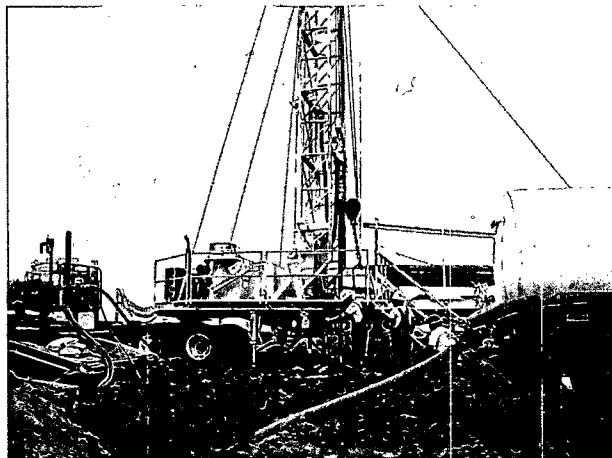
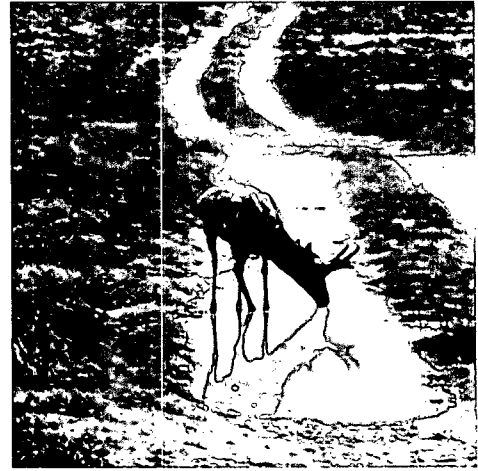
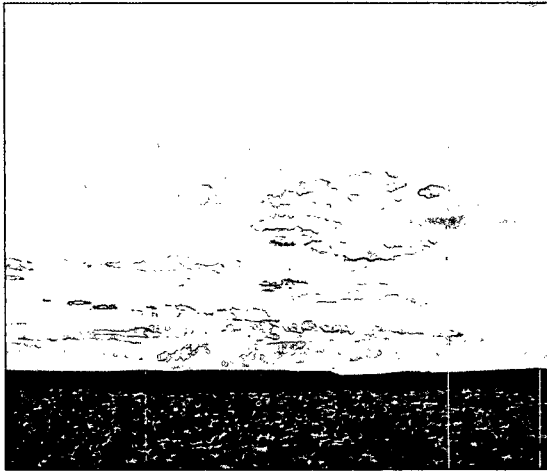


LOST CREEK ISR, LLC

Lost Creek Project South-Central Wyoming

Technical Report



Volume 1 of 4

Application for
US NRC Source Material License
(Docket No. 40-9068)
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LIST OF ABBREVIATIONS AND ACRONYMS (Page 1 of 6)

11(e)(2) byproduct material	The “tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content” (42 United States Code 2014[e][2]; Atomic Energy Act [<i>as amended</i>], Chapter 2, Section 11).
$[\text{UO}_2(\text{CO}_3)_3]^{-4}$	uranyl tricarbonat ion
$[\text{UO}_2(\text{CO}_3)_2]^{-2}$	uranyl dicarbonat ion
$^{\circ}\text{F}$	degrees Fahrenheit
μCi	microCuries
$\mu\text{Ci/mL}$	microCuries per milliliter
μg	microgram
$\mu\text{g/L}$	micrograms per liter
$\mu\text{g/m}^3$	micrograms per cubic meter
$\mu\text{mhos/cm}$	micromhos per centimeter
$\mu\text{R/hr}$	microRoentgens per hour
ACEC	Area of Critical Environmental Concern
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
ARSO	Alternate Radiation Safety Officer
ASME	American Society of Mining Engineers
ASTM	American Society for Testing and Materials
ASQC	American Society for Quality Control
AUM	animal unit months
Basin	Great Divide Basin
BLM	Bureau of Land Management
BMP	Best Management Practice
BPT	Best Practicable Technology
BR	breathing rate
CaCO_3	calcium carbonate
CDE	committed dose equivalent
CEDE	committed effective dose equivalent
CFR	Code of Federal Regulations
c/m	counts per minute
cm^2	square centimeter
CO	carbon monoxide
Conoco	Conoco, Inc.
C_r	concentration of radionuclide r in air
CR	County Road
Cs-137	cesium-137
CSU	Colorado State University
CV	curriculum vitas
CWL	Continuous Working Level
DAC	derived air concentration
dBA	A-weighted decibels

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DC	dose coefficient
DCF	dose conversion factor
DC _r	dose conversion factor for radionuclide r
DDE	Deep Dose Equivalent
DOE	Department of Energy
DOT	Department of Transportation
dpm	disintegrations per minute
DQO	Data Quality Objectives
EA	environmental assessment
Eh	oxidation-reduction potential
EHS	Environment, Health, and Safety
EHSMS	Environment, Health, and Safety Management System
ELI	Energy Laboratories Incorporated
EMT	Emergency Medical Technician
EPA	Environmental Protection Agency
ER	Environmental Report
ft amsl	feet above mean sea level
ft bgs	feet below ground surface
ft/d	feet per day
ft/ft	feet per foot
ft/mi	feet per mile
ft/s	feet per second
ft ² /d	square feet per day
FTE	full-time equivalent
FSER	final safety evaluation report
FWS	Fish and Wildlife Service
g	gravity
g/cm ³	grams per cubic centimeter
g/L	grams per liter
GIS	Geographic Information System
gpd/ft	gallons per day per foot
gpm	gallons per minute
GPS	Global Positioning System
GSP	Gross State Product
H	number of hours of exposure
HDPE	high-density polyethylene
HMA	Herd Management Area
HPGe	High-Purity Germanium
HPIC	High-Pressure Ionization Chamber
HPRCC	High Plains Regional Climate Center
HPT	Health Physics Technician
i	exposure period

LIST OF ABBREVIATIONS AND ACRONYMS (Page 3 of 6)

ICRP	International Commission on Radiological Protection
IEC	International Electrotechnical Institute
I_r	annual intake of radionuclide r by inhalation
IR	Isolated Resource
ISO	International Organization for Standardization
ISR	In Situ Recovery
JCR	Job Completion Report
km	kilometers
lb/mi ³	pounds per cubic mile
LC	Lost Creek
LC ISR, LLC	Lost Creek ISR, LLC
LLD	lower level detection
LLRWDF	low-level radioactive waste disposal facility
LQD	Land Quality Division
LS	Lost Soldier
LSA	Low Specific Activity
m ²	square meters
m ³ /h	cubic meters per hour
m/s	meters per second
man-Sv	man-Sievert
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MBHFI	Migratory Birds of High Federal Interest
MCL	Maximum Contaminant Level
MeV	million electron volts
mg/cm ²	milligrams per square centimeter
mg/L	milligrams per liter
MiniVol	Mini Volumetric
MIT	mechanical integrity test
mph	miles per hour
mR/hr	milliRoentgens per hour
mrem	millirem
mrem/yr	millirem per year
MSHA	Mine Safety and Health Administration
mSv	milliSievert
n	number of exposure periods in the year
NA	not applicable
Na ₂ S	sodium sulfide
NAAQS	National Ambient Air Quality Standards
NaI	sodium iodide
NARM	Naturally occurring and/or Accelerator-produced Radioactive Material

LIST OF ABBREVIATIONS AND ACRONYMS (Page 4 of 6)

NCRP	National Council on Radiation Protection and Measurements
NEPA	National Environmental Protection Act
NFU, LLC	New Frontiers Uranium, LLC
NIRMA	Nuclear Information and Records Management Association
NIOSH	National Institute of Occupational Safety and Health
NIST	National Institute of Standards and Technology
NO ₂	nitrogen dioxide
NQA	National Quality Assurance
NRC	Nuclear Regulatory Commission
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSS	Native Species Status
NVLAP	National Voluntary Laboratory Accreditation Program
NWIS	National Water Information System
NWS	National Weather Service
O ₃	ozone
OHV	off-highway vehicle
OSHA	Occupational Safety and Health Administration
Pb-210	lead-210
PBL	Performance-Based License
PC	personal computer
pCi/L	picoCuries per liter
Permit Area	Lost Creek Permit Area
person-rem/yr	person-rem per year
PF	respirator protection factor
PFN	Prompt Fission Neutron
PILT	Payments in Lieu of Taxes
PM ₁₀	particulate matter less than ten micrometers
PPE	personal protective equipment
ppm	parts per million
Program	Contamination Control Program
Project	Lost Creek Project
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
psig	pound-force per square inch gauge
PVC	polyvinyl chloride
PWMTF	Permanent Wyoming Mineral Trust Fund
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control

LIST OF ABBREVIATIONS AND ACRONYMS (Page 5 of 6)

Ra-226	radium-226
Ra-228	radium-228
rad/d	rad per day
rem	roentgen equivalent in man
RMP	Resource Management Plan
Rn-222	radon-222
RnD	radon decay products
RO	reverse osmosis
RSD	Radiation Safety Department
RSO	Radiation Safety Officer
RV	recreational vehicle
RWP	Radiation Work Permit
SAR	sodium adsorption ratio
SCS	Soil Conservation Service
SDR	standard dimension ratio
SDWS	Secondary Drinking Water Standard
SEM	scanning electron microprobe
SER	Safety Evaluation Report
SERP	Safety and Environmental Review Panel
SHPO	State Historic Preservation Office
SMU	soil mapping unit
SO ₂	sulfur dioxide
SOP	standard operating procedure
SSC	structure, system, or component
Sv/Bq	Sievert per Becquerel
SWEDA	Sweetwater Economic Development Association
TAC	Technical Assignment Control
T&E	threatened and endangered
TDS	total dissolved solids
TEDE	Total Effective Dose Equivalent
TER	Technical Evaluation Report
Texasgulf, Inc.	Texasgulf
Th-230	thorium-230
TR	Technical Report
U ₃ O ₈	uranium oxide
UBC	Uniform Building Code
UCL	Upper Control Limit
UIC	Underground Injection Control
U-nat	natural uranium
Ur-E	Ur-Energy USA Inc.
URPA	Ur-E Project Air
US	United States
USGS	United States Geological Survey
VP	Vice President

LIST OF ABBREVIATIONS AND ACRONYMS (Page 6 of 6)

VRM	Visual Resource Management
WAAQS	Wyoming Ambient Air Quality Standard
WDEQ	Wyoming Department of Environmental Quality
WGFD	Wyoming Game and Fish Department
WHDP	Wyoming Housing Database Partnership
WL	Working Level; measured concentration of radon decay products
WOS	Wildlife Observation System
WQD	Water Quality Division
WRDS	Water Resources Data System
WS	Wyoming Statute
WSA	Wilderness Study Area
WSEO	Wyoming State Engineer's Office
WYDOT	Wyoming Department of Transportation
WYPDES	Wyoming Pollution Discharge Permit
x	number of radionuclides of interest

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1.0 PROPOSED ACTIVITIES

Lost Creek ISR, LLC (LC ISR, LLC) is submitting this Technical Report (TR) 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, Title 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 uranium In Situ Recovery (ISR) in Sweetwater County, Wyoming.

1.1 Licensing Action Requested

An NRC source and byproduct material license is required under the provisions of 10 CFR Part 40, Domestic Licensing of Source Material, to recover uranium by ISR techniques. Under the Atomic Energy Act of 1954, as amended, and the Uranium Mill Tailings Radiation Control Act of 1978, as amended, NRC has determined that it has the authority to regulate ISR facilities. The National Environmental Policy Act (NEPA) of 1969 requires federal agencies to consider the potential environmental impacts of major federal actions under their jurisdiction.

Per NEPA, federal agencies are obligated to evaluate and mitigate potential environmental impacts and to evaluate potential means to mitigate such impacts. NRC and the Bureau of Land Management (BLM) are the federal agencies with jurisdiction over the Project and Project area respectively. 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 activities. 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. NRC will prepare a Technical Evaluation Report (TER) and a Safety Evaluation Report (SER) related to the Project. To facilitate the creation of the TER and SER, this TR is organized in accordance with the guidance provided in NUREG-1569, Standard Review Plan for In Situ Leach Uranium Extraction License Applications, which was published in June 2003.

Uranium ISR is also regulated by the State of Wyoming. Prior to commencing ISR operations, a Permit to Mine must be obtained from the Wyoming Department of Environmental Quality (WDEQ). This Permit to Mine includes an Underground Injection Control (UIC) Permit for the ISR wells (Class III wells), and in Wyoming, WDEQ has primacy from the U.S. Environmental Protection Agency (EPA) for the UIC

program, which is part of the Safe Drinking Water Act of 1974, as amended. A separate application package has been prepared and will be submitted to WDEQ for the Permit to Mine. Other permits that must be obtained prior to the commencement of operations include, but are not limited to: a UIC permit for the ISR disposal (Class I) wells from WDEQ; aquifer exemptions from the EPA; an Air Quality Permit from WDEQ; and a Storm Water Discharge Permit from WDEQ.

This TR provides detailed information on the facilities, equipment, and procedures to be used for the Project. In addition, an Environmental Report (ER) was also prepared to address the potential impacts of the Project on public health and safety, and the environment as required by 10 CFR 51.45, 51.60, and 51.66. The ER for the Project is submitted simultaneously with this TR.

The ISR operations at the Lost Creek Permit Area (Permit Area) will be conducted with proven technologies following standard industry operating procedures developed to assure adequate protection of public and occupational health and safety, and the environment. According to NUREG-1569, ISR uranium recovery operations are much more environmentally benign than conventional uranium mining and milling, and pose lower risk of occupational hazard. Operations of the Project will be conducted in compliance with applicable regulations and guidelines to assure adequate protection of workers, public health, and the environment.

1.2 Project Background

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. Texasgulf Inc. (Texasgulf), in 1976, optioned the property from Valley Development Inc. and exercised their option in 1979. Exploration drilling, carried out by 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 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 uranium 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 Permit Area and carried out additional delineation drilling, geologic and resource studies of the deposit through 1992 (Fruchey and Groth, 2004). New Frontiers Uranium, LLC (NFU) purchased the property from PNC Exploration, USA in 2000. NFU subsequently transferred the Permit Area along with its other Wyoming properties to NFU Wyoming, LLC.

From June 2005 through June 2007, Ur-Energy USA, Inc. (Ur-E), a Colorado corporation, purchased 100 percent ownership of NFU. During that time, at the Permit Area, NFU conducted engineering feasibility studies, core drilling for metallurgical studies, and delineation drilling to outline and define the uranium resources. In addition, NFU conducted comprehensive baseline studies, including 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 LC ISR, LLC, a wholly owned subsidiary of Ur-E formed for the specific purpose of owning and developing the Permit Area. LC ISR, LLC is currently proposing the extraction of uranium using ISR techniques in the Permit Area.

