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. Uranerz Energy Corporation	3. License Number SUA-1597
2. 1701 East "E" Street, P.O. Box 50850 Casper, WY 82605	4. Expiration Date 5. Docket No. 40-9067 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	Any Unspecified	a. Unlimited b. Quantity generated under operations authorized by this license

SECTION 9: Administrative Conditions

Standard Conditions

9.1 The authorized place of use shall be the licensee's Nichols Ranch in situ recovery (ISR) Project in Johnson and Campbell Counties, Wyoming. The licensee shall conduct operations within the license area boundaries shown in Figures 1-2 and 1-3 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 November 30, 2007, as amended by submissions dated August 21, 2008, March 11, 2009, February 24, 2010, September 15, 2010, and September 22, 2010, which are hereby incorporated by reference, except where superseded by specific conditions in this license. The licensee's approved license application must be maintained on site.

Whenever the word "will" or "shall" is used in the above referenced documents, it shall denote a requirement.

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, Director, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. An additional copy shall be submitted to: Deputy Director, Decommissioning and Uranium Recovery Licensing Directorate, Division of Waste Management and Environmental Protection, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Mail Stop T-8F5, 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).

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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 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 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 means any SEMS which 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, 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 TERs, EAs, 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, with the

DRAFT

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 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 Part 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 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 (e.g., renewal date of the financial assurance instrument/vehicle). The financial assurance update renewal date for Nichols Ranch ISR 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 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 planned expansion or operational change that was not included in the annual financial assurance update, the licensee shall provide, for NRC's 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

DRAFT

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, "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 an approved surety instrument for the Nichols Ranch ISR Project, in favor of the State of Wyoming. The initial surety estimate shall be submitted for NRC review and approval within 90 days of license issuance, and the surety instrument shall be submitted for NRC review and approval 90 days prior to commencing operations.

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, or suitable alternative procedures approved by the 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.

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.

Any proposed exceptions to the guidance are subject to review and written verification by the NRC that the proposed exception does 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 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 (NHPA) (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

DRAFT

the Memorandum of Agreement regarding the Nichols Ranch ISR Project dated July 8, 2011.

9.9 The licensee shall dispose of solid byproduct material from the Nichols Ranch ISR 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 on site. In the event that the agreement expires or is terminated, the licensee shall notify the NRC within 7 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 gas, sodium carbonate, sodium bicarbonate, dissolved oxygen, or hydrogen peroxide as specified in the licensee's approved license application. For the Hank Unit, hydrogen peroxide will not be used.

10.2 Facility Throughput. The Nichols Unit plant throughput shall not exceed a daily averaged flow rate of 3,500 gallons per minute, excluding restoration flow. Annual dried yellowcake production shall not exceed 2.0 million pounds. The Hank Unit satellite plant shall not exceed a daily averaged flow rate of 2,500 gallons per minute, excluding restoration flow.

10.3 Emission controls (dryer). The licensee shall maintain effluent control systems as specified in Section 4.1 of the licensee's approved license application.

10.4 The licensee shall develop and implement written standard operating procedures (SOPs) prior to operation for: (1) all operational activities involving radioactive and nonradioactive materials associated with licensed activities that are handled, processed, stored, or transported by employees; (2) all nonoperational activities involving radioactive materials including in-plant radiation protection and environmental monitoring; and (3) 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. 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

DRAFT

facility where they are utilized.

The licensee shall also develop and implement SOPs prior to operation for the following:

A. Maintenance of surveys and monitoring records in accordance with 10 CFR Part 20, Subpart L, to demonstrate compliance with 10 CFR Part 20 requirements.

B. Internal exposure calculation methods and applicable equations for determining the dose (committed effective dose equivalent (CEDE)) from airborne sampling and bioassay data. This methodology will be in accordance with 10 CFR 20.1201, 10 CFR 20.1204, and Regulatory Guides 8.30, (as revised), 8.34, "Monitoring Criteria and Methods To Calculate Occupational Radiation Doses," (as revised), and 8.36, "Radiation Dose to the Embryo/Fetus," (as revised).

C. Conduct of its bioassay program and the determination of internal dose (e.g. CEDE) from bioassay data 60 days prior to commencing operations. The licensee will provide a plan or operating procedures to limit the soluble intake to 10 mg per week for uranium.

D. Procedures for emergencies identified in Section 7.0 of the licensee's approved application.

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 Section 3.4.6 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, each well shall be retested at least once every 5 years. MITs shall be performed in accordance with Section 3.4.6 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 6.1.5 of the approved license application.

