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1.0 INTRODUCTION

Lost Creek ISR, LLC (LC ISR, LLC) is submitting this Environmental Report (ER) to the United States (US) Nuclear Regulatory Commission (NRC) in support of a source and byproduct material license to operate the Lost Creek Project (Project) in accordance with the Atomic Energy Act of 1954, as amended, 10 Code of Federal Regulations (CFR) Parts 20, 40, 51, and 70, and other applicable laws, regulations and NRC guidelines. Issuance of this license would authorize LC ISR, LLC to conduct in situ recovery (ISR) uranium mining in Sweetwater County, Wyoming.

Per the National Environmental Protection Act (NEPA) of 1969, federal agencies are obligated to evaluate the effects of major federal actions on the health and safety of the public and assess impacts to the environment. NRC and the Bureau of Land Management (BLM) are the federal agencies with jurisdiction over the Project and the Lost Creek Permit Area (Permit Area), respectively. NRC has jurisdiction under 10 CFR Part 51, Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions. NRC is required to perform an environmental evaluation of the proposed licensing actions. As the land manager, the BLM has jurisdiction over leases related to the use of the Permit Area. After consultations with both federal agencies, it was agreed that NRC will take the lead on implementing the NEPA process for the Project. Consequently, NRC will prepare an Environmental Impact Statement (EIS) related to the Lost Creek Project. LC ISR, LLC has held regular pre-licensing meetings with NRC and BLM to discuss baseline survey work plans, proposed hydrogeological programs, permitting schedules and application preparation. NRC and BLM staff members were also invited to the Project site during the baseline surveys. NRC issued a Docket Number (40-9068) and a Technical Assignment Control (TAC) Number (LU0142) for the Project in September 8, 2006.

This ER is organized in accordance with the guidance contained in NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with Nuclear Material Safety and Safeguards (NMSS) Programs, dated August 2003. **Section 1** provides an introduction of the Project, discusses why LC ISR, LLC is requesting a license to operate a uranium ISR facility, and presents a detailed Project description. **Section 2** discusses the proposed action versus alternatives, including the no-action alternative and alternatives considered but eliminated. **Section 3** describes the existing environmental conditions in the Permit Area; and **Section 4** discusses how those conditions could be impacted, if at all, by the proposed action, and the mitigation and monitoring measures that will be implemented during the Project. **Section 5** presents the Cost-Benefit Analysis. **Section 6** provides the summary of the environmental

consequences from the Project. **Sections 7** and **8** contain a list of references and preparers, respectively.

1.1 Purpose and Need for the Proposed Action

The Lost Creek Project will contribute to the advancement of the energy security goal of maintaining a reliable, economical, and domestic source of uranium. Exploratory drilling and testing have provided the delineation of the uranium ore trend and a reliable estimate on the uranium reserve, ore grade and percent recovery.

The Project will support energy-independent and environment-friendly policies. The uranium production will assist to supply a viable domestic uranium recovery industry by applying new technologies that minimize environmental disturbance and potential adverse effects to public health and safety. This Project will also help to offset the deficit in annual domestic uranium production and help to meet increasing energy demands. Between 1989 and 2003, annual domestic uranium production decreased by 75 percent. The United States produces about two percent of world uranium production, while consuming over 25 percent of that production. As of 2006, the world produced just over 50 percent of the annual consumption of U_3O_8. The gap between demand and supply has been filled by stockpiles and uranium from non-traditional sources (e.g., dilution of weapon-grade uranium). There are concerns about the long-term availability of uranium from non-traditional sources. The Project, once in full scale production, will add 1,000,000 pounds of U_3O_8 per year to the market. With appropriate regulatory approval, the processing facilities could also process ore from other ISR sites in the region even after the ore recovery is complete in the Permit Area.

Mining and other industrial activities have potential impacts. However, ISR operations will minimize surface and underground disturbance and significantly reduce potential adverse impacts to workers and the general public.

Nuclear energy production is an important strategy for curbing global climate change over the long-run. Unlike coal-fired power plants, nuclear power plants produce virtually no greenhouse gas emissions.

1.2 Proposed Action

LC ISR, LLC is applying for a source and byproduct material license for the Project in order to facilitate the production of U_3O_8 “yellowcake” slurry from the Permit Area.