1.3 Site Location and Description

The Permit Area is located in the northeast portion of Sweetwater County, south-central Wyoming. **Figure 1.3-1** shows the regional location of the Permit Area and the general geographic features of the region. A series of paved and unpaved county and BLM roads provide access to the Permit Area, which is located about 30 miles from the closest state highway, and the road network in the Permit Area is comprised of un-maintained two-track roads, passable year-round by four-wheel-drive vehicles. The Permit Area, which includes approximately 4,220 acres, is remotely located on public land administered by BLM and the State of Wyoming, and consists of 199 unpatented federal lode claims and one state mineral lease. 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 geographically located in the northeastern portion of the Great Divide Basin. The Great Divide Basin is an oval-shaped structural and topographic depression, encompassing approximately 3,500 square miles in Sweetwater and Fremont Counties, in south-central Wyoming. The Great Divide Basin is broadly bounded by mountains and hills on all sides: the Wind River and Granite Mountains to the north, the Rawlins Uplift to the east, the Wamsutter Arch to the south, and the Rock Springs Uplift to the west. The Great Divide Basin occurs between two bifurcating branches of the North American Continental Divide, which separates south of and rejoins north of the Great Divide Basin.

The regional rolling landscape has draws, rock outcroppings, ridges, and bluffs. The Permit Area is characterized by low-relief, sagebrush-dominated plains, dissected by small, ephemeral drainage networks. Within the Permit Area, there are no drainages with perennial surface water flow or permanent water bodies.

1.4 Orebody Description

The physical characteristics of the main mineral trend in the Permit Area are defined by data from historic and current exploratory drill holes. The main mineral trend strikes east for at least three miles and is as much as 2,000 feet wide. Uranium mineralization is known to occur in almost flat-lying sandstones of the Eocene Battle Springs formation. The sandstones are interbedded with siltstones and shales. The uranium mineralization generally occurs between 350 and 700 feet in depth, with a thickness varying from three to 40 feet. **Figure 1.4-1** shows the Lost Creek ore trend within the Permit Area. Detailed descriptions on the geology and mineralogy of the orebodies in the Permit Area are presented in **Section 2.6** of this report.

In 2006, a resource audit of the property was completed by Roscoe Postle Associates Inc. for Ur-E. The audit conforms to the classification of resources as required by the Canadian National Instrument 43-101. The current indicated resources of the Project are 8.5 million tons of uranium ore at a grade of 0.058 percent, which equals 9.8 million pounds of uranium oxide (U_3O_8), and inferred resources of 0.7 million tons of ore at a grade of 0.076 percent, which equals 1.1 million pounds of U_3O_8 (Wallis, 2006).

1.5 Solution Mining Method and Recovery Process

The Project will use ISR technology to extract uranium from permeable, uranium-bearing sandstones located at depths ranging from 350 to 700 feet. For uranium ISR to be successful, the host formation must: 1) be permeable, 2) lie below the water table, and 3) contain uranium minerals in economic quantities that can be dissolved with a recovery

solution. In addition, separation of the uranium-bearing sandstones by shales from other water-bearing formations helps restrict the ISR process to the targeted sandstone horizons. As demonstrated by the materials presented in this report, the geological, mineralogical, and hydrogeological characteristics of the mineralized sandstones in the Permit Area meet all of the above conditions.

The processes currently used for uranium ISR are based on well-established industry practices. **Figure 1.5-1** provides a schematic drawing of a typical ISR operation. A recovery solution (lixiviant), formed by adding gaseous carbon dioxide and oxygen (or other oxidizing agents such as peroxide) to native groundwater, is injected into a uranium-ore-bearing sandstone formation through a series of injection wells. As the barren lixiviant moves through the formation and contacts the ore, uranium is dissolved into the solution as uranyl carbonate.

The uranium-bearing solution (pregnant lixiviant) flows to production wells (also called recovery wells), where the solution is pumped to the surface by means of submersible pumps, and transported through a piping system to the Plant, where the pregnant solution will be processed (**Figure 1.5-2a,b**). The dissolved uranium will be first chemically adsorbed onto ion exchange resin at the Plant. The loaded resin is then transferred to another portion of the Plant, where it is stripped of uranium through an elution process. The resultant eluate then runs through a precipitation circuit and a filtering circuit before the final product, yellowcake slurry, is obtained. The lixiviant, once again barren, is refortified and reinjected to recover more uranium. The yellowcake slurry will be transported off-site to a licensed drying facility, where it will be processed into dry yellowcake.

Detailed descriptions of the entire ISR process are presented in **Section 3** of this report.

1.6 Operating Plans, Design Throughput, and Production

LC ISR, LLC will design and construct mine units and facilities in order to recover the uranium resources in the Permit Area. Each mine unit will consist of injection and production well patterns, typically arranged in a 'five-spot' pattern with four corner injection wells and one central production well per pattern (**Figure 1.6-1**). Fluids will be conveyed between the Plant and the mine units through buried pipelines. Small groups of injection and production wells will be connected with pipes to central distribution centers, called header houses, where oxygen (or another suitable oxidizer) will be added to the injection fluid. Carbon dioxide will be added to the injection stream at either the Plant or the header house due to its soluble nature in water. Necessary ancillary

equipment will include truck-mounted well workover units, hose reels, mechanical integrity test (MIT) truck(s), electrical generators, backhoes, all-terrain forklifts, trailer-mounted cementing units, motor grader(s) and light-duty four-wheel-drive vehicles. The wells will be installed by contracted well drillers who will use truck-mounted rotary drilling rigs and water trucks.

The processing facility, known as the Plant, will be used to capture and concentrate uranium. The product of the Plant will be yellowcake slurry. The Plant design is intended to process 6,000 gallons per minute (gpm) of lixiviant through the ion exchange circuit. The elution and precipitation circuits will be designed to handle two million pounds per year of yellowcake slurry. Offices and water treatment facilities will also be constructed at the Plant site.

Section 3 of this report provides a detailed description of the operations and design of the mine units and the Plant.

Although the specific amount of yellowcake produced will depend on the market price and the cost of production, LC ISR, LLC anticipates producing about one million pounds of yellowcake (U_3O_8) per year through the Project life of at least eight years.

1.7 Project Schedules

1.7.1 Pre-Operational Development Schedule

Prior to Project start-up, a series of federal, state, and local permits and approvals must be received. **Figure 1.7-1** presents the pre-operational development schedule. The critical tasks in this phase will be the approval of: the Permit to Mine and the Mine Unit Number 1 by WDEQ (i.e., the UIC permit for Class III wells); the Source Materials License by NRC; the Operations Plan by BLM; and the UIC permit for the Class I wells from WDEQ; and aquifer exemptions from EPA.

1.7.2 Operations Schedule

The projected operations schedule is based on an initial production rate of 45,000 pounds of U_3O_8 for the first year and will increase to a reasonably sustainable production rate based on flow and grade from the ore-bearing formation, currently estimated at one million 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 1.7-2 provides a current estimated schedule of operational activities at the Permit Area. Additional ore reserve and resource areas are known to exist within the Permit Area, but are not adequately characterized to evaluate for ISR planning at this time. These reserve areas have the potential to extend the ultimate Project life beyond this initial projected period.

1.8 Waste Management and Disposal

The major types of wastes generated at the Project will include non-radiologically contaminated domestic and industrial solid and liquid wastes, and radiologically contaminated 11(e)(2) byproduct materials. The 11(e)(2) byproduct material is defined in Chapter 2, Section 11 of the Atomic Energy Act of 1954 (42 US Code 2014(e)(2)), as amended, as “the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.” In 2000, this definition was interpreted to include more of the fluids associated with ISR than had been previously included in the definition (NRC, 2000).

Domestic sewage will be disposed of in conventional septic/leach field systems, and by the use of portable chemical toilets. Domestic solid wastes (e.g., paper, wood products, office and food wastes) and other non-hazardous solid wastes (not directly associated with uranium recovery operations) will be collected and stored on-site in commercial waste containers and periodically removed for disposal at a local certified landfill. Petroleum waste will be collected and appropriately stored on-site and periodically removed by properly licensed contractors. Liquid 11(e)(2) byproduct materials generated from ISR operations will be disposed of via UIC Class I wells. Solid 11(e)(2) byproduct materials, such as ion exchange resin, filter media, and process equipment, will be stored on-site in appropriate containers or designated areas and periodically removed for disposal at an NRC-licensed disposal facility.

Details of the proposed waste management and disposal plans are provided in **Section 4** of this report.

1.9 Source and Byproduct Material Transportation

During the Project, source and byproduct materials will be transported to and from the Permit Area. These materials include yellowcake slurry and 11(e)(2) byproduct

materials.

The yellowcake slurry produced from the Plant will be transported by properly licensed contractors, driving trucks with trailer tanks approved for such use by the US and Wyoming Department of Transportation (US DOT and WYDOT, respectively), to an off-site facility for drying and packaging. At an annual production rate of one million pounds of U_3O_8 , about 70 shipments per year are expected.

The 11(e)(2) byproduct materials will be transported by properly licensed contractors in DOT-approved vehicles to an NRC-licensed disposal facility off-site.

The transport of source and byproduct materials as well as the risk of transport accidents is discussed in detail in **Section 7.5** of this report.

1.10 Groundwater Restoration

After the economic recovery limit of a mine unit has been reached, the injection of lixiviant is discontinued and groundwater restoration is initiated. The restoration process will be similar to that used to restore mine units at other ISR sites, and consists of three basic activities.

- Groundwater sweep: Water will be pumped from the mine unit (with no associated injection), which results in an influx of baseline-quality water from the mine unit perimeter.
- Groundwater treatment and reinjection: Water from the mine unit will be pumped to the Plant, where ion exchange, reverse osmosis (RO), filtration and/or other treatment methods take place. The treated water will be reinjected into the aquifer. The concentrated brine will be sent to the UIC Class I well.
- Mine unit recirculation: Water from the mine unit will be circulated within the mine unit to provide consistent water quality. Recovered groundwater will be commingled and redirected to the injection wells without additional purification treatment. This phase of restoration will homogenize the water quality of the aquifer. The use of a reductant (e.g., hydrogen sulfide or other) and application of bioremediation may also be considered as warranted to supplement the primary restoration efforts.

Following these restoration activities, a groundwater stabilization monitoring program will be initiated. Once the approved restoration values are reached and maintained, restoration is deemed complete. Results will be documented in a Restoration Report and submitted to WDEQ and NRC for approval.

Detailed discussion on groundwater restoration is presented in **Section 6** of this report.

1.11 Decommissioning and Reclamation

As soon as practical after groundwater restoration has received final regulatory approval, each mine unit will be reclaimed. This reclamation process includes abandonment and plugging of all wells, removal of all buried pipelines and overhead utilities, and removal of all surface facilities.

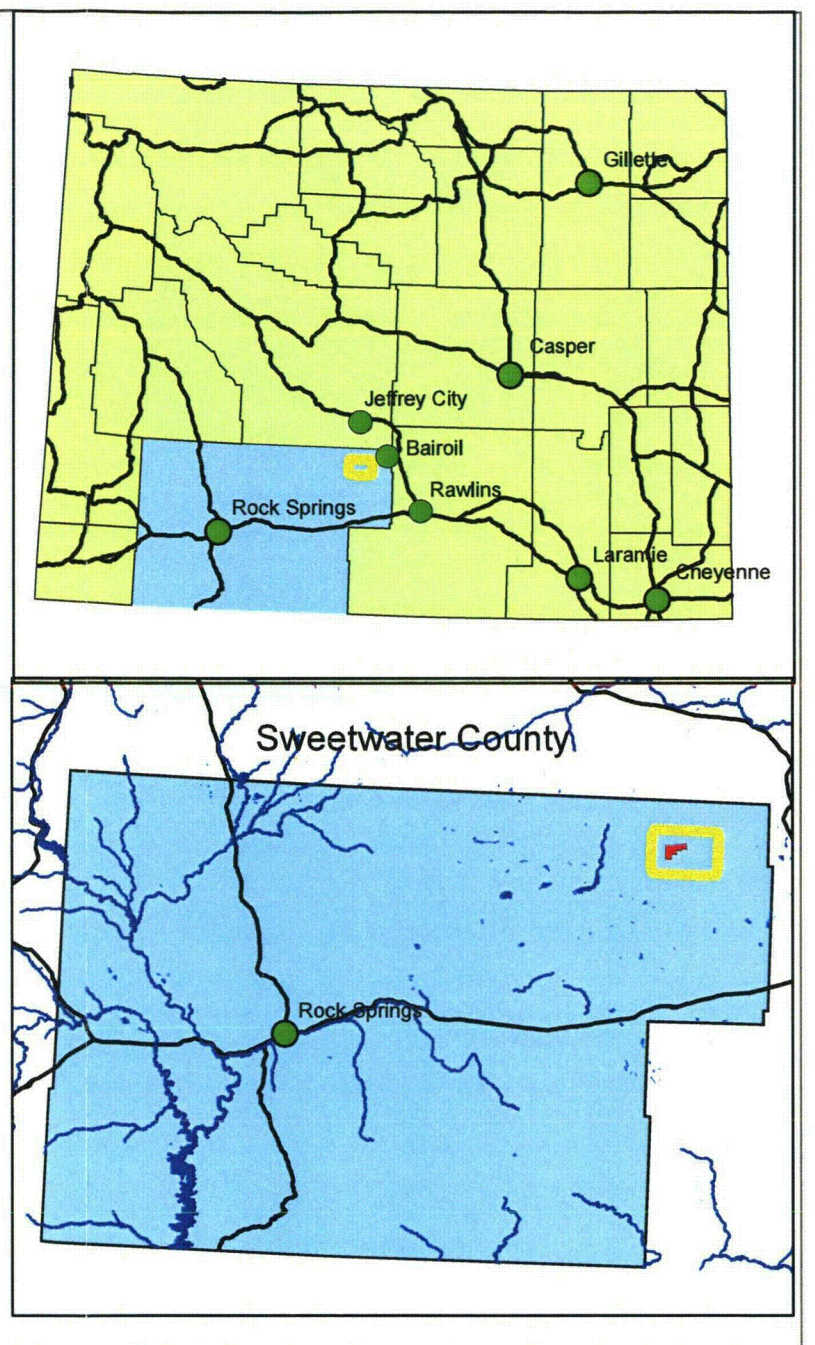
Prior to the commencement of surface reclamation, affected areas and buildings will be decontaminated, and facilities and ancillary equipment will be decommissioned and removed or reused in another area of the Project. With regulatory agency approval, certain buildings and roads may be left for future use.

During reclamation, the land will be returned to approximate its contours prior to Project disturbance. Vegetation will be re-established using a seed mixture approved by WDEQ and BLM.

Decommissioning and reclamation are discussed in detail in **Section 6** of this report.

1.12 Surety Arrangements

Prior to commencing ISR operations, LC ISR, LLC will establish and maintain appropriate surety arrangements with NRC and WDEQ. Both WDEQ and NRC will be provided with the necessary information to verify that the financial assurance will permit the completion of groundwater restoration, radiological decontamination, facility decommissioning, and surface reclamation of sites, structures, and equipment used during the Project. Details of the surety arrangement are provided in **Section 6** of this report.



