Saxton, John

From: Saxton, John
Sent: Monday, October 19, 2015 4:31 PM
To: Mike Griffin
Subject: Amendment 3 - Surety Update
Attachments: comparison amendment 2 with amenment 3 track change.pdf

Mike,

Please review and let me know if you are okay with the changes.

Thanks

John

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. Strata Energy, Inc.	3. License Number SUA-1601, Amendment No. 3
2. 1900 W. Warlow Dr., Bldg A, P.O. Box 2318 Gillette, WY 82716	4. Expiration Date: April 30, 2024 5. Docket No. 040-09091 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 Ross Project in Crook County, Wyoming. The licensee shall conduct operations within the license area boundaries shown in Figure 1.4-2 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 January 4, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110120063), which is supplemented by submittals dated February 28, 2011 (ML110800187), March 30, 2012 (ML121030404), April 6, 2012 (ML121020343), August 10, 2012 (ML12227A369), January 18, 2013 (ML130370654), October 14, 2013 (ML13295A230), October 17, 2013 (ML13296A026), February 28, 2014 (ML14091A036), January 14, 2015 (ML15036A062), May 27, 2015 (ML15149A023) and September 30, 2015 (ML15289A056). The approved application and supplements, hereby, are incorporated by reference, except where superseded by specific conditions in this license. The licensee must maintain the approved, updated, license application on site.

Whenever the word "will" or "shall" is used in the above referenced documents, it shall denote a requirement. The use of "the Wellfield" in this license is synonymous with the use of mine unit as defined in the approved license application. The use of "verification" in this license with respect to a document submitted for NRC staff review means a written acknowledgement by U.S. Nuclear Regulatory Commission (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: 2, 3]

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License Number SUA-1601

MATERIALS LICENSE
SUPPLEMENTARY SHEET

Docket or Reference Number
040-09091

Amendment No. 3

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9.3 All written notices and reports sent to the 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-8F5, 11545 Rockville Pike, 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: 1]

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:

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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); or

vii Result in a departure from the method of evaluation described in the license application (as updated) used by the NRC in establishing the final safety evaluation report (FSER), environmental impact statement (EIS), environmental assessment (EA), technical evaluation reports (TERs), or other analyses and evaluations for license amendments.

For purposes of this paragraph as applied to this license, SEMS important to safety means any

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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 NRC's previous conclusions, or the basis of, or analysis leading to, the conclusions of actions, designs, or design configurations analyzed and selected in the site or facility SER, TER, and EIS or EA. This would include 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., 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 meeting recommendations in paragraph 2.4 of regulatory Guide 8.31 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 page changes, 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 or 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.

9.5 Financial Assurance. The licensee shall maintain an NRC-approved financial surety arrangement, consistent with 10 CFR 40, Appendix A, Criterion 9, adequate to cover the estimated costs, if accomplished by a third party, for decommissioning and decontamination, which includes offsite disposal of radioactive solid process or evaporation pond residues, and ground water restoration. The surety shall also include the costs associated with all soil and water sampling analyses necessary to confirm the completion 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 of February 14th. The financial assurance update renewal date for the Ross Project will be determined following consultation with the licensee and the State of Wyoming. 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 one year. Along with each proposed revision or annual update of the financial assurance estimate,

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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, 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 staff 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 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 aboveground decommissioning and decontamination, the cost of offsite disposal of solid byproduct material, soil, and water sample analyses, and ground water 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 to NUREG-1569 entitled "Recommended Outline for Site-Specific In Situ Leach Facility Reclamation and Stabilization Cost Estimates."

The licensee shall continuously maintain an approved surety instrument for the Ross Project, in favor of the State of Wyoming in the amount of no less than $6,397,000, 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. The approved surety is for the operation of up to the first two header houses (Header House 1 & 2) as described in the September 30, 2015 submittal.

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[Applicable Amendment: 3]

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

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.

Personnel performing contamination surveys for items released for unrestricted use shall meet the qualifications as health physics technician or radiation safety officer as defined in Regulatory Guide 8.31 (as revised). Personal effects (e.g., notebooks and flash lights) which are hand carried need not be subjected to the qualified individual survey or evaluation, but these items should be subjected to the same survey requirements as the individual possessing the items.