1.2.1 Overview

The Permit Area is located in the northeast portion of Sweetwater County, south central Wyoming. **Figure 1.2-1** shows the regional location of the Permit Area and the general geographic features of the region. The approximate 4,220-acre Permit Area is remotely located on public land administered by the BLM and the State of Wyoming. The Permit Area is within Township 25 North and Ranges 92 and 93 West of the Sixth Principal Meridian and approximately centered at 42 degrees, eight minutes North latitude and 107 degrees, 51 minutes West longitude. Rawlins is 38 miles southeast; Rock Springs is 80 miles southwest; Casper is 90 miles northeast; and Jeffrey City is 25 miles north. The nearest population center, located 15 miles northeast of the Permit Area, is Bairoil, a small town with less than 100 people.

The Permit Area is characterized by low-relief, sagebrush-dominated plains, dissected by small, ephemeral drainages. Due to little variation in topography, severe winter conditions, and less than ten inches of annual precipitation, the ecological diversity in the Permit Area is limited.

The discovery of uranium deposits in the Permit Area and consequential exploratory drilling and studies have occurred over the course of four decades.

In 1968, American Metals Climax Inc. acquired the property and discovered low-grade mineralization. Exploration drilling, carried out by Texasgulf, Inc. (Texasgulf) from 1976 through 1982, identified the main mineral trend.

In 1969, Conoco Inc. (Conoco) acquired the adjacent property to the east and conducted a major exploratory drilling program, including the installation of groundwater monitor wells. In 1978, Texasgulf optioned a 50 percent interest in Conoco's property and continued the exploratory drilling of the main mineral trend at Lost Creek to the east. In 1981, Texasgulf carried out laboratory column leach testing of core samples with carbonate lixiviant which resulted in extraction in excess of 89 percent. In 1982, Texasgulf conducted pump tests on the mineralized sandstones at Lost Creek. The hydrological characteristics of the mineralized sandstones indicated that uranium extraction could be conducted with ISR methods (Poole, 1984). In 1983, Texasgulf and Conoco discontinued their exploration activities and studies due to economic reasons.

In 1986, the Japanese-owned, PNC Exploration, USA acquired the lode claims in the Lost Creek area and carried out additional delineation drilling, geologic and resource studies of the deposit through 1992 (Fruchey and Groth, 2004). New Frontiers Uranium, LLC, purchased the property from PNC Exploration, USA in 2000. New Frontiers

Uranium, LLC subsequently transferred the Lost Creek property along with its other Wyoming properties into NFU Wyoming, LLC (NFU).

From June 2005 through June 2007, Ur-Energy USA, Inc. (Ur-E), a Colorado corporation, purchased 100 percent ownership of NFU. During that time, NFU conducted engineering feasibility studies, core drilling for metallurgical studies and delineation drilling to outline and define the uranium resources at Lost Creek. In addition, NFU conducted comprehensive baseline studies, including the installation of additional monitor wells for hydrological testing and water quality sampling and a meteorological station within the Permit Area.

In July 2007, NFU transferred its Lost Creek property to Lost Creek ISR, LLC a wholly owned subsidiary of Ur-E formed for the specific purpose of owning and developing the Lost Creek property.

1.2.2 Project Description

LC ISR, LLC is proposing the construction, operation, and reclamation of facilities for ISR operations within the Permit Area. ISR involves the use of a recovery solution, otherwise known as a lixiviant, to extract the mineral from the geologic formation in which it occurs without physically removing the ore-bearing strata.

1.2.2.1 Design and Construction of Mine Units and Facilities

LC ISR, LLC will design and construct mine units and a processing facility in order to recover the uranium resources at Lost Creek.

Mine Units

A typical uranium ISR mine unit, usually 30 to 40 acres in area, will consist of:

- a production field with injection and production well patterns,
- a monitor well ring, and
- header houses and pipelines.

