any operational changes; and one member shall be the Radiation Safety Officer (RSO) or equivalent, with the responsibility of assuring changes conform to radiation safety and environmental requirements. Additional members may be included in the SERP, as appropriate, to address technical aspects such as ground water or surface water hydrology, specific earth sciences, and other technical disciplines. Temporary members or permanent members, other than the three above-specified individuals, may be consultants.

E) The licensee shall maintain records of any changes made pursuant to this condition until license termination. These records shall include written safety and environmental evaluations made by the SERP that provide the basis for determining changes are in compliance with (B) of this condition. The licensee shall furnish, in an annual report to the NRC, a description of such changes, tests, or experiments, including a summary of the safety and environmental evaluation of each. In addition, the licensee shall annually submit to the NRC changed pages, which shall include both a change indicator for the area changed (e.g., a bold line vertically drawn in the margin adjacent to the portion actually changed) and a page change identification (date of change, change number, or both), to the operations plan and reclamation plan of the approved license application (as updated) to reflect changes made under this condition.

[Applicable Amendment: 1]

9.5 Financial Assurance. The licensee shall maintain an NRC-approved financial surety arrangement, consistent with 10 CFR Part 40, Appendix A, Criterion 9, adequate to cover the estimated costs, if accomplished by a third party, for decommissioning and decontamination, which includes off-site disposal of solid byproduct material and groundwater restoration as warranted. The surety shall also include the costs associated with all soil and water sampling analyses necessary to confirm the

accomplishment of decontamination.

Proposed annual updates to the financial assurance amount, consistent with 10 CFR Part 40, Appendix A, Criterion 9, shall be provided to the NRC 90 days prior to the anniversary date on which the first surety instrument was submitted to NRC. The anniversary date established by the NRC for this license is February 10. If the NRC has not approved a proposed revision 30 days prior to the expiration date of the existing financial assurance arrangement, the licensee shall extend the existing arrangement, prior to expiration, for 1 year. Along with each proposed revision or annual update of the financial assurance estimate, the licensee shall submit supporting documentation, showing a breakdown of the costs and the basis for the cost estimates with adjustments for inflation, maintenance of a minimum 15-percent contingency of the financial assurance estimate, changes in engineering plans, activities performed, and any other conditions affecting the estimated costs for site closure.

Within 90 days of NRC approval of a revised closure (decommissioning) plan and its cost estimate, the licensee shall submit, for NRC review and approval, a proposed revision to the financial assurance arrangement if estimated costs exceed the amount covered in the existing arrangement. The revised financial assurance instrument shall then be in effect within 30 days of written NRC approval of the documents.

At least 90 days prior to beginning construction associated with any approved planned expansion or operational change that was not included in the annual financial assurance update, the licensee shall provide, for NRC review and approval, an updated estimate to cover the expansion or change. The licensee shall also provide the NRC with copies of financial-assurance-related correspondence submitted to the State of Wyoming, a copy of the State's financial assurance review, and the final approved financial assurance arrangement. The licensee also must ensure that the financial assurance instrument, where authorized to be held by the State, identifies the NRC-related portion of the instrument and covers the (a) aboveground decommissioning and decontamination, (b) cost of off-site disposal of solid byproduct material, (c) soil and water sample analyses, and (d) groundwater restoration associated with the site. The basis for the cost estimate is the NRC-approved site closure plan or the NRC-approved revisions to the plan. Reclamation or decommissioning plan cost estimates and annual updates should follow the outline in Appendix C, "Recommended Outline for Site-Specific In Situ Leach Facility Reclamation and Stabilization Cost Estimates," to NUREG-1569, "Standard Review Plan for In Situ Leach Uranium Extraction License Applications—Final Report."

The licensee shall continuously maintain approved surety instrument(s) for the Lost Creek ISR Project, in favor of the State of Wyoming, in the amount of no less than $14,996,900, for the purposes of complying with 10 CFR Part 40, Appendix A, Criterion 9, until a replacement is authorized by both the State of Wyoming and the NRC.