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Regulatory Guide 8.30 (as revised), Table 2 shall apply to the removal to unrestricted areas, of equipment, materials, or packages that have potential accessible surface contamination levels above background radiation levels. The contamination control program shall provide sufficient detail to demonstrate how the licensee will maintain radiological controls over the equipment, materials, or packages that have the potential for accessible surface contamination levels above background, until they have been released for unrestricted use as specified in the Guidelines, and what methods will be used to limit the spread of contamination to unrestricted areas. The contamination control program shall demonstrate how the licensee will limit the spread of contamination when moving or transporting potentially contaminated equipment, materials, or packages (i.e. pumps, valves, piping, filters, etc.) from restricted areas through unrestricted areas. Prior to its implementation, the licensee shall receive written NRC verification of the licensee's contamination control program if recommendations in RG 8.30 are not followed.

The licensee may identify a qualified designee(s) to perform surveys, as needed, associated with the licensee's contamination control program when moving or transporting potentially contaminated equipment, materials, or packages from restricted or controlled areas through uncontrolled areas and back into controlled or restricted areas. The qualified designee(s) shall have completed education, training, and experience, in addition to general radiation worker training, as specified by the licensee. The education, training, and experience required by the licensee for qualified designees shall be submitted to the NRC for review and written verification. The licensee shall receive written verification of the licensee's qualified designee(s) training program prior to its implementation.

9.7 The licensee shall follow the guidance set forth in NRC Regulatory Guides 8.22, "Bioassay at Uranium Recovery Facilities" (as revised), 8.30, "Health Physics Surveys in Uranium Recovery Facilities" (as revised) and 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposure at Uranium Recovery Facilities will be As Low As Is Reasonably Achievable (ALARA)," (as revised) or NRC-approved equivalent with the following exception:

The licensee may identify qualified designee(s) to perform daily inspections in the occasional absence of the RSO and radiation safety technician(s) (RST). The qualified designee(s) will have health physics training, and the licensee will specify the training program to qualify a designee and submit it to the NRC staff for review and written verification. A qualified designee may perform daily inspections on weekends, holidays, or times when both the RSO and RST(s) must both be absent (e.g., illness or offsite training). A designee shall not perform daily inspections for more than two consecutive days except in the event of a Federal or company holiday, whereby the designee will not exceed more than three consecutive days. Reports generated by the designee will be reviewed by the RSO or RST as soon as practical, but no 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 RST available by telephone while the qualified designee 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.

9.8 Cultural Resources. Before engaging in any developmental activity not previously assessed by the NRC, the licensee shall administer a cultural resource inventory. All disturbances associated with

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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 to proceed from the NRC, Wyoming State Historic Preservation Officer or the Bureau of Land Management, as appropriate.

The licensee shall comply with the terms and conditions included in the Programmatic Agreement (PA) executed on April 24, 2014 (ADAMS Accession No. ML14111A346) that was developed to protect cultural resources within the Ross ISR project boundary. If the PA is terminated, the licensee shall comply with Stipulation L of the PA. Therefore, in the event the PA is terminated, the licensee is required to follow the terms and conditions provided in the PA for on-going ground-disturbing activities, and is not permitted to begin ground-disturbing activities in new areas, until the NRC completes consultation and a new PA or Memorandum of Agreement (MOA), as appropriate, is executed, or the NRC has requested, taken into account, and responded to the comments of the ACHP under 36 CFR § 800.7(c)(4).

9.9 The licensee shall dispose of solid byproduct material from the Ross Project at a site that is authorized by NRC or an NRC-Agreement State to receive such byproduct material. The licensee's approved solid byproduct material disposal agreement shall be maintained on site during any time the facility is in operation. 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; 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 or applicable NRC regulation, all documentation required by this license shall be maintained 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; carbon dioxide, sodium carbonate and/or sodium bicarbonate; and hydrogen peroxide and/or oxygen, as specified in Section 3.1.3.1 of the licensee's approved license application.

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10.2 Facility Throughput. The Ross Project processing facility throughput shall not exceed a maximum instantaneous flow rate of 7,500 gallons per minute, excluding restoration flow. The annual production of dried yellowcake shall not exceed 3 million pounds.

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 staff review and approval. The plan shall represent as-built conditions at the Ross Project.

10.4 The licensee shall develop and implement written standard operating procedures (SOPs) prior to operation for:

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

B) All routine non-operational activities involving radioactive materials including in-plant radiation protection and environmental monitoring; and

C) Emergency procedures for potential accident/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.