Production and injection well patterns will primarily be conventional five-spot patterns, unless modified to fit the shape of the ore body. A five-spot pattern, otherwise known as a cell, is a square with four injection wells at the corners and a centrally located production well. **Figure 1.2-2** shows a typical layout of an ISR mine unit and solution flow patterns. The injection wells will be spaced 75 to 150 feet apart. All the production

and injection wells will be completed so they can be used as either production wells or injection wells. This design allows changes in the solution flow patterns to improve uranium recovery and to restore the groundwater in the most efficient manner.

There are four types of monitor wells, those completed in a 'monitor ring' around the production zone, those completed in the overlying and underlying aquifers, if any, and those completed within the pattern areas. The wells in the monitor ring will be spaced about 500 feet apart, depending on the hydrogeology of the production zone, and will be located approximately 500 feet outside the pattern area. Monitor wells will also be completed in the aquifers directly overlying and underlying the production zone. These wells will uniformly be distributed across the mine unit area, with approximately one overlying, one underlying, and one production zone monitor well in each four acres of the production field.

Injection wells and production wells will be connected to their respective injection or production manifold in a building commonly called a header house. The manifolds route solutions in pipelines to and from the ion exchange circuit in the Plant. Flow meters, control valves, and pressure gauges will be installed in the individual well lines to monitor and control the individual well flow rates.

Each mine unit will have its own construction, operation, and reclamation schedule. One or more mine units may be in production at any one time with additional mine units in various stages of construction and/or reclamation. A mine unit will be dedicated to only one production zone and will typically have a flow rate of about 6,000 gallons per minute (gpm). The size and location of the mining units will be defined based on the final delineation of the ore deposits, performance of the area and development requirements. **Figures 1.2-3a** shows the Lost Creek ore trend within the Permit Area. Based on current geological and hydrogeological data, approximately six mine units will be developed in the Permit Area during the life of the Project (**Figure 1.2-3b**).

Mine unit piping will be high-density polyethylene (HDPE), polyvinyl chloride (PVC), and/or steel. The individual well lines and the trunk lines to the Plant will be installed below ground to prevent freezing. Ancillary equipment needed will include truck mounted pulling units, trailer mounted hose reels, electrical generators, backhoes, mechanical integrity test (MIT) trucks, motor graders, all terrain forklifts, cementing trailers and light duty 4-wheel drive vehicles. The wells will be installed by contract well drillers who will use truck mounted rotary drilling rigs and water trucks.

Well Construction

The injection, production, and monitor wells will be drilled to the base of the target completion interval with a truck-mounted rotary drilling unit using native mud and a small amount of commercial drilling-fluid additive for viscosity and filtrate control. Following geophysical logging (spontaneous potential, single point resistivity, gamma ray, and Prompt Fission Neutron (PFN)), the upper portion of the hole will be reamed to accommodate casing. Casing will be set and cemented to isolate the completion interval from overlying aquifers. The cement will be placed by pumping it down the casing and forcing it out the bottom of the casing and back up the casing drill hole annulus.

The PVC well casing will have a standard dimension ratio (SDR) of 17, available in 20-foot joints. The typical casing will be a nominal 4.5 inch diameter with a minimum wall thickness of 0.291 inches and an internal pressure rating of 160 pound-force per square inch gauge (psig).

One casing centralizer will be located at each 40-foot interval to ensure the casing is centered in the drill hole and to ensure an effective cement seal.

The volume of cement used is the calculated volume required to fill the annulus and return cement to the surface. In most cases, the cement returns to the surface, at least initially. However, in some cases, the drilling may result in a larger annulus volume than anticipated and cement may not return to the surface. In these cases, the upper portion of the annulus will be cemented from the surface. In the majority of cases, where the cement fails to return to surface, the reason will be a washout or a casing failure. In the event of a casing problem, the well will not pass the MIT. In all cases, wells are required to pass an MIT test before operations approval. This will ensure that there is sufficient integrity to allow the use of the well in handling lixiviant.

After the cement has set, the cement plug within the casing will be drilled out and the well will be flushed with water to remove any cement fines from the target zone. An under reaming tool is then used to cut a larger diameter hole across the completion zone. The well is then air lifted for a period of time adequate to remove any remaining drilling mud and/or cuttings. If sand production or hole stability problems are expected, a wire-wrapped screen or similar equipment may be installed across the completion interval. The typical injection well and production well completions are illustrated in **Figure 1.2-4** and **Figure 1.2-5**, respectively. Further well development may be achieved by swabbing the well, additional airlifting or pumping.