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Fort Collins, Colorado, USA

Legend

- 2 Mile Review Area
- Lost Creek Permit Area

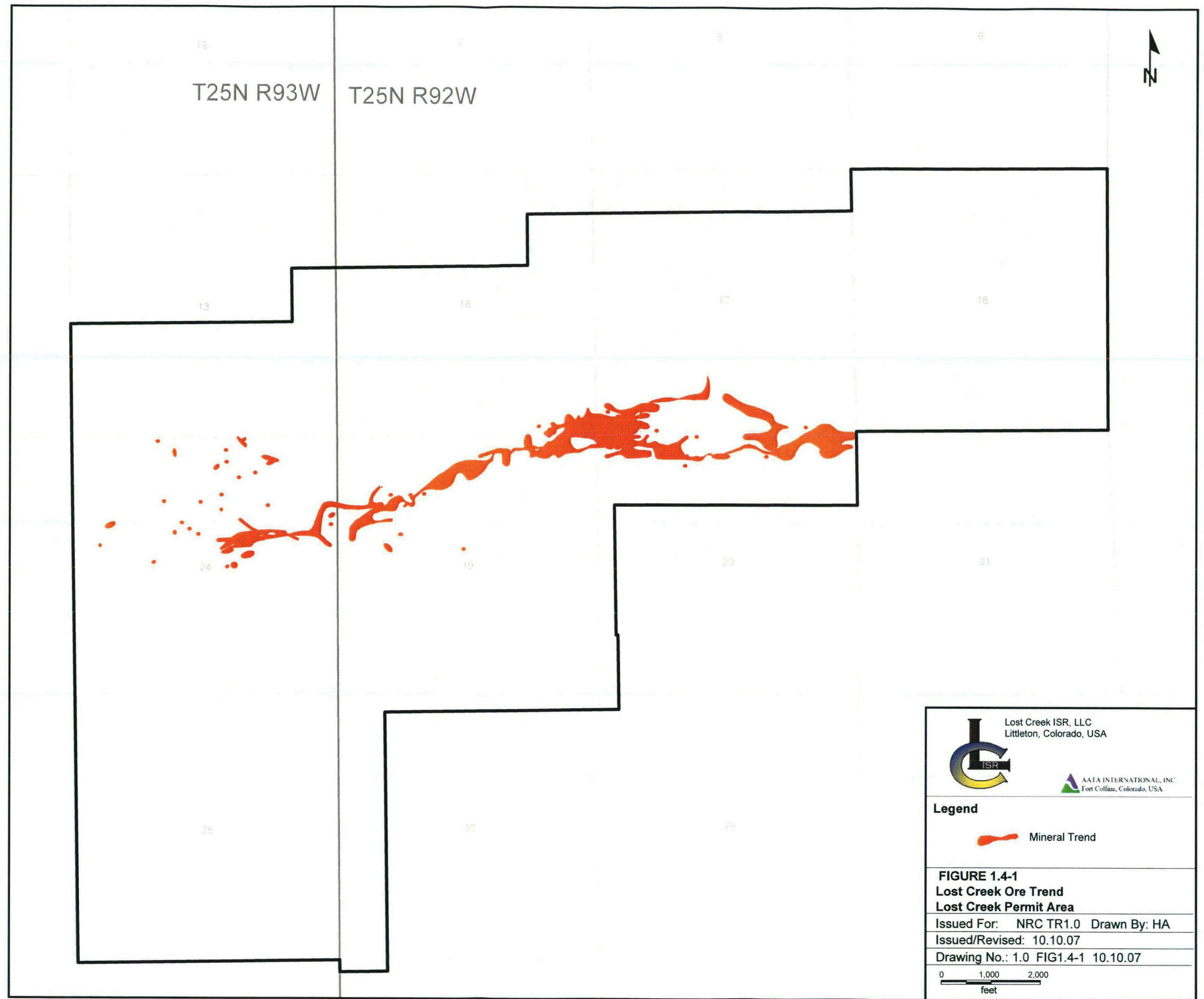
FIGURE 1.3-1
REGIONAL MAP OF THE PERMIT AREA
Lost Creek Permit Area

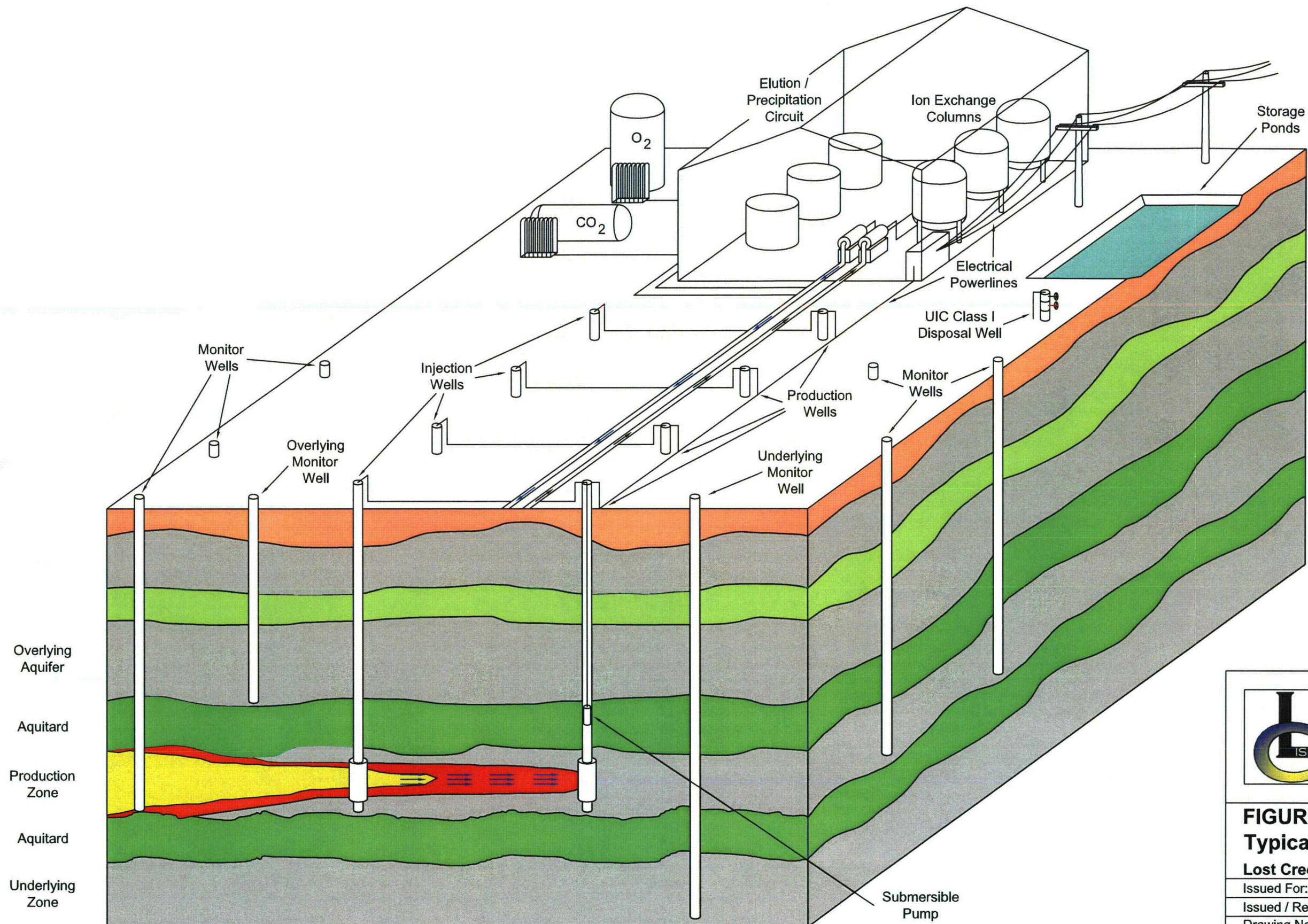
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Drawing No: NRC-TR-1.3-1-10.15.07-EJS

0 0.25 0.5 1 Miles





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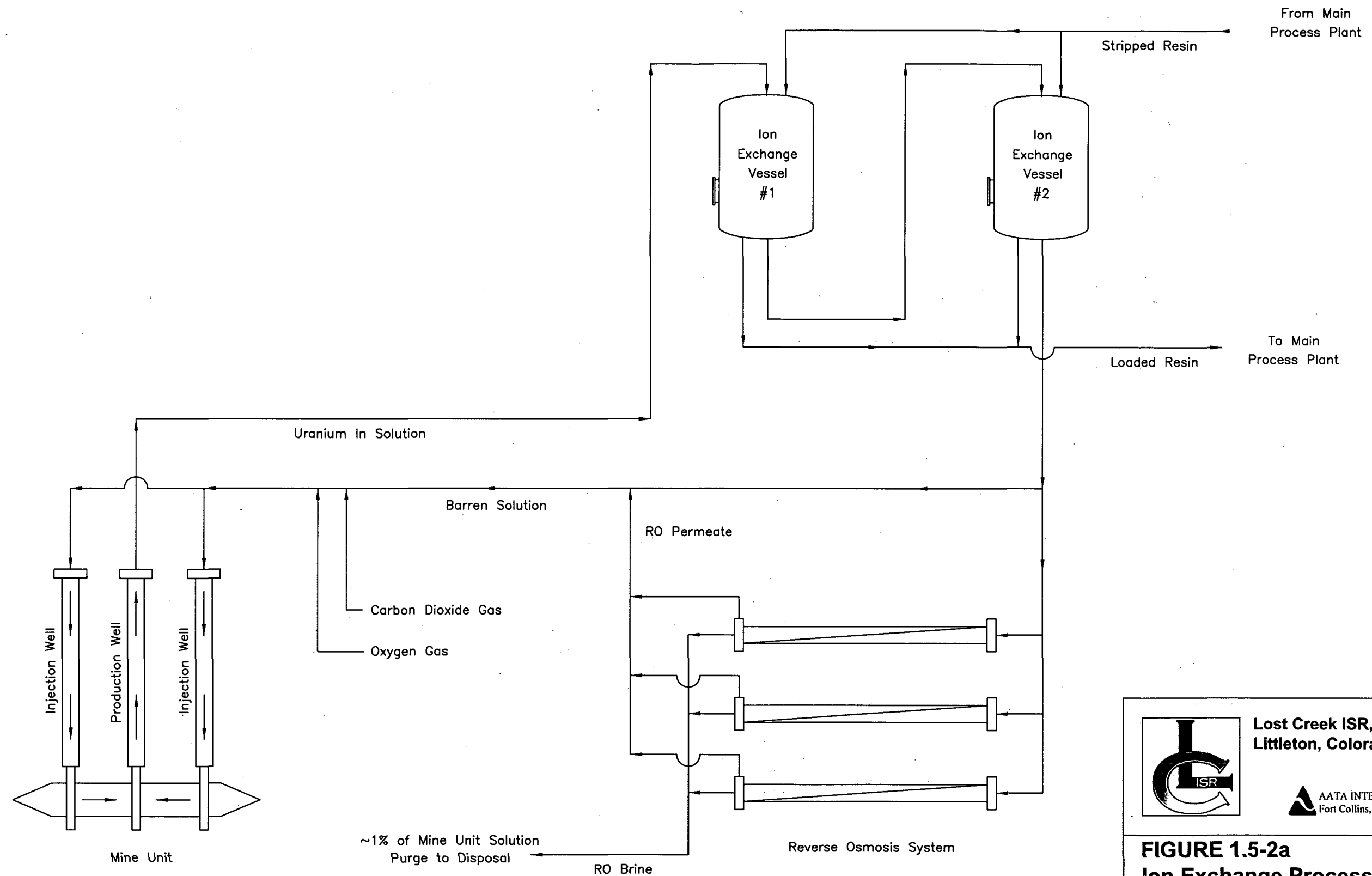
FIGURE 1.5-1 **Typical ISR Operation**

Lost Creek Permit Area

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Drawing No. NRCTR 1.0 FIG 1.5-1 10.2.2007 SMH



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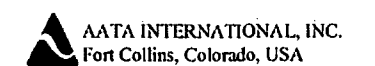
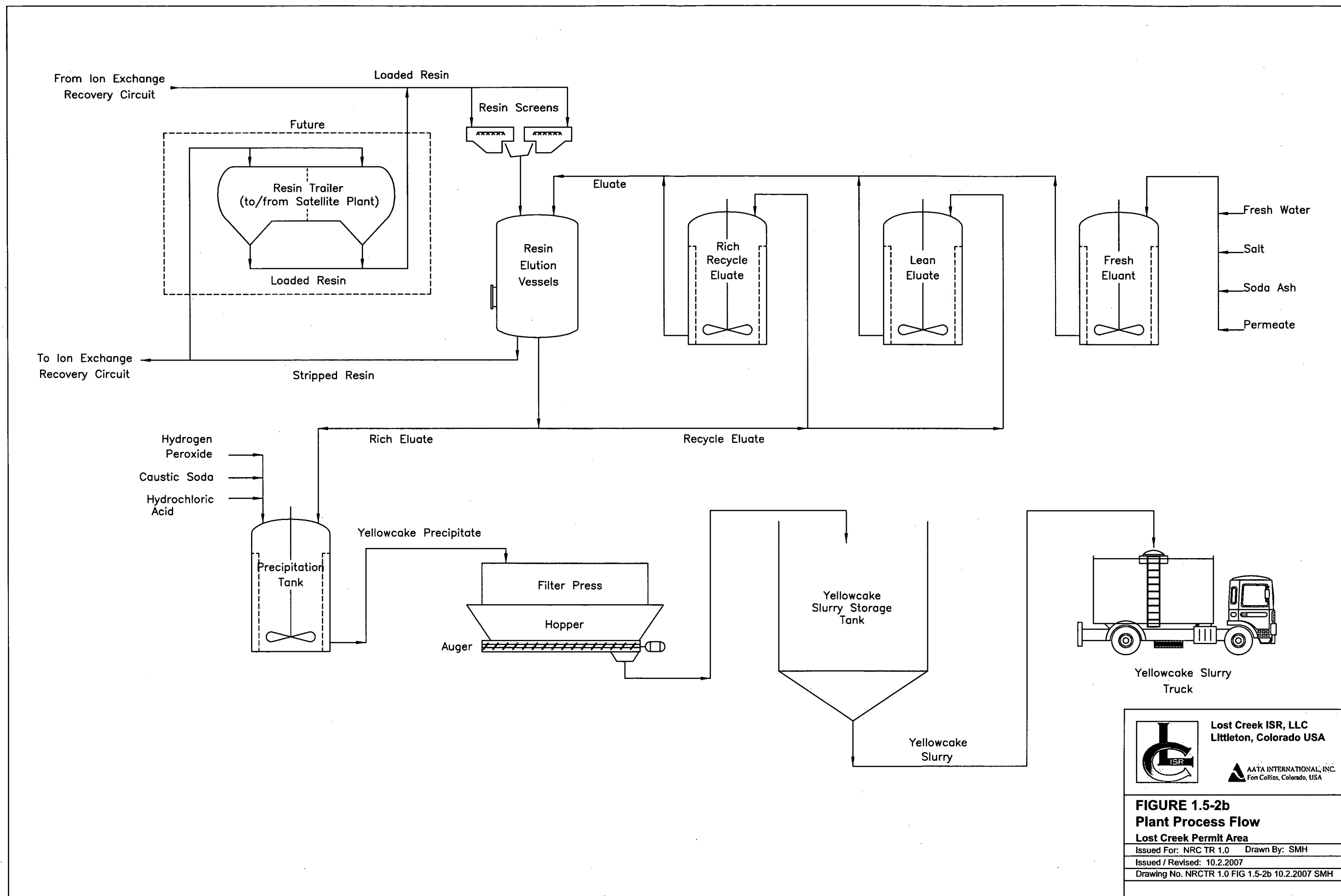


FIGURE 1.5-2a
Ion Exchange Process Flow
Lost Creek Permit Area

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Drawing No. NRCTR 1.0 FIG 1.5-2a 10.2.2007 SMH