[Applicable Amendment: 1, 2, 3, 5]

9.6 Release or removal of surficially contaminated equipment, materials, or packages from restricted areas shall be in accordance with the NRC guidance document entitled "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated April 1993 (ADAMS Accession No. ML003745526) or suitable alternative procedures approved by the NRC prior to any such

release or removal. The licensee shall document their survey of equipment, materials, or packages prior to removing them from a restricted area.

Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides shall apply independently.

9.7 The licensee shall follow the guidance set forth in NRC Regulatory Guides 8.22, "Bioassay at Uranium Mills" (as revised), and 8.30, "Health Physics Surveys in Uranium Recovery Facilities" (as revised), or NRC-approved equivalent.

The licensee shall follow the guidance set forth in Regulatory Guide 8.31, "Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be as Low as Is Reasonably Achievable" (as revised), or NRC-approved equivalent, with the following exception:

The licensee may identify a qualified designee(s) to perform daily inspections in the occasional absence of the RSO and Health Physics Technician(s) (HPT). The qualified designee(s) will have health physics training as specified in the licensee's training program. The qualified designee(s) may perform daily inspections on weekends, holidays, and times when both the RSO and HPT(s) must both be absent (e.g. illness or offsite training). A designee(s) shall not perform daily inspections for more than two consecutive days except in the event of a federal or company holiday, whereby no more than three consecutive days will be exceeded. Reports will be reviewed by the RSO or HPT as soon as practical, but not later than 3 hours from the beginning of the next work day following an absence, weekend, or holiday. The licensee will also have the RSO or HPT available by telephone while the qualified designee(s) is performing the daily inspections.

Notwithstanding the License Condition (LC) 9.4 change process, no additional exceptions to the guidance will be implemented without written NRC verification that the criteria in LC 9.4 do not require a license amendment.

[Applicable Amendment: 1]

9.8 Cultural Resources. Before engaging in any developmental activity not previously assessed by the NRC, the licensee shall administer a cultural resource inventory if such survey has not been previously conducted and submitted to the NRC. All disturbances associated with the proposed development will be completed in compliance with the National Historic Preservation Act (as amended) and its implementing regulations (36 CFR Part 800), and the Archaeological Resources Protection Act (as amended) and its implementing regulations (43 CFR Part 7).

In order to ensure that no unapproved disturbance of cultural resources occurs, any work resulting in the discovery of previously unknown cultural artifacts shall cease. The artifacts shall be inventoried and evaluated in accordance with 36 CFR Part 800, and no disturbance of the area shall occur until the licensee has received authorization from the NRC, Wyoming State Historic Preservation Officer, or Bureau of Land Management to proceed.

The licensee shall comply with the terms and conditions regarding cultural resource protection in the Memorandum of Agreement regarding the Lost Creek Project dated October 4, 2010, provided in the NRC letter to the Advisory Council on Historic Preservation dated January 13, 2011.

9.9 The licensee shall dispose of solid byproduct material from the Lost Creek Project operations at a site that is authorized by the NRC or an NRC Agreement State to receive byproduct material. The licensee's approved solid byproduct material disposal agreement must be maintained onsite. In the event that the agreement expires or is terminated, the licensee shall notify the NRC within seven working days after the date of expiration or termination. A new agreement shall be submitted for NRC review within 90 days after expiration or termination, or the licensee will be prohibited from further lixiviant injection.

9.10 The results of the following activities, operations, or actions shall be documented: sampling; analyses; surveys or monitoring; survey/monitoring equipment calibrations; reports on audits and inspections; all meetings and training courses; and any subsequent reviews, investigations, or corrective actions required by NRC regulation or this license. Unless otherwise specified in a License Condition (LC) or applicable NRC regulation, all documentation required by this license shall be maintained at the site until license termination, and is subject to NRC review and inspection.