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. Should an activity be deemed 'non-routine', its procedures will be documented in a specific Radiation Work Permit for that non-routine activity.

10.5 Mechanical Integrity Tests. The licensee shall construct all wells in accordance with methods described in Section 3.1.2 of the approved license application. Mechanical integrity tests shall be performed on all wells (injection, extraction, and monitoring wells) before the well is utilized and on wells that have been serviced with equipment or procedures that could damage the well casing. Each well shall be retested at least once every five (5) years it is in use. Integrity tests shall be performed in accordance with Section 3.1.2.3 of the licensee's approved license application. Any failed well casing that cannot be repaired to pass the integrity test shall be appropriately plugged and abandoned in accordance with Addendum 2.6-E of the approved license application.

10.6 Ground water Restoration. The licensee shall conduct ground water restoration activities in accordance with Section 6.1.5 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 recovery 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 for approval an alternate schedule request to the NRC that meets the requirements of 10 CFR 40.42.

Restoration Standards. 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

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proposed alternate concentration limits (ACLs) pursuant to Criterion 5B(6), the licensee must also show that it has first made practicable effort to restore the specified hazardous constituents to the background or maximum contaminant levels (whichever is greater).

Restoration Stability Monitoring. The licensee shall conduct sampling of the parameters included in the baseline sampling under LC 11.3 during the restoration stability period in accordance with Section 6.1.2.5 of the approved application. The sampling consists of eight samples during a 12 month period. The sampling shall include the specified production zone aquifer wells used to define the baseline levels. The applicant shall continue the stability monitoring until the data show, for all parameters monitored, no statistically significant increasing trend, which would lead to an exceedence of the relevant standard in 10 CFR Part 40, Appendix A, Criterion 5B(5).

10.7 The licensee shall maintain a net inward hydraulic gradient at a wellfield as measured from the surrounding perimeter monitoring well ring starting when lixiviant is first injected into the production zone and continuing until initiation of the stabilization period.

10.8 The licensee is permitted to construct and operate lined retention pond(s) as described in Section 4.2.2 and Addendum 3.1-A of the approved license application subject to requirements of LC 10.11. The ponds will be used for retention of liquid byproduct material prior to disposal in a deep disposal well as described in Section 4.2.3 of the approved license 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 Inspection. 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 six (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 corrective actions are not completed within 60 days, the pond will not be used to store any byproduct material until the liner is inspected by qualified personnel as required by Subsection E (Annual Technical Inspection). The licensee will submit a report to NRC upon completion of the corrective actions including documentation of all pond repairs. Routine daily inspections reports will be maintained on-site for NRC staff to review during routine inspections.

B) Weekly Inspection. The licensee will conduct weekly inspections in accordance with Section 5.3.1.2 of the approved license application. The inspections will include visual inspection of the entire area including perimeter fencing. The inspection report will be reviewed by the RSO, Manager of Health, Safety and Environmental Affairs, and the Facility Manager. The weekly inspection reports will be maintained on-site for NRC staff to review during inspections.

C) Monthly Inspection. The licensee will conduct inspections monthly in accordance with Section

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5.3.2.2 of the approved license application or following a major storm event (precipitation greater than 1-inch of water during a 24-hour period) of the condition of structures associated with the diversion of the stream around the Central Processing Plant area in accordance with Section 5.3.4 of the approved license application. The reports will be maintained on-site for NRC staff to review during inspections.

D) Quarterly Inspection. The licensee will conduct quarterly inspections in accordance with Section 5.3.2.3 of the approved license application. Results of the quarterly inspections will be included in the semi-annual report submitted to NRC as required by LC 11.2. If ground-water quality in the monitoring wells indicates a release of fluids from the pond, then the licensee will immediately perform corrective actions 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 NRC for review.

E) 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. A copy of the report will be submitted to NRC for review.

10.9 The licensee shall establish and conduct an effluent and environmental monitoring program in accordance with programs described in Section 5.7.8.2 (Operational Monitoring-Surface Water and Operational Monitoring-Private Wells) and Section 5.7.7.1 (radon, air particulate, direct radiation, and soil) of the approved license application. The licensee will conduct a monitoring program in accordance with Section 5.7.8.2 (Operational Monitoring-CPP Area) unless those elements are included in the ground water detection monitoring program required by LC 10.20.