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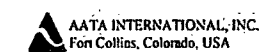
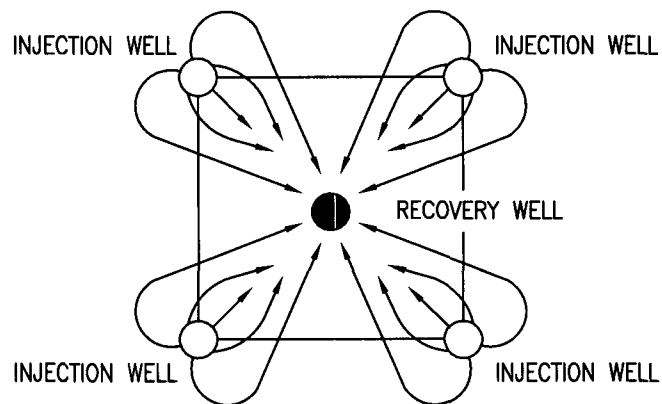
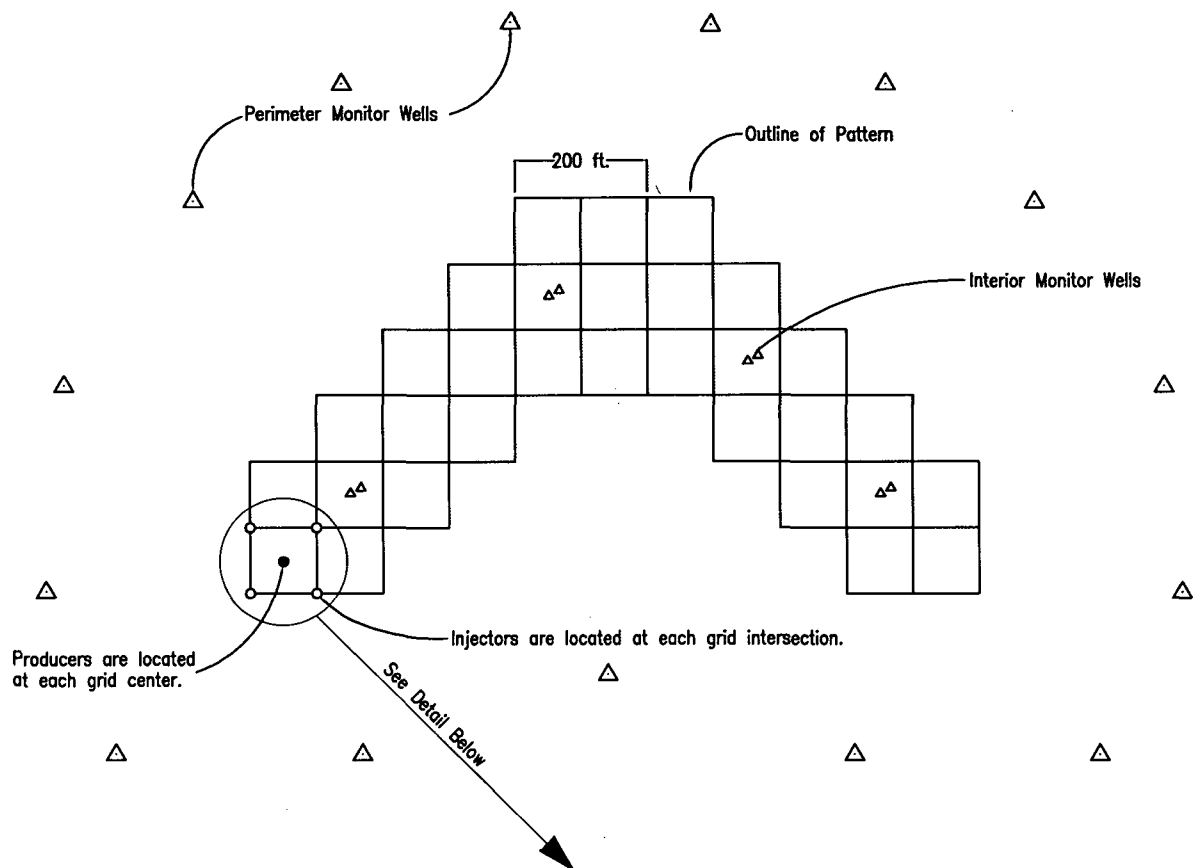


FIGURE 1.5-2b
Plant Process Flow
Lost Creek Permit Area

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Drawing No. NRCTR 1.0 FIG 1.5-2b 10.2.2007 SMH



TYPICAL WELLFIELD PATTERN



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FIGURE 1.6-1
Solution Flow Patterns
Lost Creek Permit Area

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Drawing No. NRCTR 1.0 FIG 1.6-1 10.2.2007 SMH

Figure 1.7-1 Pre-operation Schedule of the Lost Creek Project

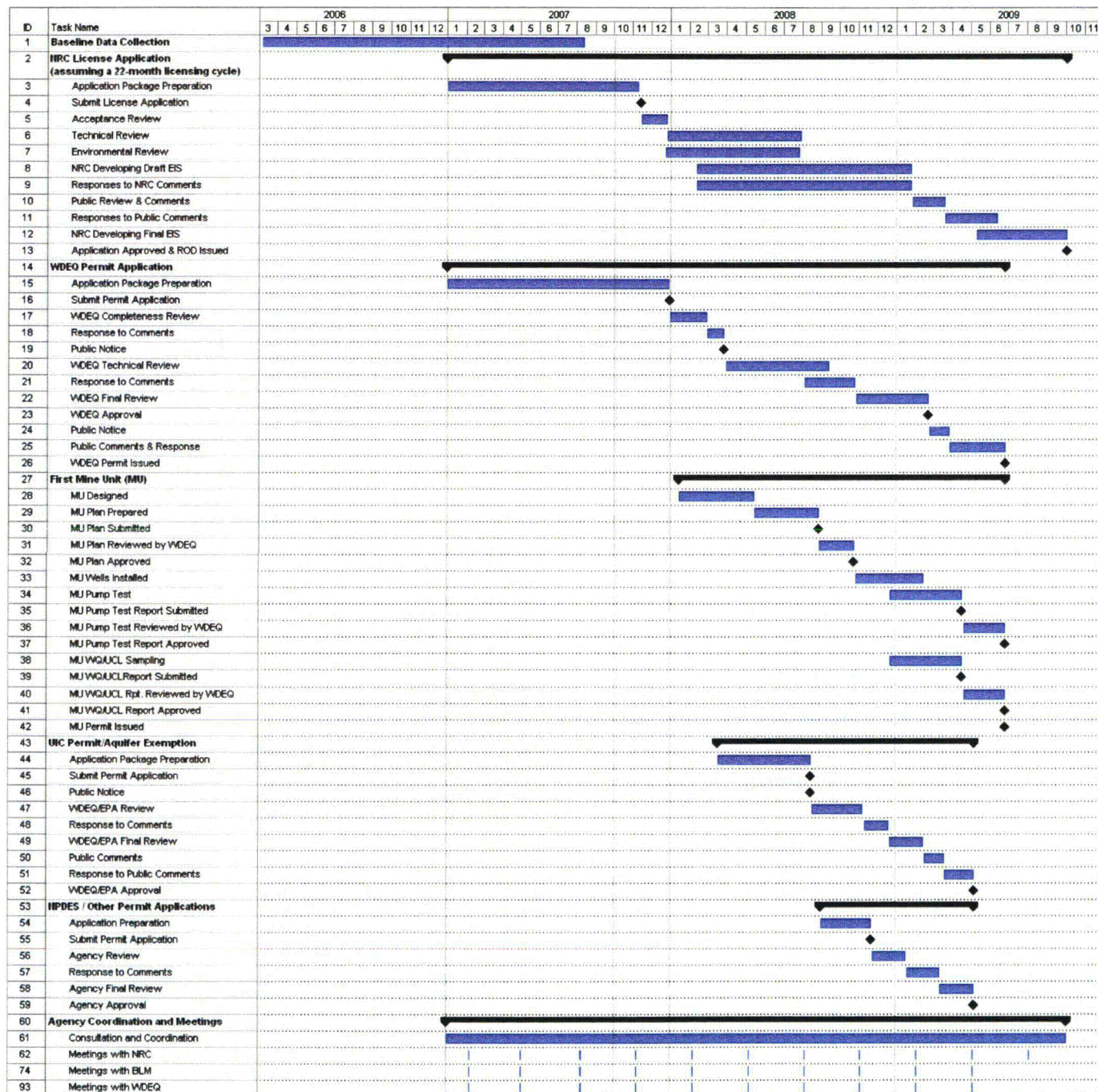


FIGURE-1.7-2

Lost Creek Project Development, Production and Restoration Schedule

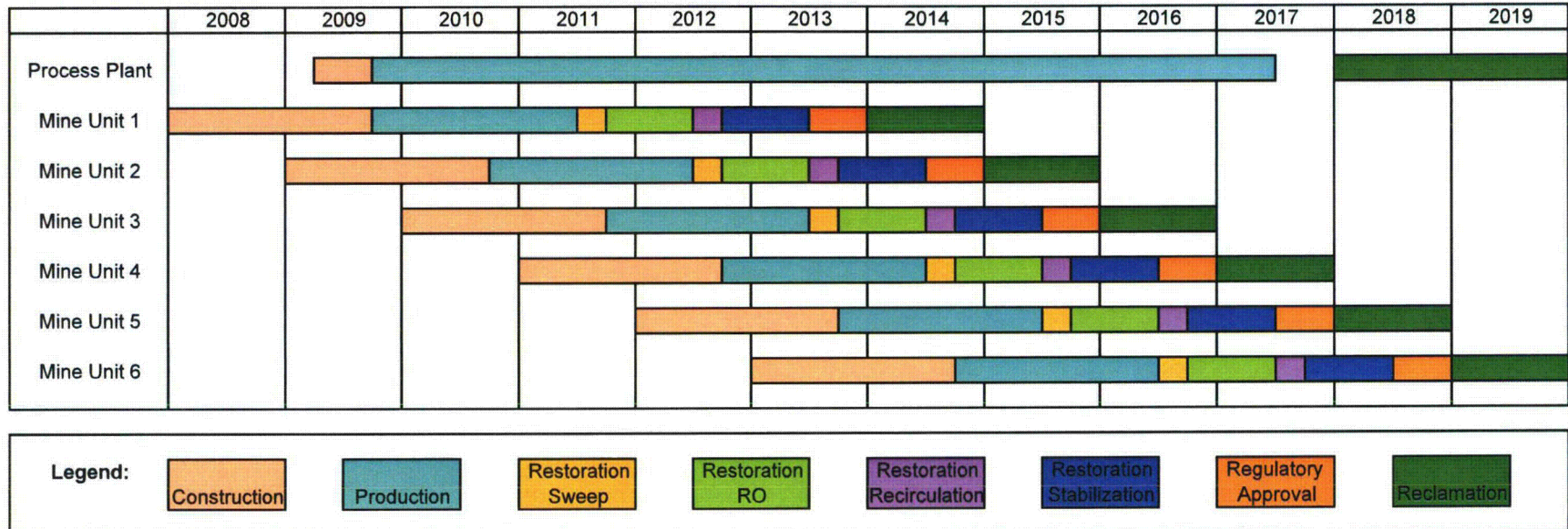


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Figure 2.1-2 Regional Transportation Network

2.0 SITE CHARACTERIZATION

2.1 Site Location and Layout

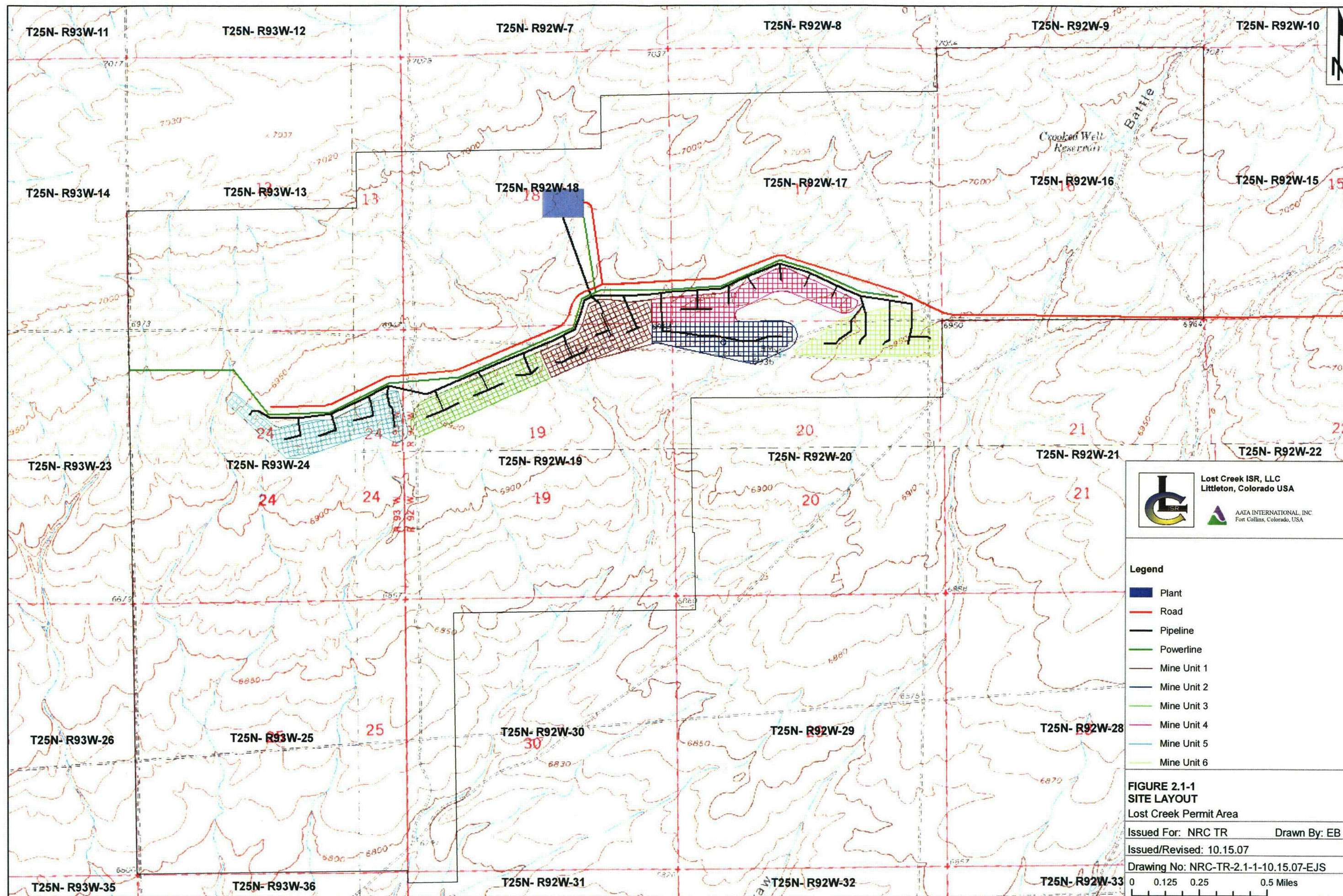
The Permit Area comprises approximately 4,220 acres, remotely located on public land. Within the Permit Area, 3,580 acres are federally owned and administered by the BLM (see **Section 2.2.1**); 640 acres are owned by the State of Wyoming and administered by the Wyoming Office of State Lands and Investments. The Permit Area consists of 199 unpatented federal lode claims and one state lease. It includes portions or the entirety of Sections 13 and 23 to 26 of Township 25 North, Range 93 West, and Sections 16 to 21 and 29 to 31 of Township 25 North, Range 92 West, and is located entirely in Sweetwater County, Wyoming.