Well Casing Integrity

Prior to operating a well, the well casing will undergo an MIT. During the MIT, the well casing is plugged, pressurized, and the pressure monitored for a set period of time. The bottom of the casing adjacent to or below the confining layer above the injection zone is sealed with a plug, down-hole packer, or other suitable device. The top of the casing is then sealed in a similar manner or with a threaded cap. A pressure gauge is installed to monitor the pressure inside of the casing. Once the well casing is plugged and a pressure gauge is installed, the pressure inside of the well casing is increased to a specified test pressure and will maintain 95 percent of that pressure for ten minutes to pass the test.

If a well casing does not pass an MIT, the casing will be repaired and retested. If a repaired well casing meets an MIT, the well will be used for its intended service. Also, if the well defect occurs at depth, the well may be plugged back and re-completed for use in a shallower zone provided it passes a subsequent MIT. If an acceptable MIT cannot be obtained after repairs, the well will be plugged. A new well casing integrity test will also be conducted after any well repair using a down hole drill bit or under reaming tool.

Monitor wells will be drilled and constructed in the same manner as production and injection wells and all three types of wells must pass MIT. All methods for demonstrating casing integrity must be approved by the Wyoming Department of Environmental Quality (WDEQ) prior to use on the Project.

Process Plant

The Plant will house three distinct process circuits: the ion exchange circuit (also called the resin-loading circuit), the elution circuit, and the precipitation/filtration circuit. The ion exchange circuit will be located adjacent to the other two circuits. The design of the Plant is presented in **Plate 1.2-1**.

The facility will be capable of processing 6,000 pounds U_3O_8 per day (2.2 million pounds per year) with normal operations at 90 percent of the design. The uranium concentration of the lixiviant solution is anticipated to range between 30 and 100 milligrams per liter (mg/L) of uranium oxide (U_3O_8), averaging 40 to 50 mg/L. Standard commercially available ion exchange resins function well under these conditions.

The Plant will be constructed by qualified contractors with direct supervision by LC ISR, LLC engineers.

1.2.2.2 ISR Operations

The Project will use ISR technology to extract uranium from permeable, uranium-bearing sandstones located at depths ranging from 300 to 700 feet below the surface. The processes used for uranium ISR are well understood and well-established industrial practices. **Figures 1.2-6a**, **b** and **c** are schematics of a typical uranium ISR operation.

Mine Units

The uranium ISR process starts at the mine units by first introducing lixiviant into the ore zone through the injection wells. The lixiviant is composed of native groundwater, carbon dioxide and oxygen or an equivalent oxidizing agent. Carbon dioxide is to be added either at the Plant and/or at the header houses. Oxygen will be added to the barren lixiviant at the mine unit header houses. The combined carbonate/bicarbonate concentration in the injected solution will be maintained at less than five grams per liter (g/L), and the hydrogen peroxide and/or oxygen concentration will be less than one g/L. These limits help reduce the possibility of "gas lock" in the formation, which reduces mining efficiency.

When the lixiviant is injected into the ore zone, the dissolved oxidant reacts with the uranium mineral and brings the uranium to the U^{+6} oxidation state. The uranium then complexes with some of the carbonates in the lixiviant to form an uranyl dicarbonate ion $[UO_2(CO_3)_2]^{-2}$ and/or an uranyl tricarbonate ion $[UO_2(CO_3)_3]^{-4}$, both of which are soluble and stable in solution. A small portion of the radium content will also be mobilized along with the uranium. Depending on site conditions, other metals such as arsenic, molybdenum, selenium, and/or vanadium, may also be mobilized. The resultant uranium-bearing solution will be recovered from the production wells to the surface. The injection and production rates will be balanced to control the movement of fluids in the aquifer.

In each mine unit, more uranium-bearing solution will be extracted than lixiviant injected which creates a localized hydrological cone of depression or pressure sink. The anticipated overproduction or bleed will be a nominal 0.5 percent to one percent of the production rate. Under this pressure gradient, the groundwater in the surrounding area will move toward the mine unit, minimizing any chance of excursion.