9.11 The licensee is hereby exempted from the requirements of 10 CFR 20.1902(e) for areas within the facility, provided that all entrances to the facility are conspicuously posted with the words, "CAUTION: ANY AREA WITHIN THIS FACILITY MAY CONTAIN RADIOACTIVE MATERIAL."

SECTION 10: **Operations, Controls, Limits, and Restrictions**

Standard Conditions

10.1 The licensee shall use a lixiviant composed of native ground water and a combination of one or more of the following: carbon dioxide, sodium carbonate, sodium bicarbonate, hydrogen peroxide, or oxygen, as specified in the licensee's approved license application and supplements.

10.2 Facility Throughput. The Lost Creek processing facility throughput shall not exceed an average daily flow rate equivalent to 6,000 gallons per minute or a maximum instantaneous flow rate of 6,300 gallons per minute, excluding restoration flow. The annual production of yellowcake slurry and/or dried yellowcake shall not exceed two million pounds equivalent of dried yellowcake product.

[Applicable Amendment: 1]

10.3 At least 12 months prior to initiation of any planned final site decommissioning, the licensee shall submit a detailed decommissioning plan for NRC review and approval. The plan shall represent as-built conditions at the Lost Creek Project.

10.4 The licensee shall develop and implement written Standard Operating Procedures (SOPs) prior to operation for:

A) All operational activities involving radioactive and nonradioactive materials associated with licensed activities that are handled, processed, stored, or transported by employees;

B) All nonoperational activities involving radioactive materials, including in-plant radiation protection, quality assurance for the respirator program, and environmental monitoring; and

C) Emergency procedures for potential accidents/unusual occurrences, including significant equipment or facility damage, pipe breaks and spills, loss or theft of yellowcake or sealed sources, significant fires, and other natural disasters.

D) The SOPs shall include appropriate radiation safety practices to be followed in accordance with 10 CFR Part 20. SOPs for operational activities shall enumerate pertinent radiation safety practices to be followed. A copy of the current written procedures shall be kept in the area(s) of the production facility where they are utilized.

These SOPs are subject to all inspections, including the preoperational inspection specified in LC 12.3.

10.5 Mechanical Integrity Tests (MITs). The licensee shall construct all wells in accordance with methods described in Sections 3.2.4 and 3.2.5 of the licensee's approved license application. The licensee shall perform well MITs on each injection and production well before the wells are utilized and on wells that have been serviced with equipment or procedures that could damage the well casing. Additionally, the licensee shall retest each well at least once every 5 years. The licensee shall perform MITs in accordance with Section 3.2.5 of the licensee's approved license application. Any failed well casing that cannot be repaired to pass the MIT shall be appropriately plugged and abandoned in accordance with Section 6.3.2 of the approved license application.

10.6 Ground-water Restoration. The licensee shall conduct ground-water restoration activities in accordance with Section 6.2.3 of the approved license application. Permanent cessation of lixiviant injection in a production area would signify the licensee's intent to shift from the principal activity of uranium production to the initiation of ground-water restoration and decommissioning for any particular production area. If the licensee determines that these activities are expected to exceed 24 months for any particular production area, then the licensee shall submit an alternate schedule request that meets the requirements of 10 CFR 40.42.

Hazardous constituents in the ground water shall be restored to the numerical ground-water protection standards as required by 10 CFR Part 40, Appendix A, Criterion 5B(5). In submitting any license amendment application requesting review and approval of proposed alternate concentration limits (ACLs) pursuant to Criterion 5B(6), the licensee must also show that it has first made reasonable effort to restore the specified hazardous constituents to the background or maximum contaminant levels (whichever is greater).

Notwithstanding the LC 9.4 change process, the licensee shall not implement any changes to ground-water restoration or post-restoration monitoring plans without written NRC verification that the criteria in LC 9.4 do not require a license amendment. The licensee shall submit all changes to ground-water restoration or post-restoration monitoring plans to the NRC at least 60 days prior to commencement of ground-water restoration in a production area.