Facility Specific Conditions

10.10 The licensee shall submit to NRC staff for review and approval, plans for equipment and procedures prior to the use, storage, handling and transport of biological or chemical materials for reductant injections during restoration.

10.11 The licensee is prohibited from using Pond 2 for the retention of byproduct material until NRC review and verification that the field operations of the CPP dewatering system is consistent with its design as described in Technical Report Addendum 3.1-A of the approved license application and the October 14, 2013 supplemental data.

10.12 Prior to conducting tests for a wellfield data package, the licensee will attempt to locate and abandon all historic drill holes within: A) The perimeter well ring for the Wellfield; and B) To the extent the historic drill holes extend into the first underlying aquifer, the area that is downgradient of the Wellfield and is between the perimeter well ring for the Wellfield and the closer of either

i. The Ross Project license area boundaries shown in figure 1.4-2 of the approved license application; or

ii. The outer boundary of the exempted aquifer as defined by the Class III UIC permit issued by the Wyoming Department of Environmental Quality.

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The licensee will document such efforts to identify and properly abandon all drill holes in the wellfield data package.

[Applicable Amendment: 1]

10.13 Wellfield Package. Prior to conducting principal activities in a new wellfield, the licensee shall submit a hydrologic test data package (wellfield package) to the NRC. The initial wellfield package will be submitted for NRC staff review and verification. Each wellfield package shall be submitted at least 60 days prior to the planned start date of lixiviant injection. In each wellfield data package, the licensee will document that: (1) all perimeter monitoring wells are screened in the appropriate horizon in order to provide timely detection of an excursion; and (2), the baseline values to establish ground water protection standards and Upper Control Limits (UCLs) for the Wellfield in accordance with LC 11.3. The wellfield package will adequately define heterogeneities that may affect the chemical signature and ground-water flow paths within the ore zone as described in Sections 2.7.3.2.3, 3.1.1 and 5.7.8.1 of the approved license application.

10.14 Facility and Wellfield Inspection. Injection manifold pressures and flow rates shall be measured and recorded daily by the in-line computer system and/or Wellfield Operator. During wellfield operations, injection pressures shall not exceed the maximum operating pressure as specified in Section 3.1.4 of the approved license application. To the extent possible, the weekly inspections shall include visual inspections and document leaks or other abnormalities in the wellfield piping, wellheads, or module buildings in accordance with Section 5.3.3 of the approved license application. The licensee shall conduct the weekly in-plant inspection and audit programs described in Section 5.3.1 of the approved license application. In addition, as described in Section 5.7 of the approved license application and supplements, the RSO shall document that radiation control practices are being implemented appropriately. Requirements for inspections of the on-site retention ponds are listed in LC 10.8.

10.15 The licensee will use calibrated radiation instruments that can measure the full range of radiation exposure rates or dose rates for radiological parameters that are 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 instruments 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 percent confidence that measurements are in conformance with 10 CFR 20.1201, 20.1204, 20.1301, 20.1501, and 20.1502.

10.16 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 two years, 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).

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

10.18 The licensee shall ensure radiation safety training is consistent with Regulatory Guides 8.13, "Instruction Concerning Prenatal Radiation Exposure," (as revised) and 8.29, “Instruction Concerning

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Risks from Occupational Radiation Exposure," (as revised) in addition to the requirements in Section 2.5 of Regulatory Guide 8.31 (as revised), and as described in Section 5.5 of the approved application, or NRC-approved equivalent.

10.19 The licensee shall confine its operations to wellfields located north of Little Missouri River within the area delineated as “Mine Unit 1” on Figure 3.1-1 of the approved license application until use of the three industrial wells, designated as “19XX18”, “22x-19” and “789V” in the approved license application, as water supply sources for the oil field flooding operations have ceased or diminished to an acceptable level, which has been reviewed and verified by NRC staff. For wellfields south of the Little Missouri River, the licensee must demonstrate in the wellfield package that the proposed operations are outside of the area of influence of the industrial wells. The location of a wellfield or a portion of a wellfield shall not include any of the industrial wells if the well has not been properly abandoned. If the licensee’s principal activities are being conducted at a wellfield on the Ross Project and operations of the onsite industrial water supply wells have not been discontinued, the effluent monitoring program will include monthly sampling of water pumped from the industrial wells.