The topography, existing roads, power lines and political boundaries within the Permit Area are shown in **Figure 1.3-1**. The map includes the surrounding two miles, pursuant to guidance from NUREG 1569 (NRC, 2003) regarding the study area for site location and layout. The base layer for most figures in this document is either a mosaic of Digital Raster Graphic drawings, 7.5 minute quad maps from the United States Geological Survey (USGS), or an orthophoto mosaic for Sweetwater County, Wyoming, originating from the US Department of Agriculture, Natural Resources Conservation Service (NRCS). Additional Geographic Information System (GIS) data layers in this document were created by the US Census Bureau, US Census Bureau with enhancements by ESRI and TeleAtlas, BLM, Wyoming Game and Fish Department (WGFD), Spatial Data and Visualization Center of Laramie, Wyoming, and Munn & Arneson (1998 and 1999).

The drainages within the two-mile review area are entirely ephemeral; there is no perennial surface water present. The site elevation ranges from approximately 6,790 to 7,050 feet above mean sea level. As such, there are no notable geographic features within the review area. No geologic outcrops are present within the review area; site geology is discussed at length in **Section 2.6** of this document. The site is composed entirely of Big Sagebrush Shrublands, and there are no forested portions of the review area; the ecology of the site is discussed in **Section 2.8** of this document. There are no publicly maintained roads within the Permit Area. The road network in the Permit Area, delineated in **Figure 1.3-1** consists entirely of two-track roads, accessible year-round with four-wheel-drive vehicles. There are grazing allotments within the review area, but no farms, residences, or population centers are present. Land use is discussed in **Section 2.2** and population distribution is discussed in **Section 2.3** of this document.

The proposed locations of the Plant, roads, transmission lines, pipelines, mine units and facilities within the Permit Area are shown in **Figure 2.1-1**. The delineation of the mine

units is preliminary, and may change as additional information becomes available. During production and restoration, each mine unit will be fenced. The area surrounding the Plant will be fenced for security for the duration of the Project. No drainage diversions are currently planned. Figure 2.1-2 shows the regional transportation network and likely site access routes.



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Legend

- Plant
- Road
- Pipeline
- Powerline
- Mine Unit 1
- Mine Unit 2
- Mine Unit 3
- Mine Unit 4
- Mine Unit 5
- Mine Unit 6

FIGURE 2.1-1
SITE LAYOUT
Lost Creek Permit Area

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Issued/Revised: 10.15.07

Drawing No: NRC-TR-2.1-1-10.15.07-EJS

0 0.125 0.25 0.5 Miles

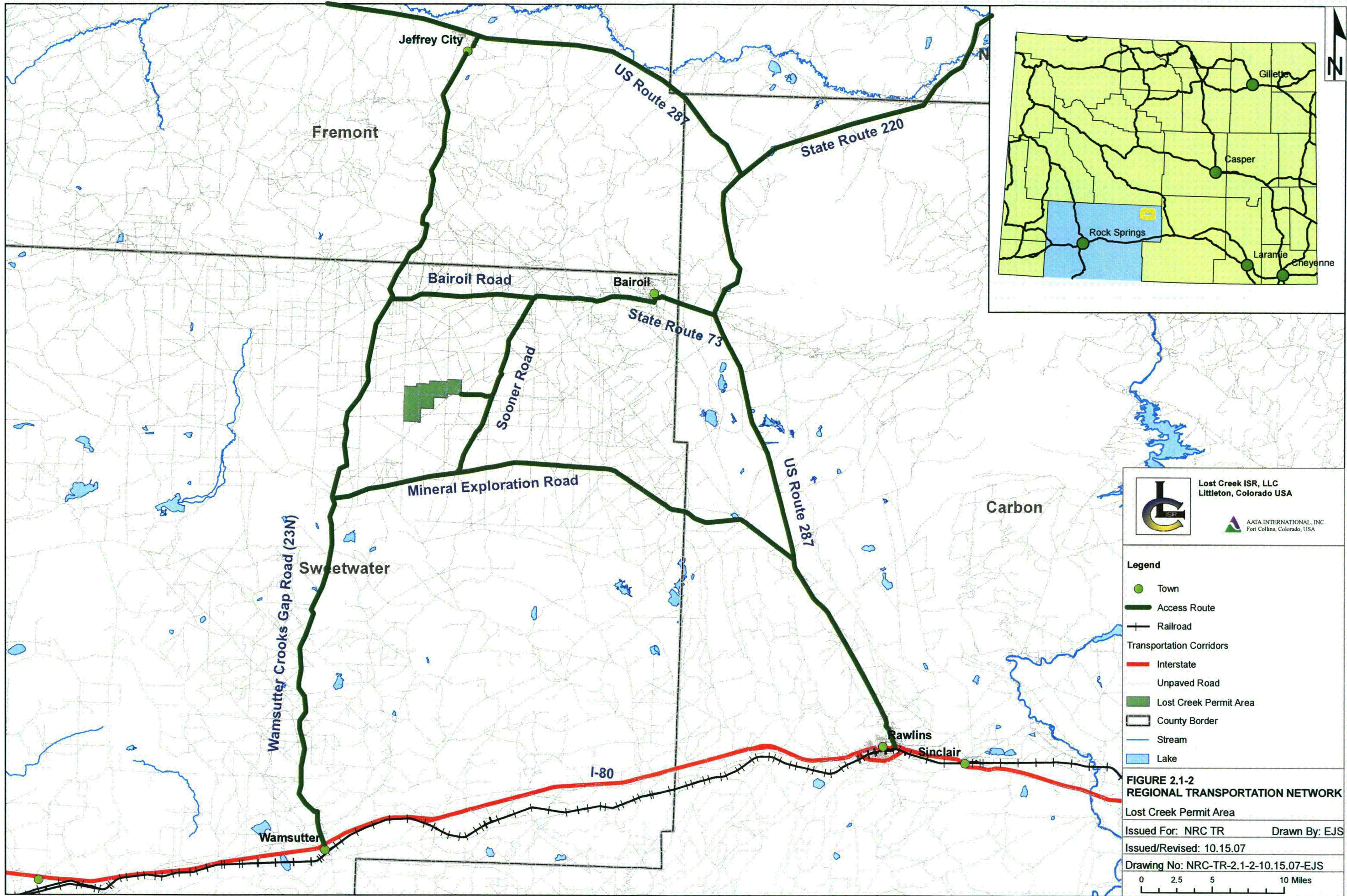


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Figure 2.2-6 BLM East Eagle Nest Draw Well

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2.2 Uses of Adjacent Lands and Waters

The study area for land and water use is comprised of the Permit Area plus the area within two miles of the Permit Area, except for information on nuclear fuel cycle facilities for which the study area is expanded to 50 miles from the Permit Area. The land and water uses within the study area are described below to provide the background information necessary to assess the potential impacts of the Project. Land and water use data support evaluation of the potential impacts from all aspects of the ISR operation, including radiation exposure calculations, cost-benefit analyses, and determination of air emissions.

2.2.1 Land Use

The land within the Permit Area is entirely publicly owned. Three-thousand-five-hundred-eighty acres (85 percent) are federal land, managed by BLM through the Rawlins and Lander Field Offices. Six-hundred-forty acres (15 percent) are state lands managed by the Wyoming Office of State Lands and Investments. Within the two-mile perimeter study area, 27,486 acres (96 percent) are federally owned; 983 acres (three percent) are state owned; and 307 acres (one percent) are privately owned (**Figure 2.2-1**). The current primary land use in the study area is rangeland for cattle and sheep, but the area is also used for dispersed recreation, such as hunting, off-highway vehicle (OHV) use, and antler collecting. There are no population centers within two miles of the Permit Area; the closest residence is in Bairoil, about 15 miles from the Project. There are no maintained roads within the study area, but a power line is present.

Rangeland and Agriculture

There is no crop production within the Permit Area or within two miles of the Permit Area; the only agricultural production is related to grazing. The study area includes portions of three grazing allotments: Stewart Creek, Cyclone Rim, and Green Mountain (**Figure 2.2-2**). These allotments provide forage for cattle that are generally sold as food sources, as well as a small number of horses and sheep. Grazing rights are assigned by section, so all sections that are at least partly within two miles of the Permit Area are included in the grazing allotment study area.

The Stewart Creek and Cyclone Rim allotments are managed by the BLM Rawlins Field Office, and cover 22,101 acres within the study area. Together, these two allotments provide 3,027 animal unit months (AUMs) of summer and winter grazing (Calton, M. Range Specialist, BLM Rawlins Field Office. Personal communication. July, 2007.). The Green Mountain allotment is managed by the BLM Lander Field Office, and includes 9,339 acres within the study area. This acreage provides 635 AUMs of summer grazing.

An AUM is an animal unit month, the common unit of measure defined as “the amount of forage to sustain one mature cow or the equivalent, based on an average daily forage consumption of 26 pounds of dry matter per day” (BLM, 2004a). The total AUMs for the study area is 3,662, which would provide year-round forage for the equivalent of 305 cows. For a 1,000-pound cow, the average meat yield is 550 pounds (National Sustainable Agriculture Information Service, 2007). Therefore, the annual potential total meat production associated with the Permit Area is roughly 168,000 pounds if all the cattle are slaughtered. However, because the cattle generally include cow-calf pairs, some of the cows and calves are generally kept for breeding.

In 2000, one AUM for cattle was worth \$33.27. At these values, the BLM calculated that cattle production would produce \$65.07 per AUM of total economic impact, which includes both direct and secondary returns (BLM, 2004a). Using these figures, livestock production on rangeland within the grazing allotments of the Permit Area has a potential value of about \$238,000 per year based on the current AUMs of the study area.

Hunting

WGFD hunting areas for antelope, deer, elk, and mountain lion include the Permit Area. Hunting seasons run from September through December, but hunting occurs primarily in October and November. Hunter days for the hunt areas in the general region of the Project are shown in **Table 2.2-1**; these hunt areas are primarily not within two miles of the Permit Area.

Infrastructure

Currently, the only transportation corridors within the study area proper are two-track roads (**Figure 1.3-1**). These are accessible year-round by four-wheel-drive vehicles. Most are indistinct, difficult to delineate, or do not have obvious end points. These tracks are not maintained, have no drainage, and are sometimes impassible during the winter months. County Road 23 North (Wamsutter-Crooks Gap Road) is about five miles west of the Permit Area, and the BLM 3215 (Sooner Road) is about five miles east. A power transmission line runs in a north-south direction near the western boundary of the Permit Area.

Nuclear Fuel Cycle Facilities, Uranium Mills, Mines, and ISR Projects

There are no nuclear fuel cycle facilities within 50 miles of the Lost Creek Permit Area (NRC, 2007). However, there are several conventional uranium mills and mines and ISR projects within 50 miles of the Permit Area; the locations are shown on **Figure 2.2-3**. Other than Kennecott Uranium Company’s Sweetwater Mill (NRC License No. SUA-1350; WDEQ Permit No. 481), which is currently on stand-by, and the PRI Gas Hills

Project (NRC License No. SUA-1511-Amendment; WDEQ Permit No. 603), which is a new ISR project not yet in operation, all of the operations shown in **Figure 2.2-3** are in decommissioning or reclamation or have been reclaimed by the operator or the WDEQ Abandoned Mine Lands Division. The closest facility to the Project is the Sweetwater Mill, which is located about five miles south-southwest of the center of the Project, with about two miles separating the permit boundaries.

2.2.1.1 Planned Land Uses and Developments

Both Carbon and Sweetwater Counties are experiencing considerable natural resource development, much of which is related to oil and gas exploration and production. Based on publicly available information, no projects are currently planned within the study area (Simons, D. Planning and Environmental Coordinator, BLM Rawlins Field Office. Personal communication. 2007; Murray, C. Planning and Environmental Coordinator, BLM Lander Field Office. Personal communication. 2007). Although specific locations and plans have generally not been publicly disclosed, uranium exploration in the general vicinity has recently increased in response to the current uranium market.

2.2.2 Water Use

Water-use permits with legal descriptions inside and within two miles of the Permit Area were queried in 2007 using the Wyoming State Engineer's Office (WSEO) Water Rights Database (WSEO, 2006). In this vicinity, water is used for livestock and wildlife watering as well as for purposes related to mining (monitoring, pump testing, and dewatering). Currently, water is not used for domestic or irrigation purposes within two miles of the Permit Area.

2.2.2.1 Surface Water

The WSEO Database query results indicate that surface-water-use permits do not exist inside or within two miles of the Permit Area. As noted in the following section, there are four BLM stock ponds within two miles of the Permit Area. The water-use permits for these ponds are associated with the wells that supply the ponds, i.e., they are not associated with any surface-water-use permits. Also, as noted in **Section 2.7.1.1**, the Crooked Well Reservoir is located in the Permit Area. However, it is a small off-channel detention pond, less than one-quarter acre in size, and there is no water-use permit associated with it.

2.2.2.2 Groundwater

Water-use permits with legal descriptions inside and within two miles of the Permit Area were queried using the WSEO Water Rights Database (WSEO, 2006). The majority of the groundwater-use permits filed in the vicinity of the Permit Area are for monitoring or miscellaneous mining-related purposes, and do not represent consumptive use of groundwater. Many of those permits are associated with the Kennecott Sweetwater Mine, which is in reclamation. Because this mine was an open-pit operation, the dewatering and monitoring associated with it were at much shallower depths than those proposed for ISR at Lost Creek. Dewatering in advance of mining at the Sweetwater Mine was completed in 1983.

All non-mining and mining groundwater-use permits inside and within two miles of the Permit Area are presented in **Table 2.2-2**. Descriptions of the groundwater-use permits include, but are not limited to, location, uses, priority dates, status, yield, total depth, and static water depth.

The water-use permits unrelated to mining are those of the BLM. In 1968 and 1980, the BLM Rawlins District was granted three permits (13834, 55112, and 55113). Each of these permits is associated with a well that supplies a stock pond (or tank). These wells and associated stock ponds are located outside of the Permit Area, but within the study area (**Figure 2.2-4**). In addition, there is a fourth BLM well, supplying a stock pond, for which no water-use permit was found.

Permit 13834 is for Battle Spring Draw Well No. 4451, which pumps water into a stock tank east of the Permit Area (Township 25 North, Range 92 West, Section 21, Northwest Quarter, Northeast Quarter, Northeast Quarter). In 1968, a uranium exploration hole was drilled at this location; when water was encountered, plastic casing was installed and the well was developed. The well depth is 900 feet, with a static water level of 104 feet. A yield of 19 gpm is permitted. The screened interval is unknown, but given the well depth, it may be significantly deeper than the sands targeted by LC ISR, LLC under this permit.