10.6 Ground Water Restoration. The licensee shall conduct ground water restoration activities in accordance with 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 5(B)(5). In submitting any license amendment application requesting review and license amendment approval of proposed alternate concentration limits (ACLs) pursuant to Criterion 5(B)(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).

Changes to ground water restoration or postrestoration monitoring plans shall be submitted to the

DRAFT

NRC for review and written verification by the NRC that the proposed changes do not require a license amendment at least 60 days prior to commencement of ground water restoration in a production area.

Facility Specific Conditions

10.7 Hank Unit Hydrologic Test

A. Prior to lixiviant injection at the Hank Unit, the licensee will conduct a hydrologic test. The hydrologic test must be scaled and designed to simulate proposed injection and extraction operational conditions at the Hank Unit to demonstrate that an inward hydraulic gradient can be maintained that prevents excursions beyond the perimeter production zone monitoring well ring. The licensee will report the results of the hydrologic test to the NRC for review and approval prior to lixiviant injection into the production area.

B. The licensee will update or confirm the restoration schedule for Hank Unit Production Area (PA) #1 and #2 at the completion of the hydrologic test in the Hank Unit as required by this license. The licensee will provide a basis to the NRC for review and approval for any alternate schedule request that meets the requirements of 10 CFR 40.42.

10.8 Production Area Pump Test Document

The licensee will provide the Production Area Pump Test (PAPT) document for the first production areas at the Nichols Ranch and Hank Units for NRC review and approval prior to lixiviant injection into the production area. The licensee will provide PAPT documents for each additional production area for NRC review. The PAPT document will provide all background ground water data, restoration target values, upper control limits at each monitoring well, as well as the information outlined in Section 5.7.8.4 of the license application.

10.9 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 the restoration target values (RTVs) have been reached.

The licensee will install “trend” monitoring wells on the upgradient (eastern) side of Hank Units PA #1 and PA #2 approximately every 500 feet apart and approximately 300 feet from the injection wells. The licensee will collect water level measurements twice monthly and at least 10 days apart from the trend wells and monthly water level measurements from the production zone monitoring well ring. If water level measurements indicate that an outward gradient exists, the licensee will inform the NRC within 7 days and adjust operations until the outward gradient is eliminated.

10.10 The licensee will update or confirm the restoration schedule for the Nichols Ranch Unit PA #2 and provide a basis to the NRC for review and approval for any alternate schedule request that meets the requirements of 10 CFR 40.42.

10.11 All liquid effluents from process buildings and other process waste streams, with the exception of sanitary wastes, shall be returned to the process circuit or disposed of as allowed by NRC regulations. Additionally, the licensee is authorized to dispose of process solutions, injection bleed, and restoration brine using deep well injection, as permitted by WDEQ and described in the approved license application.

DRAFT

The licensee will obtain the necessary permits and construct a minimum of two Class I Underground Injection Control (UIC) deep disposal wells prior to the commencement of operations of the Nichols Ranch ISR Project. The licensee shall ensure the deep disposal wells shall have enough capacity to handle the disposal of the total liquid effluent generation as stated in Section 3.2.6 of the license application. The licensee will ensure adequate deep well disposal capacity exists at each unit to dispose of liquids from each unit under normal operating conditions during production, production and restoration, and restoration phases as stated in Section 3.2.6 of the license application.

The licensee will notify the NRC within 24 hours if a disposal well is shut down and becomes inoperable, with the exception of routine maintenance or required testing that is completed within 48 hours of shutdown. If necessary, the licensee will use additional deep well capacity, surge tanks or cease injection activities until the disposal well is restored to use as written in Section 3.2.6 of the application. The licensee will notify the NRC when the disposal well is placed back into service and report any repairs or service completed on the well that is not associated with routine maintenance.

The licensee shall maintain a record of the volumes of solution disposed in each disposal well and submit this information in the annual monitoring report.

10.12 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 Nichols Ranch ISR Project.

10.13 Any areas with exposure rates that exceed 2 millirem in any 1 hour must be immediately treated as either a controlled area or restricted area in accordance with 10 CFR Part 20.

10.14 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, 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).

The licensee shall determine if surface contamination limits are warranted for Th-230, Ra-226, Po-210, and Pb-210 identified in airborne sample analyses. Within 1 year of commencement of operations, the licensee shall provide for NRC review and written verification a technical basis for surface contamination limits for the applicable radionuclides of concern.