10.20 The licensee shall conduct a ground water detection monitoring program for the retention ponds that meets requirements of Criteria 5 and 7A of 10 CFR Part 40, Appendix A. The elements in this program will be documented in the licensee’s SOPs.

10.21 Emission Controls (Dryer). The licensee shall maintain effluent control systems as specified in Sections 3.3.1, 4.1, and 5.7.1 of the approved license application, with the following exception:

If any of the yellowcake emission control equipment fails to operate within specifications set forth in the SOPs, 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 NRC Region IV Office, as indicated in Criterion 8A, in writing, within ten days of the subsequent restart.

SECTION 11: Monitoring, Recording, and Bookkeeping Requirements

Standard Conditions

11.1 In addition to reports required to be submitted to NRC staff or maintained on-site by the applicable parts of 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 excursion indicator parameter concentrations, corrective actions taken, and the results obtained for all wells that were on excursion status during that quarter. This report shall be submitted to NRC within 60 days following completion of the reporting period.

B) A quarterly report summarizing daily flow rates and pressures for each injection manifold within the operating system. This report shall be made available for inspection upon request.

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C) A semi-annual report that discusses: status of wellfields (or wellfield modules if appropriate) in operation (including last date of lixiviant injection), progress of wellfields (wellfield modules) in restoration, status of any long term excursions and a summary of the mechanical integrity tests (MITs) during the reporting period. This report shall be submitted to NRC within 60 days following completion of the reporting period.

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. For this program, the nearby water supply wells are those within 2 km of the perimeter ring monitoring wells for all wellfields undergoing recovery operations or restoration. This report shall be submitted to NRC within 60 days following completion of the reporting period.

E) An annual report pursuant to LC 9.4(E).

F) An annual report that summarizes modifications to the inventory of nearby water supply wells and land-use survey within 2 km of any production area. This report shall be submitted to NRC within 90 days following completion of the reporting period.

11.2 The licensee shall submit the results of at least an annual review of the radiation protection program performed in accordance with 10 CFR 20.1101(c). This review shall include the content and implementation of the radiation protection program. Results shall include an analysis of dose to individual members of the public consistent with 10 CFR 20.1301 and 10 CFR 20.1302. This report shall be submitted to NRC within 90 days following completion of the reporting period.

11.3 Establishment of Background Water Quality. Prior to injection of lixiviant in a wellfield, the licensee shall establish background water quality data for the ore zone, overlying and underlying aquifers. The background water quality sampling shall provide representative baseline data and establish ground water protection standards and excursion monitoring upper control limits, as described in Section 5.7.8 of the approved license application and this license condition.

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

A) Ore Zone. To establish a Commission-approved background concentration pursuant to Criterion 5B(5)(a) of 10 CFR Part 40 Appendix A, samples shall be collected from production and injection wells at a minimum density of one production or injection well per two acres of wellfield production area, or, if a wellfield production area is sufficiently isolated from the other wellfield production areas in the Wellfield, a minimum of two wells. Wells selected for the baseline data will be the same ones used to measure restoration success and stabilization.

B) Perimeter Monitoring Wells. Samples shall be collected from all perimeter monitoring wells that will be used for the excursion monitoring program. The perimeter wells will be installed for a wellfield in accordance with information presented in Section 3.1.6 of the approved license application. In no case will the perimeter monitoring wells be installed outside of the exempted aquifer as defined by the Class III UIC permit issued by the Wyoming Department of Environmental Quality.

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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 wellfield.

D) Sampling and Analyses. Four samples shall be collected from each well to establish background levels. The sampling events shall be at least 14 days apart. The samples shall be analyzed for parameters listed in Table 5.7-2 of the approved license application, as revised by the May 27, 2015 submittal (ML15149A023). The third and fourth sample events can be analyzed for a reduced list of parameters; the parameters that can be deleted from analysis are those 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 ring monitoring wells (Section B) and monitoring wells in the overlying and underlying aquifers (Section C), the background levels shall be the mean values on a parameter-by-parameter, well-by-well, wellfield or sub-set of the wellfield basis, as deemed appropriate, in accordance with Section 5.7.8.1 of the approved license application. The UCLs for monitoring wells in the perimeter ring and overlying and underlying aquifers are established per LC 11.4. For the ore zone monitoring wells, the background levels shall be established on a parameter-by-parameter basis using either the wellfield, sub-set of the wellfield or well-specific mean value. The established background value for each parameter shall be based on the mean value plus a statistically valid factor to account for spatial variability in the data, in accordance with Section 6.1.1.1 of the approved license application.