Boundary Well No. 4775 (Permit 55112) and Battle Spring Well No. 4777 (Permit 55113) were drilled as stock wells in 1981 to a depth of approximately 280 feet and 220 feet, respectively. These wells are shallower than the sands targeted by LC ISR, LLC under this permit. A water use of 25 gpm is permitted at each of these wells. According to aerial photographs, Boundary Well No. 4775 is located northeast of the Permit Area, in Township 25 North, Range 92 West, Section 10, Southeast Quarter, Northeast Quarter, Southwest Quarter. Battle Spring Well No. 4777 is situated southeast of the Permit Area, in Township 25 North, Range 92 West, Section 30, Southeast Quarter, Northwest Quarter. The condition of the windmill on Boundary Well No. 4775 is not known, and

the windmill on the Battle Spring Well No. 4777 was not in working order in June 2007 (**Figure 2.2-5**).

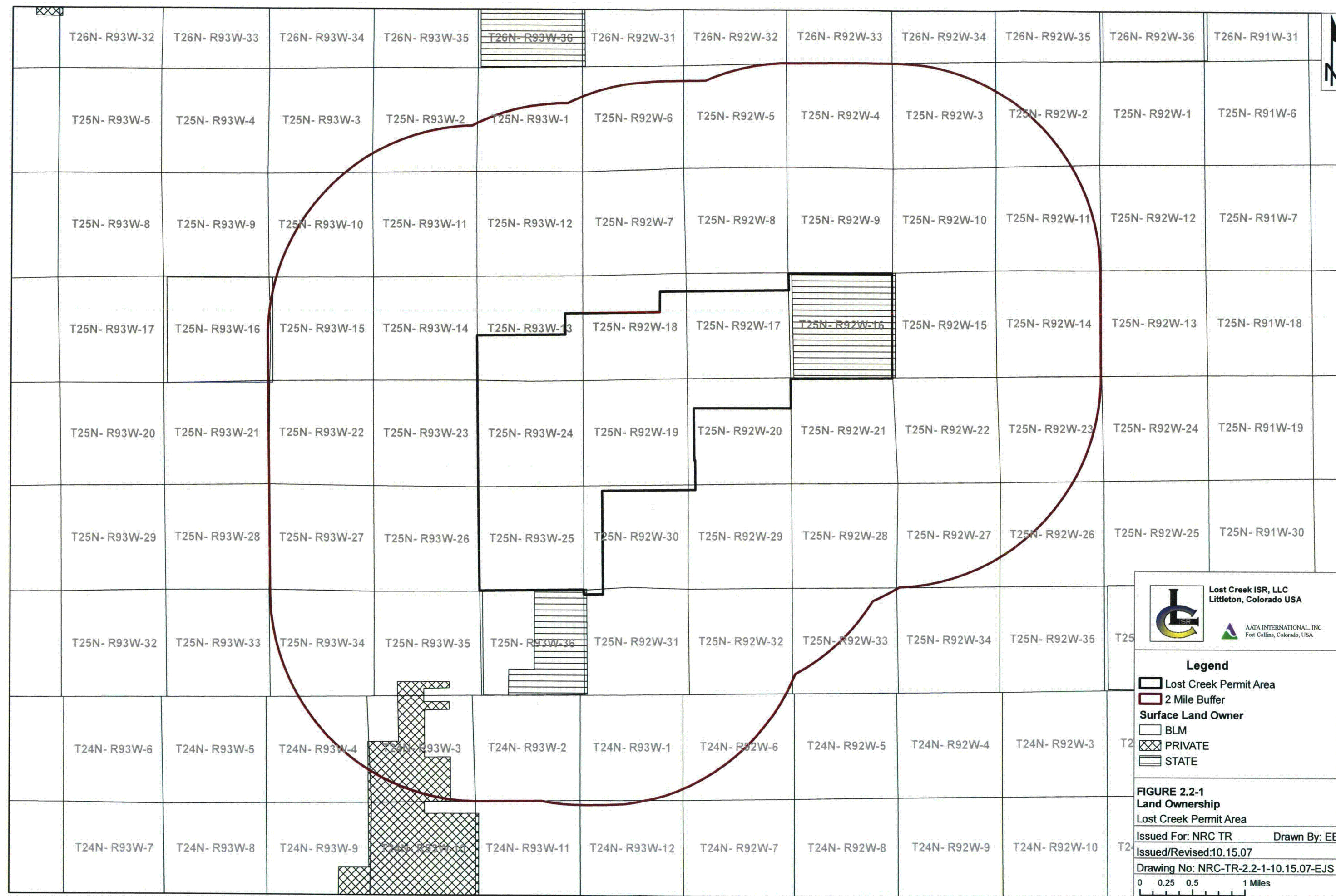
In June and July of 2007, LC ISR, LLC contacted BLM to identify the status of these groundwater-use permits. These groundwater-use permits are still considered active (BLM, 2007). In addition to these wells, BLM identified another active stock well, the East Eagle Nest Draw Well.

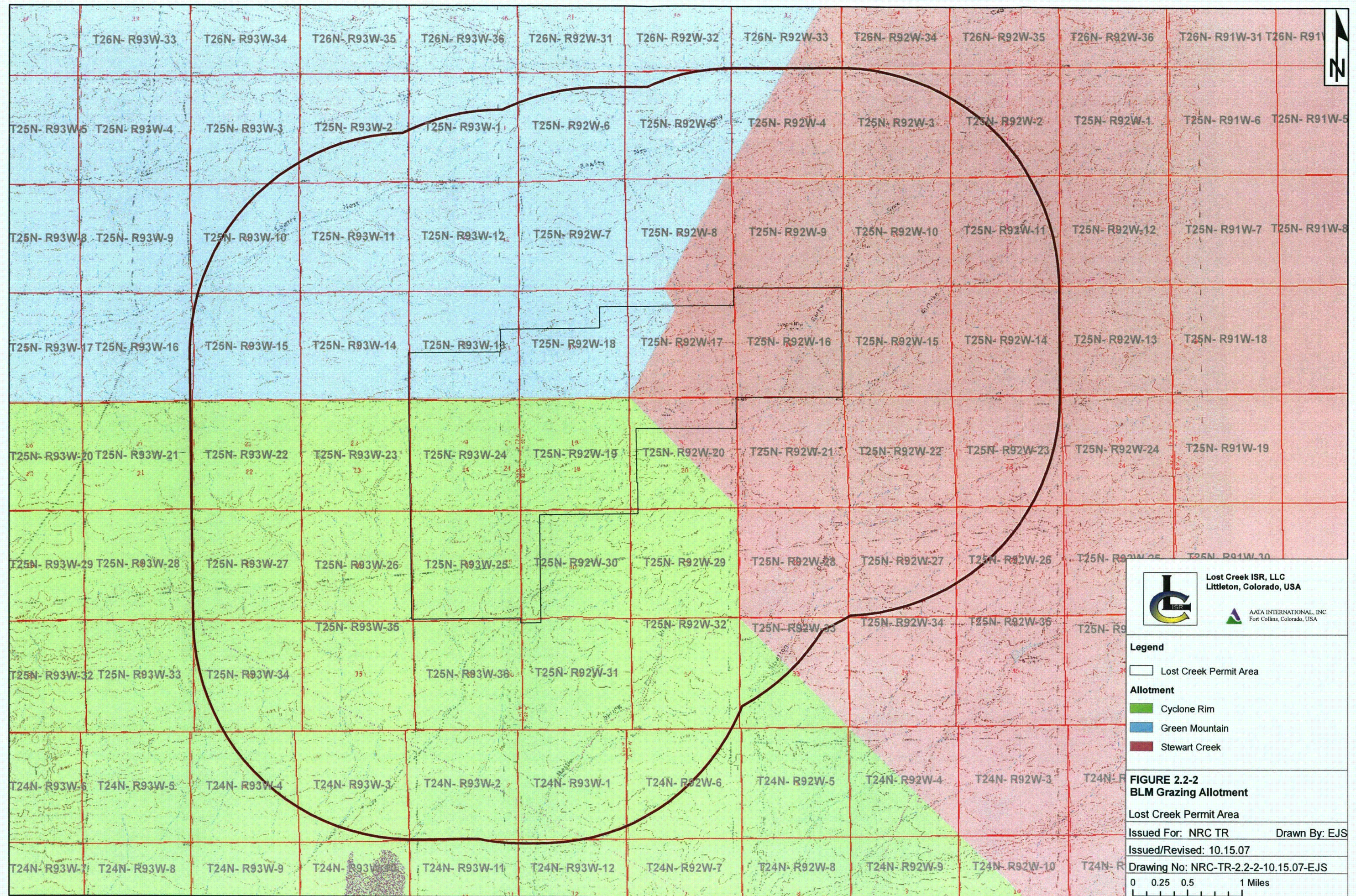
The East Eagle Nest Draw Well is located north of the Permit Area, in the Northwest Quarter of the Northwest Quarter of the Northwest Quarter of Section 13, Township 25 North and Range 93 West. From mid-May through mid-September, an electric submersible pump in the well is used to pump water into a livestock watering pond at an average rate of five gpm for six to eight hours each day (**Figure 2.2-6**). This total depth of this well is 370 feet, with a static water level of 269 feet.

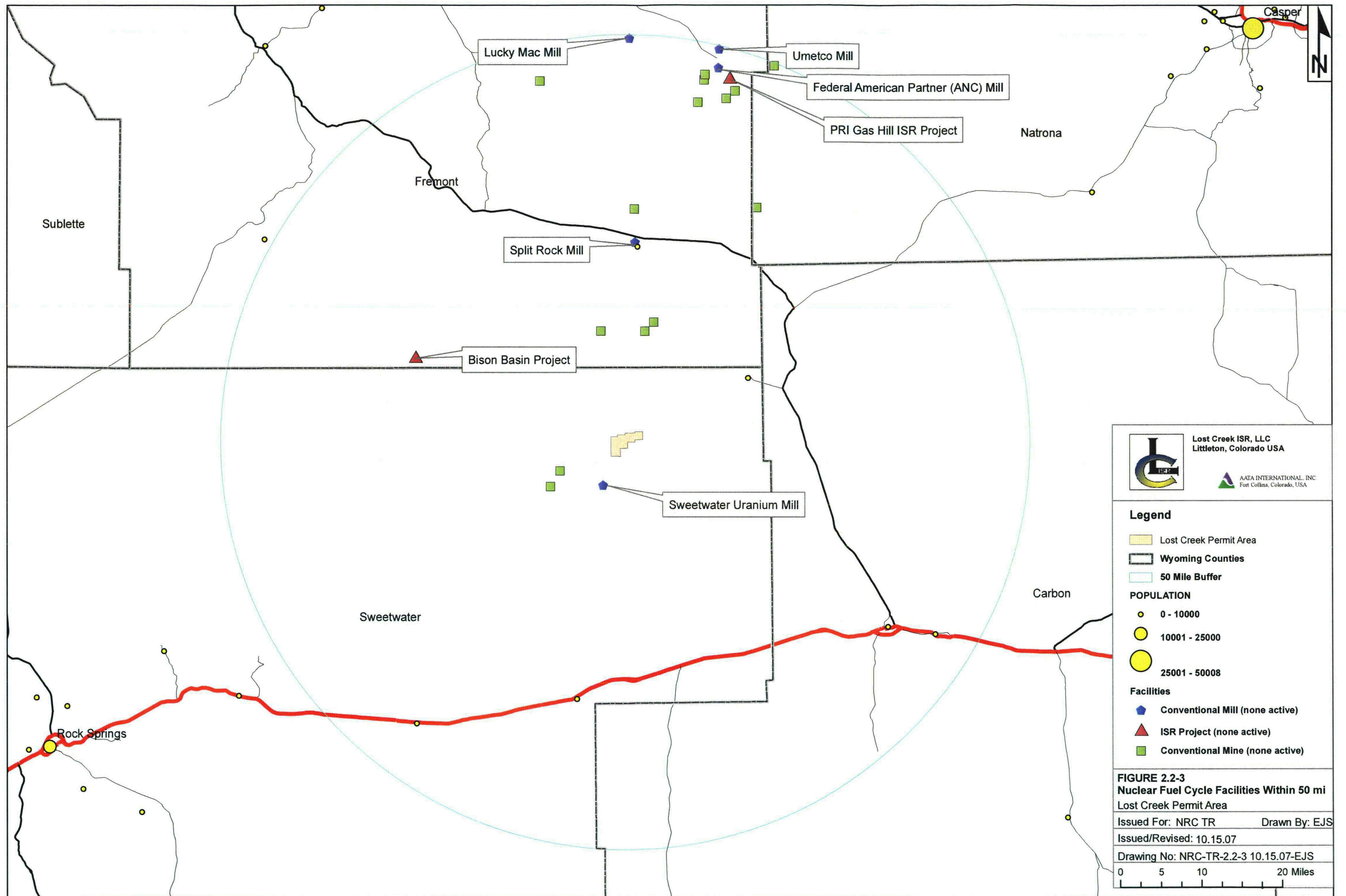
Throughout the phases of the Project, LC ISR, LLC will correspond with BLM to ensure that the stock reservoirs and wells are not impacted in a manner that restricts their intended use.

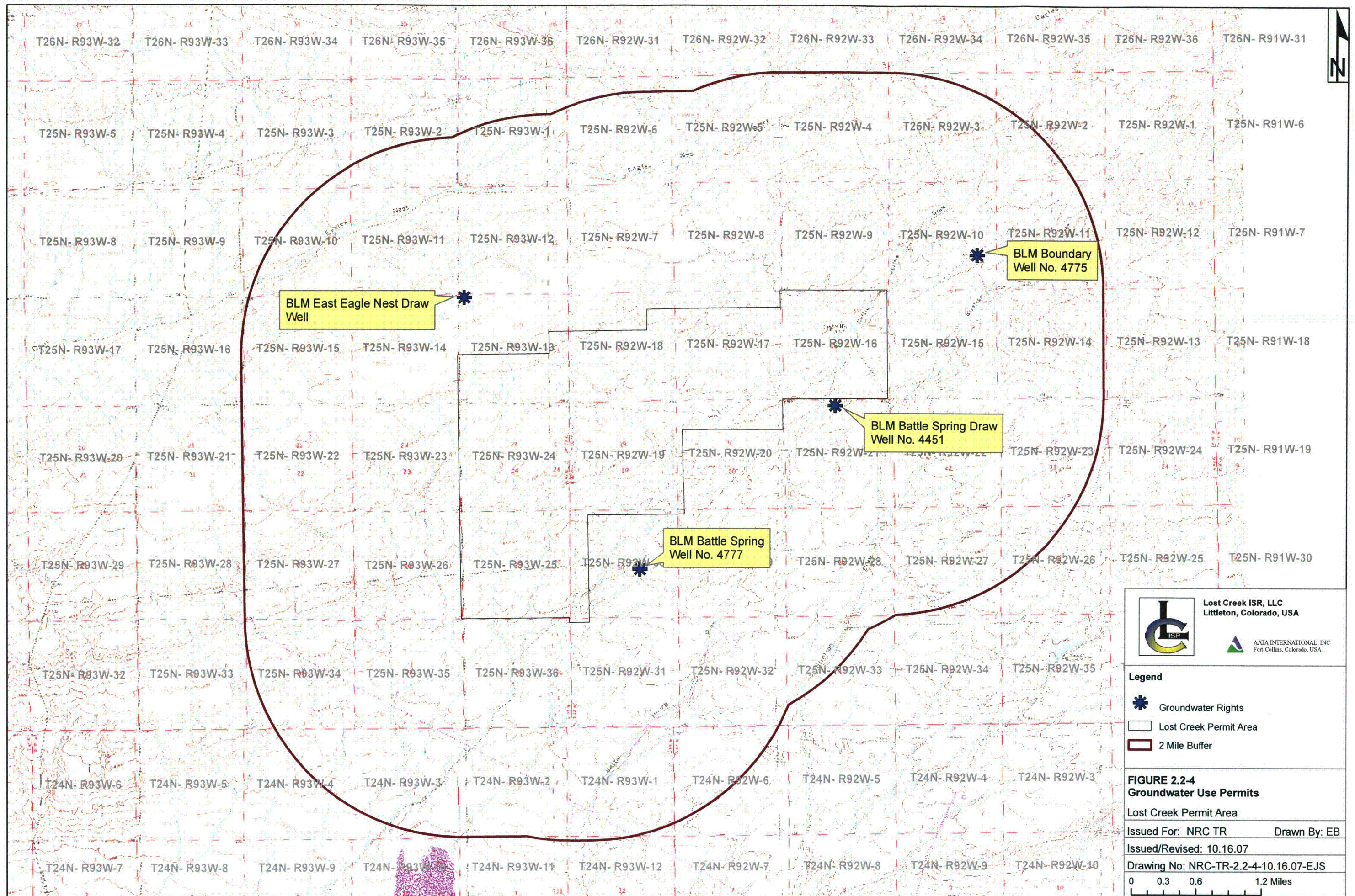
At this time, the Permit Area has three water supply wells and 75 monitor wells permitted and bonded by the State Engineer and WDEQ to LC ISR, LLC and its affiliates (Ur-E and NFU Wyoming, LLC). Installation of these wells is on-going. Currently, the Project consumes a negligible amount of groundwater for well development, monitoring, testing, and miscellaneous purposes related to uranium exploration. Projected water use once ISR begins is discussed in **Section 3.2.7.3**, and the impacts of that use are discussed in **Section 7.1.5.2**.