10.7 The licensee shall maintain an inward hydraulic gradient in each individual production area, starting when lixiviant is first injected into the production zone and continuing until initiation of the stabilization period.

[Applicable Amendment: 1]

License Number SUA-1598

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Docket or Reference Number
040-09068

Amendment No. 7

10.8 The licensee is permitted to construct and operate two lined Storage Ponds as described in Section 4.2.5 of the approved license application. The ponds will be used for storage of liquid byproduct material prior to disposal in a deep disposal well as described in Section 4.2.5 of the approved application. Routine pond inspections will be conducted in accordance with procedures defined in Section 5.3.2 of the approved license application. The inspections include:

A) Daily Inspections. The licensee will perform daily inspections in accordance with Section 5.3.2.1 of the approved license application. The inspections will include visual inspections of the piping, berms, diversion ditches, freeboard and leak detection systems. The minimum freeboard is 3 feet. If during the daily inspections a fluid height in any of the standpipes for the pond leak detection system is found to be in excess of 6 vertical inches, then the licensee will collect a sample of the fluid for analysis of specific conductance. If the specific conductance of the fluid in the leak detection system is in excess of 50 percent of the specific conductance of fluids in the pond, then it is concluded that a leak has occurred in the pond primary liner and the licensee will perform mitigative and corrective actions. The corrective actions include notifying the NRC Project Manager by telephone or email within 48 hours and lowering the water level in the pond sufficiently to eliminate the leak. If the licensee does not complete corrective actions within 60 days, the licensee will not use the pond to store byproduct material until qualified personnel, as discussed in subsection D, inspect the liner. The licensee will submit a report to the NRC upon completion of the corrective actions, including documentation of all pond repairs. The licensee will maintain routine daily inspections reports on-site for NRC staff to review during routine inspections.

B) Weekly Inspections. The licensee will conduct weekly inspections in accordance with Section 5.3.2.2 of the approved license application. The inspections will include visual inspection of the entire area, including perimeter fencing. The Manager of EHS and Regulatory Affairs, and the Operations Manager, will review the inspection report. Routine weekly inspections reports will be maintained on-site by the RSO for NRC staff to review during inspections.

C) Quarterly Inspections. The licensee will conduct quarterly inspections in accordance with Section 5.3.2.3 of the approved license application. The inspections will also include sampling of the designated ground-water monitoring system. Results of the quarterly inspections will be included the quarterly report submitted to the NRC as discussed in LC 11.1(A). The licensee will monitor water levels at the wells in the ground-water monitoring system quarterly. Should water levels rise in the wells, the licensee shall institute an investigation. The investigation will evaluate whether or not the increased water levels are attributed to natural infiltration of surface water or infiltration of fluids from the pond. If the source of the water is attributed to the pond leakage, then the licensee will immediately perform corrective action to eliminate the leak and any appropriate remedial actions including characterization of impacts to shallow soils and water in the uppermost aquifer. Results of the quarterly inspections will be submitted to the NRC for review.

D) Annual Technical Inspection. The licensee will conduct annual inspections in accordance with Section 5.3.2.4 of the approved license application. The annual inspection will include a review of the previous year's daily, weekly, and quarterly inspections, assessment of the hydraulic and

hydrologic capacities, and a survey of the embankment by qualified personnel. The licensee will submit a copy of the report to the NRC for review.

10.9 The licensee shall establish and conduct an effluent and environmental monitoring program in accordance with those programs described in Section 5.7.8.2 (Surface Water Monitoring, Private Well Monitoring, and Life-of-Mine Wells) and Section 5.7.7.1 (radon, air particulate, direct radiation, and soil) of the approved license application, and in the Class V Amendment (ML16074A080) as modified by license condition 10.20.