Small groups of injection and production wells will be connected by buried pipelines to a header house. The uranium-bearing solution will be conveyed between the mine unit and the ion exchange facility through buried pipelines with controlled flows.

Plant

The ion exchange circuit at the Plant receives the uranium-bearing solution from the mine unit(s) through buried pipelines. The following operations will occur at the Plant:

Resin Loading

The ion exchange circuit in the Plant will consist of ten pressurized vessels, each containing 500 cubic feet of anionic ion exchange resin. These vessels will be configured as five parallel trains for two-stage down-flow loading. Booster pumps will be located upstream and downstream of the trains.

As the pregnant (uranium rich) lixiviant enters the ion exchange circuit from the mine unit, the upstream booster pumps will pressurize the fluid to approximately 100 psig. The dissolved uranium in the pregnant lixiviant will chemically adsorb onto the ion exchange resin as the lixiviant passes through the resin beds. Any sand or silt entrained in the pregnant lixiviant will be trapped by the resin bed like a traditional sand filter. The barren lixiviant exiting the second stage will normally contain less than five mg/L uranium. A slip stream of the barren lixiviant will be treated with reverse osmosis (RO) prior to sending it back to the field for re-injection. The injection fluid will be pressurized by booster pumps prior to returning to the mine unit for re-injection. The bleed portion of the fluid will be treated and disposed of via a UIC Class I well.

Resin Elution

When resin in an ion exchange vessel is loaded and removing very little additional uranium from the incoming solution, the vessel will be isolated from the normal process flow. The resin will then be transferred to the Elution Circuit. At the Plant, the resin will be passed over vibrating screens with wash water to remove entrained sand particles and other fine debris. The resin will be gravity fed into pressurized down-flow elution vessels for uranium recovery and resin regeneration.

Once placed in the elution vessel, the resin will be contacted with an eluate composed of approximately 90 g/L sodium chloride and 20 g/L sodium carbonate (soda ash). The eluted resin will be rinsed with fresh water and returned to the bulk tank trailer or an empty ion exchange vessel. The resin will then be transported back to the ion exchange facility and placed in an ion exchange vessel for additional uranium recovery.

Using a three-staged elution circuit, 45,000 gallons of eluate will contact 500 cubic feet of resin, generating approximately 15,000 gallons of rich eluate containing ten to 20 g/L U_3O_8. Likewise, 15,000 gallons of fresh eluate will be required per elution. The fresh

eluate will be prepared by mixing the proper quantities of a saturated sodium chloride (salt) solution, a saturated soda ash solution and water. The saturated salt solution will be generated in commercially available salt saturators (brine generators). The saturated soda ash solution will be prepared by passing warm water (greater than 105 degrees Fahrenheit [ºF]) through a bed of soda ash. Both types of saturators are commercially available and represent standard, proven design and construction techniques.

Precipitation

In the elution circuit, the uranyl dicarbonate ions will be removed from the loaded resin and converted to uranyl tricarbonate by a relatively small volume of strong sodium chloride/soda ash solution. The resultant rich eluate will contain sufficient uranium for economic precipitation.

From the elution circuit, the uranium-rich eluate will be sent to an agitator tank for batch precipitation. To initiate the precipitation cycle, hydrochloric or sulfuric acid will be added to the eluate to breakdown the uranyl carbonate present in the solution. Hydrogen peroxide will then be added to the eluate to effect precipitation of the uranium as uranyl peroxide. Caustic soda solution will then be added to elevate the pH, which promotes growth of uranyl peroxide crystals and makes the slurry safer to handle in the subsequent process steps.

Product Filtering

After precipitation, the precipitated uranium will be washed, to remove excess chlorides and other soluble contaminants, and then de-watered and filtered to form the yellowcake slurry. This slurry will then be stored in holding tanks or in transport tanks parked in a secure area in the Plant. The holding and transport tanks will be used solely for yellowcake slurry. On-site inventory of U_3O_8 in the slurry form will typically be less than 100,000 pounds. However, in periods of inclement weather or other interruptions to product shipments, there will be capacity for up to 200,000 pounds of slurry within the Plant. The yellowcake slurry will be shipped by exclusive-use, authorized transport to a facility licensed by NRC for processing the slurry into dry yellowcake.