A list and description of the queried cancelled and abandoned drill holes and wells within a two-mile radius of the Permit Area are displayed in **Table 2.2-3**. Drill hole abandonment is discussed in detail in **Section 3.2.2** of this report. Well abandonment is discussed in **Section 6.3.2** of this report.

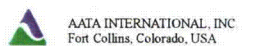








Lost Creek ISR, LLC
Littleton, Colorado, USA



Legend

- Groundwater Rights
- Lost Creek Permit Area
- 2 Mile Buffer

FIGURE 2.2-4
Groundwater Use Permits

Lost Creek Permit Area

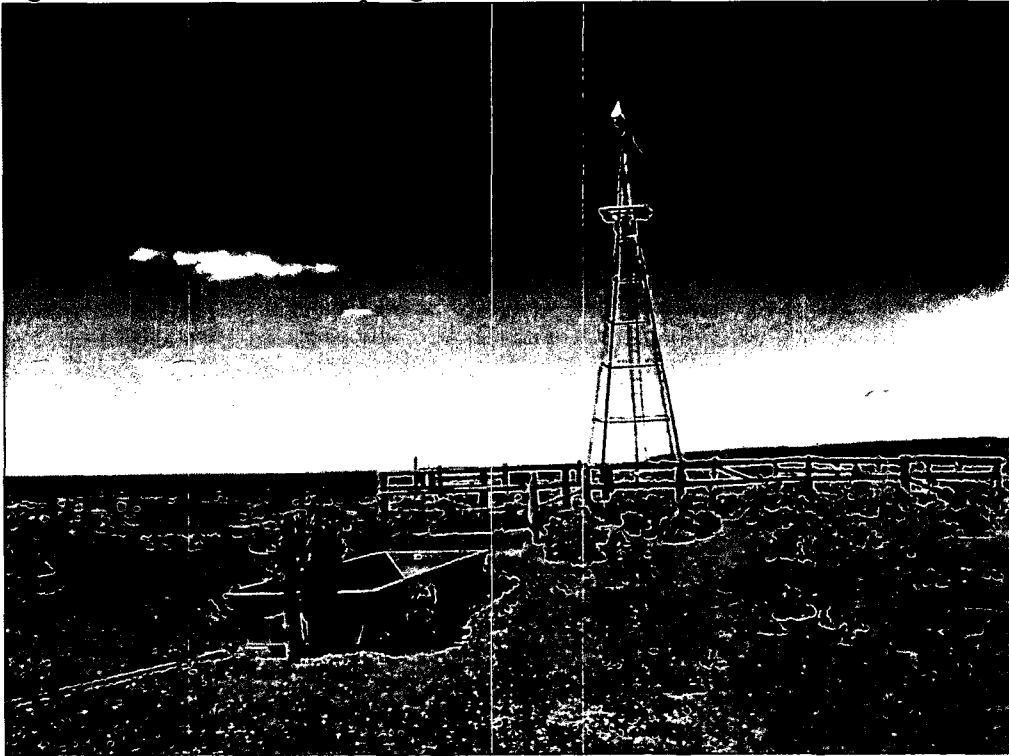
Issued For: NRC TR Drawn By: EB

Issued/Revised: 10.16.07

Drawing No: NRC-TR-2.2-4-10.16.07-EJS

0 0.3 0.6 1.2 Miles

Figure 2.2-5 BLM Battle Spring Well No. 4777



(June 13, 2007)

Figure 2.2-6 BLM East Eagle Nest Draw Well



(June 13, 2007)

Table 2.2-1 Hunting Statistics for Hunt Areas that Include the Permit Area

Game	Hunter Days	Active Licenses	Total Harvest	Hunter Success (percent)	Outfitters	Hunting Area
Antelope	683	233	229	98.30	19	Chain Lakes
Deer	544	126	12	9.50	7	Chain Lakes
Elk	496	82	42	51.20	3	Shamrock Hills
Mountain Lion	NA ¹	NA	1	NA	5	Red Desert

¹ NA = No Data

Table 2.2-2 Groundwater Use Permits (Page 1 of 12)

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P9742W	Kennecott Uranium Company	24	N	92	W 5	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	24	N	92	W 6	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	24	N	92	W 7	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	24	N	93	W 1	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	24	N	93	W 2	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	24	N	93	W 3	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	24	N	93	W 11	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	24	N	93	W 12	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P147594W	Kennecott Uranium Company	24	N	93	W 1	SWNE	10/22/2002	Good Standing	X	TMW-90	INP	55	36.13
P48386W	Kennecott Uranium Company	24	N	93	W 3	SWNE	5/31/1979	Unadjudicated	X	24-93W-3AC-M-1	0 gpm	450	135.8
P147595W	Kennecott Uranium Company	24	N	93	W 1	SENE	10/22/2002	Good Standing	X	TMW-91	INP	110	100.17
P47137W	Kennecott Uranium Company	24	N	93	W 3	SWSW	12/7/1977	Unadjudicated	INP	BLUE #5	100 gpm	INP	INP
P47137W	Kennecott Uranium Company	24	N	93	W 3	SESW	12/7/1977	Unadjudicated	INP	BLUE #5	100 gpm	INP	INP
P9742W	Kennecott Uranium Company	25	N	93	W 1	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 2	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 3	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 10	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 11	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 12	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 13	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 14	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 15	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 22	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 23	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 24	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25	N	93	W 25	INP	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104

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P9742W	Kennecott Uranium Company	25 N	93 W	26	INP	Stock, Industrial	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25 N	93 W	27	INP	Stock, Industrial	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25 N	93 W	34	INP	Stock, Industrial	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25 N	93 W	35	INP	Stock, Industrial	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
P9742W	Kennecott Uranium Company	25 N	93 W	36	INP	Stock, Industrial	7/15/1971	Adjudicated	INP	J E S #1	25 gpm	170	104
39/1/565W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMO-101	LCS	LCS	LCS
39/1/566W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMV-105	LCS	LCS	LCS
39/1/567W	NFU Wyoming LLC	25 N	92 W	18	SESE	Monitoring	3/1/2007	Unadjudicated	X	HJMP-108	LCS	LCS	LCS
39/1/568W	NFU Wyoming LLC	25 N	92 W	17	SWSW	Monitoring	3/1/2007	Unadjudicated	X	HJMO-111	LCS	LCS	LCS
39/1/569W	NFU Wyoming LLC	25 N	92 W	20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	UKMU-101	LCS	LCS	LCS
39/10/564W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMP-101	LCS	LCS	LCS
39/10/565W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMO-104	LCS	LCS	LCS
39/10/566W	NFU Wyoming LLC	25 N	92 W	18	SESE	Monitoring	3/1/2007	Unadjudicated	X	HJMV-108	LCS	LCS	LCS
39/10/567W	NFU Wyoming LLC	25 N	92 W	17	SWSW	Monitoring	3/1/2007	Unadjudicated	X	HJMP-111	LCS	440	176.94
39/10/568W	NFU Wyoming LLC	25 N	92 W	20	NENW	Monitoring	3/1/2007	Unadjudicated	X	HJMO-114	LCS	LCS	LCS
39/10/88W	NFU Wyoming LLC	25 N	92 W	16	SENE	Monitoring	6/9/2006	Unadjudicated	X	LC27M	LCS	477	189.8
39/2/564W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJT 101	LCS	LCS	LCS
39/2/565W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMV-102	LCS	LCS	LCS
39/2/566W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMP-105	LCS	LCS	LCS
39/2/567W	NFU Wyoming LLC	25 N	92 W	18	SESE	Monitoring	3/1/2007	Unadjudicated	X	HJMO-108	LCS	LCS	LCS
39/2/568W	NFU Wyoming LLC	25 N	92 W	20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMV-112	LCS	LCS	LCS
39/2/569W	NFU Wyoming LLC	25 N	92 W	20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	UKMP-101	LCS	575	192.13
39/3/564W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJT 102	LCS	LCS	LCS
39/3/565W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMP-102	LCS	LCS	LCS
39/3/566W	NFU Wyoming LLC	25 N	92 W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMO-105	LCS	LCS	LCS
39/3/567W	NFU Wyoming LLC	25 N	92 W	20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMV-109	LCS	LCS	LCS
39/3/568W	NFU Wyoming LLC	25 N	92 W	20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMP-112	LCS	LCS	LCS
39/3/569W	NFU Wyoming LLC	25 N	92 W	20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	UKMO-101	LCS	LCS	LCS

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39/4/563W	NFU Wyoming LLC	25	N 92	W 17	NWSE	Miscellaneous	2/28/2007	Unadjudicated	X	LC 32W	LCS	LCS	LCS
39/4/564W	NFU Wyoming LLC	25	N 92	W 19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJT 103	LCS	LCS	LCS
39/4/565W	NFU Wyoming LLC	25	N 92	W 19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMO-102	LCS	LCS	LCS
39/4/566W	NFU Wyoming LLC	25	N 92	W 18	SESE	Monitoring	3/1/2007	Unadjudicated	X	HJMV-106	LCS	LCS	LCS
39/4/567W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMP-109	LCS	LCS	LCS
39/4/568W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMO-112	LCS	LCS	LCS
39/4/569W	NFU Wyoming LLC	25	N 92	W 17	SWSW	Monitoring	3/1/2007	Unadjudicated	X	UKMU-102	LCS	LCS	LCS
39/4/88W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC15M	LCS	350	160.8
39/4/88W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC16M	LCS	472	178.14
39/4/88W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC17M	LCS	575	185.26
39/4/88W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC29M	LCS	171	153.95
39/5/563W	NFU Wyoming LLC	25	N 92	W 20	NENE	Miscellaneous	2/28/2007	Unadjudicated	X	LC 33W	LCS	LCS	LCS
39/5/564W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJT 104	LCS	460	169.51
39/5/565W	NFU Wyoming LLC	25	N 92	W 18	SESE	Monitoring	3/1/2007	Unadjudicated	X	HJMV-103	LCS	LCS	LCS
39/5/566W	NFU Wyoming LLC	25	N 92	W 18	SESE	Monitoring	3/1/2007	Unadjudicated	X	HJMP-106	LCS	LCS	LCS
39/5/567W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMO-109	LCS	LCS	LCS
39/5/568W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMV-113	LCS	LCS	LCS
39/5/569W	NFU Wyoming LLC	25	N 92	W 17	SWSW	Monitoring	3/1/2007	Unadjudicated	X	UKMP-102	LCS	498	190.68
39/5/88W	NFU Wyoming LLC	25	N 92	W 18	SESE	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC18M	LCS	350	168.04
39/5/88W	NFU Wyoming LLC	25	N 92	W 18	SESE	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC19M	LCS	463	180.08
39/5/88W	NFU Wyoming LLC	25	N 92	W 18	SESE	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC20M	LCS	543	202.36
39/6/564W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJT 105	LCS	LCS	LCS
39/6/565W	NFU Wyoming LLC	25	N 92	W 18	SESE	Monitoring	3/1/2007	Unadjudicated	X	HJMP-103	LCS	LCS	LCS
39/6/566W	NFU Wyoming LLC	25	N 92	W 18	SESE	Monitoring	3/1/2007	Unadjudicated	X	HJMO-106	LCS	LCS	LCS
39/6/567W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMV-110	LCS	LCS	LCS
39/6/568W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMP-113	LCS	LCS	LCS
39/6/569W	NFU Wyoming LLC	25	N 92	W 17	SWSW	Monitoring	3/1/2007	Unadjudicated	X	UKMO-102	LCS	LCS	LCS
39/7/564W	NFU Wyoming LLC	25	N 92	W 20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJT 106	LCS	LCS	LCS