[Applicable Amendment: 5]

Facility Specific Conditions

10.10 Prior to the injection of lixiviant into a production unit, the licensee will attempt to locate and abandon all historic drillholes located within the perimeter well ring such that the drillhole will not provide a conduit for the migration of production fluids. The licensee will document its efforts to identify and properly abandon all abandoned drillholes within the area of influence of a wellfield in a report submitted to the NRC prior to the start of operations at the production unit. If the licensee detects a vertical excursion during operations, the licensee will cease injection of lixiviant into the area surrounding the monitoring well until the licensee demonstrates to the satisfaction of NRC staff that the vertical excursion has been mitigated.

10.11 For mine units that abut (located within 100 feet of) the Lost Creek Fault, the licensee shall submit a plan to the NRC, for review, documenting the location and screened horizon of monitoring wells to monitor potential excursions across the fault into the upper and/or lower aquifers on the opposite side of the fault. The additional wells will be included in the routine excursion-monitoring program. The monitoring parameters will include the depth to water measurements and corresponding ground-water elevations.

10.12 Wellfield Packages. Prior to principal activities in a new wellfield, the licensee shall submit a hydrologic test data package to the NRC for review. The licensee shall submit a hydrologic test package at least 60 days prior to the planned start date of lixiviant injection. In each wellfield data package, the licensee will document that all perimeter monitoring wells are screened in the appropriate horizon in order to provide timely detection of an excursion. The licensee shall not proceed with any lixiviant injection in the new wellfield before it receives written NRC verification of the submitted hydrologic test data package.

10.13 Wellfield Inspections. Injection manifold pressures and flow rates shall be measured and recorded daily by the on-line computer system and/or Wellfield Operator. During wellfield operations, injection pressures shall not exceed the specified maximum operating pressure as specified in Section 3.2.6 of the approved license application. To the extent possible, the daily inspections should visually inspect and document leaks or other abnormalities in the wellfield piping, wellheads, or header houses in accordance with Section 3.2.7.5 of the approved license application. The licensee shall conduct the weekly in-plant inspection and audit programs described in Section 5.3 of the approved license application. In addition, as described in Sections 5.7.1 and 5.7.6 of the approved license application and supplements, the RSO, HPT(s), or designee shall document that radiation control practices are being implemented appropriately.

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10.14 The licensee will use calibrated radiation instrumentation that can measure the full range of radiation exposure rates, or dose rates, that can be reasonably expected at an ISR facility, to ensure the magnitude and extent of radiation levels are measured in accordance with 10 CFR 20.1501(a)(2)(i). The instrumentation used to measure airborne concentrations of radioactive materials will allow for a lower limit of detection (LLD), as described in Regulatory Guide 8.30 (as revised), to provide a 95% confidence that measurements are in conformance with 10 CFR 20.1201, 20.1204, 20.1301, 20.1501, and 20.1502.

10.15 The licensee shall conduct radiological characterization of airborne samples for natural U, Th-230, Ra-226, Po-210, and Pb-210 for each restricted area air particulate sampling location at a frequency of once every 6 months for the first 2 years following issuance of the initial license, and annually thereafter to ensure compliance with 10 CFR 20.1204(g). The licensee shall also evaluate changes to plant operations to determine if more frequent radionuclide analyses are required for compliance with 10 CFR 20.1204(g).

10.16 Any area with exposure rates that exceed 2 millirem in any 1 hour must be immediately treated as a restricted area in accordance with 10 CFR 20.1301(a)(2).

[Applicable Amendment: 1]

10.17 The licensee shall ensure radiation safety training is consistent with Regulatory Guide 8.13, "Instruction Concerning Prenatal Radiation Exposure," (as revised); Regulatory Guide 8.29, “Instruction Concerning Risks from Occupational Radiation Exposure," (as revised); and Section 2.5 of Regulatory Guide 8.31 (as revised), or NRC-approved equivalent.