1.2.2.3 Instrumentation and Control

For control and monitoring purposes, two separate control systems will be provided during ISR operations. Each system will be designed and instrumented to accommodate the steady state or batch flow that is characteristic of particular process flow streams or unit operations. In particular, this distinction is highlighted as follows.

1. Steady State:
    a. Mine Unit/Resin Loading Circuit
    b. Mine Unit Process Water Disposal
2. Batch:
    a. Bleed Treatment
    b. Resin Elution
    c. Precipitation
    d. Product Filtering
    e. Process Water Disposal

Since the mine unit resin loading circuit operates at a steady state, modest deviations from the normal operating flow rates and pressure profiles (plus or minus ten percent or greater) will be indicative of major operating upsets. An automatic Emergency Shut Down (ESD) system, consisting of pressure and flow rate switches, will be provided for this circuit.

In the event of an automatic shut down, an alarm will notify the operator of the situation. Once the major upset (broken piping, leaking vessels, etc.) is identified and corrective action taken, only then can the circuit be manually restarted. This type of control system provides the best protection against fluid spills to the environment and product losses. The back-up for the automatic ESD system is provided by local displays of the same flow rates and pressures that the ESD system monitors.

The Elution, Precipitation, and Product Filtering Circuits will operate in a batch nature. These circuits are controlled by Programmable Logic Controllers (PLCs), which sequence the opening and closing of appropriate valves once the processes are manually initiated. In addition, the PLC will provide closed-loop feedback control for the elution and precipitation circuits. All automatic valves will be equipped with manual control override. Local indication of pressures, levels, flow rates, and pH will be provided for the complete manual control of these circuits if required.

Process water treatment and disposal circuits will operate under semi-continuous, steady-state conditions, which require control systems that integrate components of both steady-state and batch operations.

The control systems will employ state-of-the-art hardware with proven as well as demonstrated process logic. Like all elements of the designs, instrumentation and control designs are based on modern practices with proven techniques.

1.2.2.4 Restoration, Decommissioning, and Reclamation

Technical, economic, and operational criteria can be reviewed to determine if uranium recovery is complete in a given header house and/or mine unit. When the mineral is sufficiently recovered, the lixiviant injection ceases and groundwater restoration commences. If a mined unit is adjacent to another unit being produced, restoration of a portion of the unit may be deferred to minimize interference with the operating unit. However, LC ISR, LLC intends that concurrent restoration and mining will be conducted (e.g., each mine unit will be restored following mining).

The goal of groundwater restoration will be to return the water quality parameters to the pre-operational class of use as defined by WDEQ. After completion of groundwater restoration, which will be approved by WDEQ and NRC, all cased wells will be permanently plugged and capped. The well casing will be cut off below plow depth and the site revegetated.

Byproduct material, as defined and amended in the Atomic Energy Act of 1954, will be disposed of at an off-site NRC-licensed disposal facility or in a UIC Class I well.

Prior to the commencement of surface reclamation, affected areas and buildings will be decontaminated, and facilities and ancillary equipment will be decommissioned and removed. Vegetation will be reestablished with the approved seed mixtures.

1.2.3 Schedule

Prior to Project start up, the WDEQ Permit to Mine, NRC Source Material License, and other federal, state and local permits and approvals must be received. **Figure 1.2-7** presents the pre-operational development schedule. The critical tasks in this phase will be the approval of the Permit to Mine application and Mine Unit 1 permit by WDEQ, the NRC Source Materials License approval, approval of the Project by BLM, and approval of the Class III (deep injection) and Class I (ISR solution injection) Underground Injection Control (UIC) permits with aquifer exemptions from WDEQ/Environmental Protection Agency (EPA).

The projected mining schedule is based on an initial production rate of 45,000 pounds of U_3O_8 for the first year and increased to the maximum production rate sustainable from the ore-bearing sandstones, currently estimated at 1,000,000 pounds per year. The actual development schedule and production rates will be adjusted in response to actual mine unit conditions (e.g., flows, recovery rates, etc.) and the market demand for uranium.