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11.4 Establishment of UCLs. Prior to injection of lixiviant into a wellfield, 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. The default excursion parameters for wells in the ore zone and overlying aquifer are chloride, conductivity, and total alkalinity. The default excursion parameters for wells in the underlying aquifer are sulfate, conductivity, and total alkalinity. The UCLs shall be established for each excursion control parameter and for each well, wellfield or subset of the wellfield, as appropriate, based on the mean plus five standard deviations of data collected for LC 11.3. The UCL for chloride can be set at the background mean concentration plus either five standard deviations or 15 mg/l, whichever is higher.

11.5 Excursion Monitoring. Monitoring for the excursion monitoring program shall be conducted twice monthly (semi-monthly) and at least 10 days apart for wells installed under LC 11.3 (B and C). If, at 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 analysis 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 results of the first verification sampling are received. If the third sample shows that the excursion criterion is exceeded, the well shall be placed on excursion status. If the third sample does not show that the excursion criterion is exceeded, the first sample shall be

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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 stated 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 seven 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 defining the excursion status are at or below the UCLs defined in LC 11.4 for three consecutive weekly samples.

For wellfields located in an area in which the uppermost aquifer, the "SA Aquifer", is comprised of saturated unconsolidated alluvium, the licensee will include monitoring wells in the SA Aquifer in that area of the wellfield as part of the excursion monitoring program as described above. The wellfield data package must include sufficient justification on the locations, baseline sampling if the frequency is less than quarterly and operational sampling if the frequency is less than semi-monthly for wells in the uppermost aquifer. The justification must demonstrate that the wells provide early detection of a release (including a surficial release).

If a vertical excursion is detected during operations, then injection of lixiviant into the production area surrounding the monitoring well will cease until the licensee demonstrates to the satisfaction of NRC that the vertical excursion is not attributed to leakage through any abandoned drill hole.

If an excursion is not corrected within 60 days of the initial confirmation, the licensee shall either: (a) terminate injection of lixiviant within the wellfield, or a portion of the wellfield provided the licensee demonstrates to NRC that only a portion of the wellfield is within the area of influence for the excursion) until the excursion is corrected; or (b) increase the financial surety in an amount to cover the full third-party cost for correcting and cleaning up impacts that may be attributed to the excursion. The surety increase shall remain in force until the NRC has verified that the excursion has been corrected and appropriate remedial actions have been undertaken. The written 60-day excursion report shall identify which course of action the licensee is taking if the excursion has not been corrected. Under no circumstances does this condition eliminate the requirement that the licensee remediate the excursion to meet ground water protection standards as required by 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 this license condition and LC 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 status 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 spills of source or byproduct materials (including process solutions) and process chemicals. Documented information shall include, but not be limited to: 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.

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

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

SECTION 12.0: Preoperational Conditions

Standard Conditions

12.1 Prior to commencement of operations, the licensee shall obtain all necessary permits, licenses and approvals from the appropriate regulatory authorities. The licensee shall submit a copy of the permits it has obtained from other regulatory agencies for any effluent or waste disposal that includes treated or non-treated byproduct material, as well as documents clearly delineating the approved aquifer exemption areas and boundaries for the Class III UIC wells to the NRC.

12.2 Prior to commencement of operations, the licensee shall coordinate critical emergency response requirements with local authorities, fire department, medical facilities, and other emergency services. The licensee shall document these coordination activities and maintain such documentation on-site.

12.3 Prior to commencement of operations, the licensee shall identify the location, screen depth, and estimated pumping rate of any new water supply well or new use for an existing well within 2 km of a proposed wellfield area, as measured from the perimeter monitoring well ring, since the application was submitted to the NRC. The licensee shall evaluate the impact of ISR operations and recommend any additional monitoring or other measures to protect ground-water users. The evaluation shall be submitted to the NRC staff for review and verification at least 30 days prior to the expected commencement of operations.

12.4 Prior to commencement of operations, the licensee shall submit the qualifications of radiation safety staff members, including the qualifications and responsibilities of a designee, and the policy on the work situations for a declared pregnant worker, for NRC review and verification.