10.18 Emission controls (dryer). The licensee shall maintain effluent control systems as specified in Supplement TR Sections 3.0, 4.1.2.1, 5.7.3, 5.7.6, 5.7.10, and 7.4.7 of the licensee’s approved license application, with the following exceptions:

If any of the yellowcake emission control equipment fails to operate within specifications set forth in the standard operating procedures, the drying and packaging room shall immediately be closed-in as an airborne radiation area and heating operations shall be switched to cooldown, or packaging operations shall be temporarily suspended. Packaging operations shall not be resumed until the vacuum system is operational to draw air into the system.

All these cessations, corrective actions, and restarts must be reported to the appropriate NRC regional office as indicated in Criterion 8A, in writing, within ten days of the subsequent restart.

[Applicable Amendment: 1]

10.19 [DELETED by Amendment 6]

10.20 The license is authorized to dispose of treated liquid byproduct material on-site through injection well(s) in the area of the proposed injection wells designated as M-FG6 and M-FG7 at a combined rate not to exceed 200 gallons per minute, in accordance with commitments in the Class V Amendment request (ML16074A080). For the first six months of operation of the Class V injection well, the licensee will collect a monthly composite sample of the treated byproduct immediately prior to injection and analyze it for gross alpha, gross beta, natural uranium, radium-226, radium-228,

lead-210, polonium-210 and thorium-230. The parameter concentrations in injected permeate shall be less than the values in the "effluent limit" column of Table 3-3 of the UIC Class V Permit

Application (ML16074A080), except that the limits for thorium-230, lead-210, and polonium-210 shall be less than the values in the "receiving aquifer background" column and the limit for the adjusted gross alpha is 15 pCi/L.

[Applicable Amendment: 5]

10.21 As part of its annual land-use survey, the licensee shall identify the location, screen depth, and estimated pumping rate of any new ground-water wells or new use of an existing well within the license area and within 2 kilometers (1.25 miles) of any proposed production area during the preceding year. The licensee shall evaluate the impact of ISR operations to potential ground-water users and recommend any additional monitoring or other measures to protect ground-water users. The evaluation shall be submitted to the NRC for review within 6 months of discovery of such well use.

[Applicable Amendment: 7]

SECTION 11: Monitoring, Recording, and Bookkeeping Requirements

Standard Conditions

11.1 In addition to reports required to be submitted to the NRC or maintained on-site by Title 10 of the Code of Federal Regulations, the licensee shall prepare the following reports related to operations at the facility:

A) A quarterly report that includes a summary of the weekly excursion indicator parameter values, corrective actions taken, and the results obtained for all wells that were on excursion status during that quarter. This report shall be submitted to the NRC within 30 days following completion of the reporting period.

B) A semiannual report that discusses status of production areas in operation (including last date of lixiviant injection), status of production areas in restoration, status of any long term excursions, and a summary of MITs during the reporting period. This report shall be submitted to the NRC within 30 days following completion of the reporting period.

C) Quarterly report summarizing daily flow rates for each injection and production well and pressures for injection manifold pressures on the entire system. The flow rates should be measured and recorded daily for each injection and production well and injection manifold pressures on the entire system. This report shall be kept on site and made available for inspection upon request.

D) Consistent with Regulatory Position 2 of Regulatory Guide 4.14 (as revised), a semiannual report that summarizes the results of the operational effluent and environmental monitoring program.

11.2 The licensee shall submit the results of the annual review of the radiation protection program content and implementation performed in accordance with 10 CFR 20.1101(c). These results shall include an analysis of dose to individual members of the public consistent with 10 CFR 20.1301 and 10 CFR 20.1302.

11.3 Establishment of Background Water Quality. Prior to injection of lixiviant in each production area, the licensee shall establish background ground-water quality data for the ore zone, and overlying and underlying aquifers. The background-water quality will be used to define the background ground-water protection standards in 10 CFR Part 40, Appendix A, Criterion 5B(5) for the ore zone aquifer and surrounding aquifers. Water quality sampling shall provide representative pre-operational ground-water quality data and restoration criteria as described in Section 5.7.8.1 of the approved license application.