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

DRAFT

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. A quarterly report summarizing daily flow rates for each injection and production well and 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 for 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 required to be met in 10 CFR Part 40, Appendix A, Criterion 5B(5) for the ore zone aquifer and surrounding aquifers. Water quality sampling shall provide representative background ground water quality data and restoration criteria as described in Section 5.7.8.5 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 ore zone monitoring production (MP) wells at a minimum density of one MP well per 4 acres of production area. These samples shall be analyzed for the parameters listed in Table D6-6a of the licensee's approved application. Samples shall also be collected from all ore zone perimeter monitoring wells.

B. 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. The samples shall be analyzed for those parameters listed in Table D6-6a of the approved license application.

C. Surficial Aquifer. One surficial well shall be located and sampled in each production area. The samples shall be analyzed for those parameters listed in Table D6-6a of the approved license application.

DRAFT

D. Sampling and Analysis. Four samples shall be collected from each well to establish background levels. Consecutive sampling events shall be at least 14 days apart. The third and fourth sample events can be analyzed for a reduced list of parameters. The parameters that can be deleted from the third and fourth sampling events are those that are below the minimum analytical detection limits during the first and second sampling events.

E. Ground water RTVs for the ore zone aquifer shall be established on a parameter-by-parameter basis using either a production area or well-specific basis for all constituents.

11.4 Establishment of Upper Control Limits (UCLs). Prior to injection of lixiviant into a production area, the licensee shall establish UCLs in designated overlying and underlying aquifer and perimeter monitoring wells. The UCLs for the indicator parameters: chloride, conductivity, and total alkalinity shall be established by analyzing background monitoring data collected to satisfy LC 11.3. The concentrations of these UCLs shall be established for each production area by calculating the background mean concentration and adding five standard deviations. The UCL for chloride can be set at the background mean concentration and adding either five standard deviations or 15 mg/L, whichever is higher.

11.5 Excursion Monitoring. Monitoring for excursions shall occur twice monthly and at least 10 days apart for all wells with a UCL. An excursion shall have occurred if, in any monitor well, any two UCL parameters exceed their respective UCLs. A verification sample shall be taken within 48 hours after results of the first analyses are received. If the second sample shows that the excursion criterion is exceeded, an excursion shall be confirmed. If the second sample does not show that the excursion criterion is exceeded, a third sample shall be taken within 48 hours after the second set of sampling data was acquired. If the third sample shows that the excursion criterion is exceeded, an excursion shall be confirmed. If the third sample does not show that the excursion criterion is exceeded, the first sample shall be considered to be an error and the well is removed from excursion status.

Upon confirmation of an excursion, the licensee shall notify the NRC, as discussed below, implement corrective action, and increase the sampling frequency for the indicator parameters at the excursion well to once every 7 days. Corrective actions for confirmed excursions may be, but are not limited to, those described in Section 5.7.8.10.3 of the approved license application. An excursion is considered corrected when the concentrations of the indicator parameters are below the concentration levels defining an 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 production area until the 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 10.6 for all constituents established per LC 11.3.

The licensee shall notify the NRC Project Manager by telephone or e-mail 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. A written report describing the excursion event, corrective actions taken, and

DRAFT

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: date, spill volume, total activity of each radionuclide released, radiological survey results, soil sample results (if taken), corrective actions, results of postremediation 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 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 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 agency, a report shall be made to the NRC Headquarters Project Manager 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, as per LC 9.3, detailing the conditions leading to the spill or incident/event, corrective actions taken, and results achieved.

11.7 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 of any production area. The licensee shall evaluate the impact of ISR operations on potential ground water users and recommend any additional monitoring or other measures to protect ground water users. The evaluation shall be submitted as part of the annual reporting to the NRC for review.

After the commencement of uranium recovery operations, the licensee will sample all domestic and livestock wells that are located within 1 kilometer of the production area monitoring ring wells (MR-wells) of the Nichols Ranch and Hank Units. Samples shall be collected annually and submitted as part of annual reporting to the NRC until ground water restoration is approved at the production area. Samples shall be analyzed for the UCL parameters in Section 5.7.8.9 of the approved license application and for natural uranium and radium-226.

Facility Specific Conditions

11.8 The licensee will notify the NRC within 24 hours if “gas locking”, as discussed the approved license application has occurred in the “F sand” at the Hank Unit during operations. The licensee will submit a report within 30 days to the NRC documenting corrective actions taken to ensure that operation of the production zone is proceeding as provided in the application.