Figure 1.2-8 provides a current estimated schedule of operational activities at Lost Creek for the first nine years of operation. Additional ore reserve and resources areas are known to exist within the Permit Area, but are not currently drilled adequately to evaluate for ISR planning. These reserve areas have the potential to extend the ultimate Project life beyond this initial period.

1.3 Applicable Regulatory Requirements, Permits, and Required Consultations

Prior to commencing ISR operations, LC ISR, LLC must obtain a License to Mine and a Permit to Mine from WDEQ. Since Wyoming is not an NRC Agreement State, a Source and Byproduct Material License must be obtained from NRC. Other permits that must be obtained prior to the commencement of operations include, but not limited to, two UIC Permits with aquifer exemptions (one for injection into the aquifer to be produced and the other for injection into a deeper formation for waste water disposal), an Air Quality Permit, a Wyoming Pollution Discharge Elimination System (WYPDES) discharge permit, and a Storm Water Discharge Permit. A list of the necessary permits and licenses are provided in **Table 1.3-1.**

Federal statutes (including authority delegated to states) that pertain to the Project include the:

- Atomic Energy Act,
- Clean Air Act,
- Clean Water Act,
- Resource Conservation and Recovery Act,
- Low-Level Radioactive Waste Policy Act,
- Emergency Planning and Community Right-to-Know Act,
- Safe Drinking Water Act,
- Noise Control Act,
- National Historic Preservation Act, and related statutes
- Endangered Species Act,
- Occupational Safety and Health Act, and
- Hazardous Material Transportation Act.

Under Sections 101 and 102 of NEPA, federal agencies are required to interpret and administer the policies, regulations, and public laws of the Act in order to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. As such, federal agencies

must address environmental issues and allow public input in the decision-making processes of major projects under their jurisdiction. NRC's regulations are contained in 10 CFR Part 51.

BLM administers the federal land on which the Permit Area is located, and NRC is the ISR licensing agency. After consultations with NRC and BLM, it was agreed that NRC will take the lead on implementing the NEPA process for the Project.

In order to perform a NEPA assessment of an ISR project, the applicant must provide the necessary information to the federal agencies. In October of 2006, NRC reorganized the review process to facilitate the application review process of proposed ISR facilities. As a result, a Technical Report must be prepared following the guidelines of NUREG-1569. In addition, all new ISR project applicants must prepare an Environmental Report in accord with NUREG-1748.

LC ISR, LLC has maintained consistent contact with federal and state agencies. Since the beginning of the Project, quarterly meetings have been conducted with NRC, BLM, and WDEQ. LC ISR, LLC has held regular pre-licensing meetings with NRC to discuss baseline survey work plans, proposed hydrogeological programs, permitting schedules, and application outlines and preparation. NRC staff members have also been invited to the Permit Area at the beginning and during the baseline surveys. NRC issued a Docket Number (40-9068) and a TAC Number (LU0142) for the Project on September 8, 2006.

Other state and federal agencies involved in the permitting and licensing process include the EPA and the Wyoming State Engineer's Office (WSEO).

Representatives from LC ISR, LLC met with the Sweetwater County commissioners on October 16, 2007. LC ISR, LLC described the operations and schedule of the Project to the commissioners and answered related questions. Additional public consultation is planned for the near future.

Following WDEQ Rules and Regulations, a separate application packet will be prepared and submitted to WDEQ. During this review process, two different public-comment periods will allow individuals to contribute to the Project.

Applicable state and federal agencies were consulted in accordance with the requirements of the Endangered Species Act and the Fish and Wildlife Coordination Act. Personnel were contacted from the Wyoming Game and Fish Department (WGFD) in 2006 and 2007. The US Fish and Wildlife Service (FWS), was also contacted. Wildlife surveys were completed according to a work plan developed in consultation with the WGFD, WDEQ, and BLM. The scope of field work was finalized in consultation with BLM

during February through March of 2006, and field survey protocols were consistent with recommendations from both BLM and WGFD.

A Class I file search was conducted through the Wyoming State Historic Preservation Office (SHPO) Cultural Records Office prior to the Class III archaeological survey with follow-up research at the BLM Rawlins Field Office. A fieldwork authorization was obtained from BLM prior to the onset of field investigations in 2006. Consultation with Native American groups will be conducted by BLM after the archaeological technical report has been received.