The data for each production area shall consist, at a minimum, of the following sampling and analyses:

A) Ore Zone. Samples shall be collected from production and injection wells at a minimum density of one production or injection well per 4 acres. A minimum of six wells will be required for the baseline data per mine unit. The data for subhorizons may be combined if the licensee demonstrates that the grouping of data is statistically valid. Wells selected for the baseline data will be the same ones used to determine when restored ground water meets the NRC's ground-water protection standards in 10 CFR Part 40, Appendix A, Criterion 5B(5).

B) Perimeter Monitoring Wells. Samples shall be collected from all perimeter monitoring wells that will be used for excursion monitoring in the HJ Horizon. Perimeter wells will be installed for a mine unit in accordance with information presented in Section 3.2.2.2 of the approved license application. In no case will the perimeter monitoring wells be installed outside of the exempted aquifer as defined by the UIC permit area issued by the Wyoming Department of Environmental Quality. If the production patterns include multiple subhorizons within the HJ Horizon, the above requirements will be applicable to all subhorizons.

C) Overlying and Underlying Aquifers. Samples shall be collected from all monitoring wells in the first overlying and first underlying aquifer at a minimum density of one well per 4 acres of production area.

D) Sampling and Analyses. Four samples shall be collected from each well to establish background levels. Consecutive sampling events shall be at least 14 days apart. The samples shall be analyzed for parameters listed in Table 6.2-1 of the approved license application. The licensee can reduce the list of parameters analyzed in the third and fourth sampling events. The parameters that can be deleted from analysis are those that measure below the minimum analytical detection limits (MDL) during the first and second sampling events, provided the MDLs meet the data quality objectives for the sampling.

E) Background Water Quality. For the perimeter monitoring wells (LC 11.3(B)) and monitoring wells in the overlying and underlying aquifers (LC 11.3(C)), the background levels shall be the mean values on a parameter-by-parameter per well-by-well basis in accordance with Section 6.2.2 of the approved license application. For the ore zone monitoring wells, the background levels shall be established on a parameter-by-parameter basis using either the wellfield or well-

specific mean value. The restoration target value (RTV) for each parameter shall be established using the mean value plus a statistically valid factor to account for spatial variability in the data.

[Applicable Amendment: 1]

11.4 Establishment of Upper Control Limits (UCLs). Prior to injection of lixiviant into a production area, the licensee shall establish excursion control parameters and their respective upper control limits (UCLs) in the designated overlying aquifer, underlying aquifer, and perimeter monitoring wells in accordance with Section 5.7.8.2 of the approved license application. Unless otherwise determined, the default excursion parameters are chloride, conductivity, and total alkalinity. The UCLs shall be established for each excursion control parameter and for each well based on the mean plus five standard deviations of the data collected for LC 11.3. The UCL for chloride can be set at the sum of the background mean concentration and either (a) five standard deviations or (b) 15 mg/L, whichever sum provides the higher limit.

11.5 Excursion Monitoring. Monitoring for excursions shall occur twice monthly (semi-monthly) and at least 10 days apart for all wells installed under LC 11.3 (B) and (C) at all wellfields. If, for any well during a semi-monthly sampling event, the concentrations of any two excursion indicator parameters exceed their respective UCL or any one excursion indicator parameter exceeds its UCL by 20 percent, then the excursion criterion is exceeded and a verification sample shall be taken from that well within 48 hours after results of the first analyses are received. If the verification sample confirms that the excursion criterion is exceeded, then the well is placed on excursion status. If the verification sample does not confirm that the excursion criterion is exceeded, a third sample shall be taken within 48 hours after the verification sampling. If the third sample shows that the excursion criterion is exceeded, the well is placed on excursion status. If the third sample does not show that the excursion criterion is exceeded, the first sample shall be considered to be an error and routine excursion monitoring is resumed (the well is not placed on excursion status).