11.9 Radiological monitoring will be conducted for airborne particulate radioactivity and radon-222 at appropriate environmental monitoring locations in accordance with the criteria in Regulatory Guide 4.14 (as revised) during operations to demonstrate compliance with 10 CFR 20.1301, 10 CFR 20.1501 and 10 CFR Part 40, Appendix A, Criterion 7.

DRAFT

Consistent with Regulatory Guide 4.14 (as revised), the licensee shall establish air particulate sampling stations in the three sectors with the highest predicted radioactivity concentrations resultant from operations and co-locate radon air samplers and direct radiation and soil sampling with the air particulate sampling stations.

SECTION 12.0: Preoperational Conditions

Standard Conditions

12.1 Prior to commencement of operations in any production area, the licensee shall obtain all necessary permits and licenses from the appropriate regulatory authorities. The licensee shall also submit a copy of all permits for its Class I and Class III underground injection wells.

12.2 Prior to commencement of operations, the licensee shall coordinate 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 The licensee shall not commence operations until the NRC performs a preoperational inspection to confirm, in part, that written 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 operations to allow the NRC sufficient time to plan and perform the preoperational inspection.

12.4 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 of any proposed production area since the application was submitted to the NRC. 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.

12.5 Prior to commencement of operations, the licensee shall submit the qualifications of radiation safety staff members for NRC review.

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

Facility Specific Conditions

Prior to the commencement of operations, the license shall be amended to address the following items in LC 12.7 to LC 12.14.

12.7 The licensee shall install a meteorological station within the license area and collect meteorological data for a period of 1 year at a data recovery rate of 90 percent prior to commencement of operations. The collection of meteorological data will continue until data are determined to be representative of long term conditions at the Nichols Ranch ISR Project. The data collected shall include, at a minimum, temperature, windspeed, and wind direction. Data submitted shall include

DRAFT

an annual wind rose and a summary of the stability classification.

12.8 Prior to the preoperational inspection, the licensee shall provide the following information for the airborne effluent and environmental monitoring program in which it shall develop written procedures to:

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. Evaluate the member(s) of the public likely to receive the highest exposures from licensed operations consistent with 10 CFR 20.1302.

C. 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.

D. 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.

12.9 Prior to the preoperational inspection, the licensee shall develop a survey program for beta/gamma contamination for personnel contamination from restricted areas, and beta/gamma contamination in unrestricted and restricted areas that will meet the requirements of 10 CFR Part 20, Subpart F.

12.10 Prior to the preoperational inspection, the licensee will submit monitoring results to the NRC for review that include sampling of domestic and livestock wells that are located within 2 kilometers of the proposed production area monitoring ring wells (MR-wells) of the Nichols Ranch and Hank Units. Samples shall be collected, at a minimum, semiannually. Samples shall be analyzed for the UCL parameters in Section 5.7.8.9 of the approved license application and for natural uranium and radium-226.

12.11 Lists of Instruments. At least 30 days prior to the preoperational inspection, the licensee shall provide the following:

A. A list of radiation measurement instrumentation that will be used to measure or quantify the radioactivity on air sampling media. The list will provide the manufacturer, model number and/or a description of the instrument, range, instrument sensitivity (LLD), and its planned use to measure radioactivity.

B. A list of radiation survey instrumentation available for radiation contamination surveys. The licensee will also provide adequate information to show the capability of each instrument such as the type of instrument, range, sensitivity (lowest range limits), and planned use.

12.12 Prior to the preoperational inspection, the applicant will provide a survey plan for postreclamation and decommissioning verification surveys that demonstrates that residual radioactivity in soil meets the criteria in 10 CFR Part 40, Appendix A, Criterion 6(6). The applicable cleanup criteria will be identified for radium-226 and soil cleanup criteria will be developed for natural uranium using the

DRAFT

radium benchmark dose approach. Applicable criteria for thorium-230 will also be addressed in the plan.

12.13 At least 30 days prior to the preoperational inspection, the licensee will submit a Quality Assurance Program (QAP) to the NRC for review to verify the license application statement that the QAP will be consistent with Regulatory Guide 4.15.

12.14 Prior to the preoperational inspection, the licensee shall develop written procedures to control production fluids and maintain inward hydraulic gradient as required in LC 10.9 if a disposal well becomes inoperable as discussed in LC 10.11.

FOR THE NUCLEAR REGULATORY COMMISSION

Dated: _____

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Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

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