12.5 Prior to commencement of operations, the licensee shall submit a copy of the solid byproduct material disposal agreement to the NRC.

12.6 The licensee shall not commence operations until the NRC performs a preoperational inspection to confirm, in part, that operating procedures and approved radiation safety and environmental monitoring programs are in place, and that preoperational testing is complete.

The licensee should inform the NRC, at least 90 days prior to the expected commencement of

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operations, to allow for sufficient time for NRC to plan and perform the preoperational inspection.

Facility Specific Conditions

12.7 No later than 30 days before the preoperational inspection, the licensee shall provide to the NRC staff, for review and written verification, written procedures for its airborne effluent and environmental monitoring program that:

A) Discuss how, in accordance with 10 CFR 40.65, the quantity of the principal radionuclides from all point and diffuse sources will be accounted for, and verified by, surveys and/or monitoring.

B) Discuss and identify how radon (radon-222) progeny will be factored into analyzing potential public dose from operations consistent with 10 CFR Part 20, Appendix B, Table 2.

C) Discuss how, in accordance with 10 CFR 20.1501, the occupational dose (gaseous and particulate) received throughout the entire License Area from licensed operations will be accounted for, and verified by, surveys and/or monitoring.

12.8 Prior to the preoperational inspection, the licensee shall develop a survey program that will meet the requirements of 10 CFR Part 20, Subpart F to detect beta-gamma contamination on personnel exiting restricted areas and to detect beta-gamma contamination in unrestricted and restricted areas. The licensee shall provide, for NRC staff review and approval, the surface contamination detection capability (scan MDC) of the radiation survey meters used in surveys for releasing equipment and materials to unrestricted use or personnel contamination. In the scanning mode, the detection capability for any expected alpha and beta radiation shall be provided in terms of dpm per 100 cm^2.

12.9 Prior to the preoperational inspection, the licensee shall submit to the NRC staff, for review and verification, procedures by which it will ensure that unmonitored employees will not exceed 10 percent of the dose limits in 10 CFR Part 20, Subpart C.

12.10 At least 60 days prior to the preoperational inspection, the licensee will submit a completed Quality Assurance Plan (QAP) for NRC staff review and verification. The QAP will include the requirements in 10 CFR 20.1703(c)(4)(vii), and be consistent with guidance for a Quality Assurance Project Plan in Regulatory Guide 4.15 (as revised). The portion of the QAP fulfilling requirements of 10 CFR 20.1703(c)(4)(vii) may be included as a section or attachment in the applicable SOP(s).

12.11 Prior to the preoperational inspection, the licensee will provide to the NRC written SOPs required for LC 10.4, which will include information to meet the following specific-site conditions:

A) Development and sampling of low-yielding monitoring wells.

B) Inspection procedures for the CPP dewatering system.

C) A CPP effluent and environmental monitoring program (if not incorporated into the ground water detection monitoring program required by LC 10.20).

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D) An emergency response program that includes hazard assessment of all chemicals used at the facility including an accident analysis for those chemicals.

E) Transportation of licensed material outside of the License area.

12.12 Prior to construction of the retention ponds, the licensee shall submit, for NRC review and verification, a ground water detection monitoring program plan for the retention ponds that meets requirements of Criteria 5 and 7A of 10 CFR Part 40, Appendix A. The plan will include specificity of elements discussed in Section 5.7.8.2 (Operational Monitoring-CPP Area) of the approved license application (e.g., monitoring dewatering effluent quality and water level, and water quality monitoring of monitoring wells along the containment barrier wall).

12.13 At least 90 days prior to the preoperational inspection, the licensee shall submit its analysis of the meteorological data collected to demonstrate long-term meteorological conditions at the Ross ISR Project. The licensee shall continue to collect meteorological data on a continuous basis at a data recovery rate of at least 90 percent and may not commence operations until the data collected are verified in writing by NRC headquarters staff to be representative of long-term meteorological conditions at the Ross ISR Project. The data collected on-site shall include, at a minimum, wind speed, wind direction, an annual wind rose and a summary of the stability classification.

To support the verification by NRC headquarters staff, the licensee must submit to the NRC a written justification of the similarity or validity of the data. This justification must include an analysis of the statistical data presented to illustrate confidence in the representativeness of the data.

FOR THE NUCLEAR REGULATORY COMMISSION

Dated: _____

Andrew Persinko, Deputy Director
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

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