Upon confirmation of an excursion, the licensee shall notify NRC, as discussed below, implement corrective action, and increase the sampling frequency for the excursion indicator parameters at the well on excursion status to at least once every 7 days. Corrective actions for confirmed excursions may be, but are not limited to, those described in Section 5.7.8.2 of the approved license application. An excursion is considered corrected when concentrations of all indicator parameters are below the concentration levels defining the excursion for three consecutive weekly samples.

If an excursion is not corrected within 60 days of confirmation, the licensee shall either (a) terminate injection of lixiviant within the wellfield until an excursion is corrected; or (b) increase the surety in an amount to cover the full third-party cost of correcting and cleaning up the excursion. The surety increase shall remain in force until the NRC has verified that the excursion has been corrected and cleaned up. The written 60-day excursion report shall identify which course of action the licensee is taking. Under no circumstances does this condition eliminate the requirement that the licensee must remediate the excursion to meet ground-water protection standards as required by LC 10.7 for all constituents established per LC 11.3.

The licensee shall notify the NRC Project Manager (PM) by telephone or email within 24 hours of confirming a lixiviant excursion, and by letter within 7 days from the time the excursion is confirmed, pursuant to LC 11.6 and 9.3. A written report describing the excursion event, corrective actions taken, and the corrective action results shall be submitted to the NRC within 60 days of the

excursion confirmation. For all wells that remain on excursion after 60 days, the licensee shall submit a report as discussed in LC 11.1(A).

11.6 Until license termination, the licensee shall maintain documentation on unplanned releases of source or byproduct materials (including process solutions) and process chemicals. Documented information shall include, but not be limited to, the date, spill volume, total activity of each radionuclide released, radiological survey results, soil sample results (if taken), corrective actions, results of post-remediation surveys (if taken), a map showing the spill location and the impacted area, and an evaluation of NRC reporting criteria.

The licensee shall have written procedures for evaluating the consequences of the spill or incident/event against 10 CFR Part 20, Subpart M, "Reports," and 10 CFR 40.60 reporting criteria. If the criteria are met, then the licensee shall report to the NRC Operations Center as required.

If the licensee is required to report any production area excursions and spills of source material, byproduct material, or process chemicals that may have an impact on the environment, or any other incidents/events, to any State or other Federal agencies, a report shall be made to the NRC Headquarters Project Manager (PM) by telephone or electronic mail (e-mail) within 24 hours. In accordance with LC 9.3, this notification shall be followed, within 30 days of the notification, by submittal of a written report to NRC Headquarters detailing the conditions leading to the spill or incident/event, corrective actions taken, and results achieved.

SECTION 12.0: Preoperational Conditions

Standard Conditions

12.1 [DELETED by Amendment 7]

12.2 [DELETED by Amendment 7]

12.3 [DELETED by Amendment 7]

12.4 [DELETED by Amendment 7]

12.5 [DELETED by Amendment 7]

12.6 [DELETED by Amendment 1]

Facility Specific Conditions

12.7 [DELETED by Amendment 7]

12.8 [DELETED by Amendment 1]

12.9 [DELETED by Amendment 7]

12.10 [DELETED by Amendment 4]

License Number SUA-1598

Docket or Reference Number
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Amendment No. 7

MATERIALS LICENSE
SUPPLEMENTARY SHEET

12.11 [DELETED by Amendment 4]

12.12 [DELETED by Amendment 4]

12.13 [DELETED by Amendment: 1]

12.14 [DELETED by Amendment 7]

12.15 [DELETED by Amendment 7]

FOR THE NUCLEAR REGULATORY COMMISSION

Dated: 8/7/18

/RA/
Bill VonTill, Branch Chief
Uranium Recovery Licensing Branch
Division of Decommissioning, Uranium Recovery
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