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39/7/565W	NFU Wyoming LLC	25	N 92° W	18	SESE	Monitoring	3/1/2007	Unadjudicated	X	HJMO-103	LCS	LCS	LCS
39/7/566W	NFU Wyoming LLC	25	N 92° W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMV-107	LCS	LCS	LCS
39/7/567W	NFU Wyoming LLC	25	N 92° W	20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMP-110	LCS	476	174.89
39/7/568W	NFU Wyoming LLC	25	N 92° W	20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMO-113	LCS	LCS	LCS
39/7/569W	NFU Wyoming LLC	25	N 92° W	17	SWSW	Monitoring	3/1/2007	Unadjudicated	X	UKMU-103	LCS	LCS	LCS
39/7/88W	NFU Wyoming LLC	25	N 92° W	17	SWSW	Monitoring	6/9/2006	Unadjudicated	X	LC24M	LCS	542	192.11
39/8/564W	NFU Wyoming LLC	25	N 92° W	20	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJT 107	LCS	LCS	LCS
39/8/565W	NFU Wyoming LLC	25	N 92° W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMV-104	LCS	LCS	LCS
39/8/566W	NFU Wyoming LLC	25	N 92° W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMP-107	LCS	464	183.61
39/8/567W	NFU Wyoming LLC	25	N 92° W	20	NWNW	Monitoring	3/1/2007	Unadjudicated	X	HJMO-110	LCS	LCS	LCS
39/8/568W	NFU Wyoming LLC	25	N 92° W	20	NENW	Monitoring	3/1/2007	Unadjudicated	X	HJMV-114	LCS	LCS	LCS
39/8/569W	NFU Wyoming LLC	25	N 92° W	17	SWSW	Monitoring	3/1/2007	Unadjudicated	X	UKMP-103	LCS	LCS	LCS
39/8/88W	NFU Wyoming LLC	25	N 92° W	19	NENE	Monitoring	6/9/2006	Unadjudicated	X	LC25M	LCS	380	167.05
39/9/564W	NFU Wyoming LLC	25	N 92° W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMV-101	LCS	LCS	LCS
39/9/565W	NFU Wyoming LLC	25	N 92° W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMP-104	LCS	430	171.81
39/9/566W	NFU Wyoming LLC	25	N 92° W	19	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMO-107	LCS	LCS	LCS
39/9/567W	NFU Wyoming LLC	25	N 92° W	17	SWSW	Monitoring	3/1/2007	Unadjudicated	X	HJMV-111	LCS	LCS	LCS
39/9/568W	NFU Wyoming LLC	25	N 92° W	20	NENE	Monitoring	3/1/2007	Unadjudicated	X	HJMP-114	LCS	LCS	LCS
39/9/569W	NFU Wyoming LLC	25	N 92° W	17	SWSW	Monitoring	3/1/2007	Unadjudicated	X	UKMP-103	LCS	LCS	LCS
39/9/88W	NFU Wyoming LLC	25	N 92° W	20	NENE	Monitoring	6/9/2006	Unadjudicated	X	LC26M	LCS	436	171.1
39/6/88W	NFU Wyoming LLC	25	N 93° W	24	SWNE	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC21M	LCS	410	198.2
39/6/88W	NFU Wyoming LLC	25	N 93° W	24	SWNE	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC22M	LCS	592	206.73
39/6/88W	NFU Wyoming LLC	25	N 93° W	24	SWNE	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC23M	LCS	634	220.75
39/6/88W	NFU Wyoming LLC	25	N 93° W	24	SWNE	Monitoring, Test Well	6/9/2006	Unadjudicated	X	LC30M	LCS	236	198.91
39/2/89W	NFU Wyoming LLC	25	N 93° W	25	SWSW	Monitoring	6/9/2006	Unadjudicated	X	LC31M	LCS	191	144.01
39/1/89W	NFU Wyoming LLC	25	N 93° W	25	SWSW	Monitoring	6/9/2006	Unadjudicated	X	LC28M	LCS	563	154.45
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92° W	16	NENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92° W	16	NWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS

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Permit Number	Applicant ¹	Township	Range	Section	¼¼ ²	Uses	Priority	Status	Headgate-Outlet-Well ^{3,4}	Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	SWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	SENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	SWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	SENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	NESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	NWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	SWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	SESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	NESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	NWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	SWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	16	SESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	NENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	NWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	SWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	SENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	SWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	SENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	NESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	NWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	SWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	SESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	NESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	NWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS

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Permit Number	Applicant ¹	Township	Range	Section	¼ ¼ ²	Uses	Priority	Status	Headgate-Outlet-Well ^{3,4}	Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	SWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	17	SESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	NENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	NWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	SWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	SENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	SWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	SENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	NESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	NWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	SWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	SESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	NESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	NWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	SWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	18	SESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	NENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	NWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	SWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	SENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	SWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	SENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	NESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25 N	92 W	19	NWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS

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Permit Number	Applicant ¹	Township	Range	Section	¼ ¼ ²	Uses	Priority	Status	Headgate-Outlet-Well ^{3,4}	Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	19	SWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	19	SESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	20	NENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	20	NWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	20	SWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	20	SENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	20	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	20	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	20	SWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	20	SENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	30	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	30	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	30	SWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	30	SENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	30	NESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	30	NWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	30	SWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 92 W	30	SESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	NWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	SWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	SESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	SWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	SESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	NESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	SENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	NESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	NWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS

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P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	SWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	NWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	SWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	SENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	13	NENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	SESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	SWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	SWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	SESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	SWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	SENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	SENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	SWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	X	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	24	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	25	SWSE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	25	SESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	25	SESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93 W	25	NESE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS

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P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	NESW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	NWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	SWSW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	SWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	SENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	SWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	SENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	NENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 25	NWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 36	NWNW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 36	NENW	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 36	NWNE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P169906W	Ur-Energy USA Inc. -- WSBLC	25	N 93	W 36	NENE	Miscellaneous	9/12/2005	Good Standing Incomplete	LCS	LCIW	LCS	LCS	LCS
P13834P	USDI BLM, Rawlins District	25	N 92	W 21	NENW	Stock	9/21/1968	INP	INP	BATTLE SPRING DRAW WELL #4451	19 gpm	900	104
P13834P	USDI BLM, Rawlins District	25	N 92	W 21	NENW	Stock	9/21/1968	INP	X	BATTLE SPRING DRAW WELL #4451	19 gpm	900	104
P55113W	USDI BLM, Rawlins District	25	N 92	W 30	NWSE	Stock	12/24/1980	INP	INP	BATTLE SPRINGS	5 gpm	220	109
P55113W	USDI BLM, Rawlins District	25	N 92	W 30	NWSE	Stock	12/24/1980	INP	X	BATTLE SPRINGS	5 gpm	220	109
P55112W	USDI BLM, Rawlins District	25	N 92	W 10	SESE	Stock	12/24/1980	INP	INP	BOUNDARY	5 gpm	280	155
P55112W	USDI BLM, Rawlins District	25	N 92	W 10	SESE	Stock	12/24/1980	INP	X	BOUNDARY	5 gpm	280	155

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Table 2.2-2 Groundwater Use Permits (Page 10 of 12)

Last Revised October, 2007

Permit Number	Applicant ¹	Township	Range	Section	¼ ¼ ²	Uses	Priority	Status	Headgate-Outlet-Well ^{3,4}	Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)
P39744W	USDI, BLM -- Apexco Inc.	25 N	93 W	22	SWNE	Miscellaneous	8/26/1977	INP	INP	BATTLE SPRINGS #1	25 gpm	640	60
P39744W	USDI, BLM -- Apexco Inc.	25 N	93 W	22	SWNE	Miscellaneous	8/26/1977	INP	X	BATTLE SPRINGS #1	25 gpm	640	60
P54891W	USDI, BLM -- Kennecott Uranium Company	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 39	200 gpm	600	169
P54892W	USDI, BLM -- Kennecott Uranium Company	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 40	200 gpm	600	155
P54891W	USDI, BLM -- Kennecott Uranium Company	24 N	93 W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 39	200 gpm	600	169
P54892W	USDI, BLM -- Kennecott Uranium Company	24 N	93 W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 40	200 gpm	600	155
P63128W	USDI, BLM -- Kennecott Uranium Company	24 N	93 W	11	SWSW	Monitoring	1/28/1983	INP	INP	TMW-14	0 gpm	INP	INP
P63128W	USDI, BLM -- Kennecott Uranium Company	24 N	93 W	11	SWSW	Monitoring	1/28/1983	INP	X	TMW-14	0 gpm	INP	INP
P54886W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 34	200 gpm	450	140
P54894W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 42	200 gpm	600	166
P54883W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 31	190 gpm	600	152
P54893W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 41	190 gpm	600	157

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Table 2.2-2 Groundwater Use Permits (Page 11 of 12)

Last Revised October, 2007

Permit Number	Applicant ¹	Township	Range	Section	¼ ¼ ²	Uses	Priority	Status	Headgate-Outlet-Well ^{3, 4}	Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)
P54884W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 32	200 gpm	600	147
P54885W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 33	190 gpm	560	141
P54886W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 34	200 gpm	450	140
P54894W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 42	200 gpm	600	166
P54883W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 31	190 gpm	600	152
P54893W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 41	190 gpm	600	157
P54884W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 32	200 gpm	600	147
P54885W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	Unadjudicated	INP	DW 33	190 gpm	560	141
P54887W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	INP	INP	DW 35	400 gpm	INP	INP
P54888W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	INP	INP	DW 36	400 gpm	INP	INP
P54890W	Minerals Exploration Company -- WSBLC	24 N	93 W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	INP	INP	DW 38	400 gpm	INP	INP

Table 2.2-2 Groundwater Use Permits (Page 12 of 12)

Last Revised October, 2007

Last Revised: October, 2007

Permit Number	Applicant ¹	Township	Range	Section	¼ ¼ ²	Uses	Priority	Status	Headgate-Outlet-Well ^{3,4}	Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)		
P54889W	Minerals Exploration Company -- WSBLC	24	N	93	W	11	SWSW	Dewatering, Industrial, Miscellaneous	11/24/1980	INP	INP	DW 37	400 gpm	INP	INP
P54887W	Minerals Exploration Company -- WSBLC	24	N	93	W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	INP	INP	DW 35	400 gpm	INP	INP
P54888W	Minerals Exploration Company -- WSBLC	24	N	93	W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	INP	INP	DW 36	400 gpm	INP	INP
P54890W	Minerals Exploration Company -- WSBLC	24	N	93	W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	INP	INP	DW 38	400 gpm	INP	INP
P54889W	Minerals Exploration Company -- WSBLC	24	N	93	W	11	SESW	Dewatering, Industrial, Miscellaneous	11/24/1980	INP	INP	DW 37	400 gpm	INP	INP

¹ WSBLC = Wyoming State Board of Land Commissioners

² INP = Information not provided by the online WSEO database.

³ An "X" in the "Headgate-Outlet-Well" column indicates the location of a headgate for a ditch or pipeline, an outlet for a reservoir or stock reservoir, or a well.

⁴ LCS = Part of the on-going Lost Creek Project study. Information will be provided when it becomes available.

Table 2.2-3 Abandoned and Cancelled Wells (Page 1 of 5)

Last Revised April, 2007

Permit Number	Applicant	Township	Range	Section	¼ ¼	Uses	Priority	Status	HeadGate-Outlet-Well	GW Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)
P61528W	Texasgulf Inc.	25	N 92	W 20	NWNW	Monitoring	6/11/1982	Abandoned		M25 92 20 1S	0 gpm	355	155.8
P61528W	Texasgulf Inc.	25	N 92	W 20	NWNW	Monitoring	6/11/1982	Abandoned	X	M25 92 20 1S	0 gpm	355	155.8
P61529W	Texasgulf Inc.	25	N 92	W 20	NWNW	Monitoring	6/11/1982	Abandoned		M25 92 20 1M	0 gpm	440	173.8
P61529W	Texasgulf Inc.	25	N 92	W 20	NWNW	Monitoring	6/11/1982	Abandoned	X	M25 92 20 1M	0 gpm	440	173.8
P61530W	Texasgulf Inc.	25	N 92	W 20	NWNW	Monitoring	6/11/1982	Abandoned		M25 92 20 1D	0 gpm	534	181.2
P61530W	Texasgulf Inc.	25	N 92	W 20	NWNW	Monitoring	6/11/1982	Abandoned	X	M25 92 20 1D	0 gpm	534	181.2
P61531W	Texasgulf Inc.	25	N 92	W 19	NENE	Monitoring	6/11/1982	Abandoned		M25 92 19 3M	0 gpm	460	176.5
P61531W	Texasgulf Inc.	25	N 92	W 19	NENE	Monitoring	6/11/1982	Abandoned	X	M25 92 19 3M	0 gpm	460	176.5
P61532W	Texasgulf Inc.	25	N 92	W 19	NENE	Monitoring	6/11/1982	Abandoned		M25 92 19 2M	0 gpm	460	175.9
P61532W	Texasgulf Inc.	25	N 92	W 19	NENE	Monitoring	6/11/1982	Abandoned	X	M25 92 19 2M	0 gpm	460	175.9
P61533W	Texasgulf Inc.	25	N 92	W 19	NENE	Monitoring	6/11/1982	Abandoned		M25 92 19 1M	0 gpm	460	174.4
P61533W	Texasgulf Inc.	25	N 92	W 19	NENE	Monitoring	6/11/1982	Abandoned	X	M25 92 19 1M	0 gpm	460	174.4
P61534W	Texasgulf Inc.	25	N 92	W 18	SWSE	Monitoring	6/11/1982	Abandoned		M25 19 18 1M	0 gpm	465	166.7
P61534W	Texasgulf Inc.	25	N 92	W 18	SESE	Monitoring	6/11/1982	Abandoned	X	M25 19 18 1M	0 gpm	465	166.7
P61535W	Texasgulf Inc.	25	N 92	W 18	SESE	Monitoring	6/11/1982	Abandoned		M25 19 18 1S	0 gpm	355	159.5
P61535W	Texasgulf Inc.	25	N 92	W 18	SESE	Monitoring	6/11/1982	Abandoned	X	M25 19 18 1S	0 gpm	355	159.5
P61536W	Texasgulf Inc.	25	N 92	W 18	SESE	Monitoring	6/11/1982	Abandoned		M25 92 18 1D	0 gpm	615	195.7
P61536W	Texasgulf Inc.	25	N 92	W 18	SESE	Monitoring	6/11/1982	Abandoned	X	M25 92 18 1D	0 gpm	615	195.7
P61537W	Texasgulf Inc.	25	N 92	W 17	SESW	Monitoring	6/11/1982	Abandoned		M25 92 17 1S	0 gpm	340	170.53
P61537W	Texasgulf Inc.	25	N 92	W 17	SESW	Monitoring	6/11/1982	Abandoned	X	M25 92 17 1S	0 gpm	340	170.53
P61538W	Texasgulf Inc.	25	N 92	W 17	SESW	Monitoring	6/11/1982	Abandoned		M25 92 17 1M	0 gpm	480	182.7
P61538W	Texasgulf Inc.	25	N 92	W 17	SESW	Monitoring	6/11/1982	Abandoned	X	M25 92 17 1M	0 gpm	480	182.7
P61539W	Texasgulf Inc.	25	N 92	W 17	SESW	Monitoring	6/11/1982	Abandoned		M25 92 17 1D	0 gpm	529	204.5
P61539W	Texasgulf Inc.	25	N 92	W 17	SESW	Monitoring	6/11/1982	Abandoned	X	M25 92 17 1D	0 gpm	529	204.5
P35721W	USDI, BLM -- Texasgulf Inc.	25	N 93	W 12	SESE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25	N 93	W 12	NESE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25	N 93	W 12	NWSE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25	N 93	W 12	SWSE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25	N 93	W 13	SWSE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25	N 93	W 13	SESE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25	N 93	W 13	SESW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		

Table 2.2-3 Abandoned and Cancelled Wells (Page 2 of 5)

Last Revised April, 2007

Permit Number	Applicant	Township	Range	Section	¼ ¼	Uses	Priority	Status	HeadGate-Outlet-Well	GW Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	13	NESE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	13	NWSE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	13	NESW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	13	NWSW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	13	SWSW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	13	NWNE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	13	SWNE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	13	SENE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	13	NENE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	14	SWSE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	14	SWSE	Stock, Miscellaneous	12/8/1976	Abandoned	X	TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	14	SESE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	14	SESW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	14	NESE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	14	NWSE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	14	NESW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	14	NWSW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	14	SWSW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	23	SWNW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	23	SENW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	23	SENE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	23	NENW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	23	NWNW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	23	NENE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	23	NWNE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	23	SWNE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	24	NWNW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	24	SWNW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	24	SENW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	24	SWNE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	24	SENE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		

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Table 2.2-3 Abandoned and Cancelled Wells (Page 3 of 5)

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Permit Number	Applicant	Township	Range	Section	¼ ¼	Uses	Priority	Status	HeadGate-Outlet-Well	GW Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)
P35721W	USDI, BLM -- Texasgulf Inc.	25N	93W	24	NENW	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25N	93W	24	NENE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P35721W	USDI, BLM -- Texasgulf Inc.	25N	93W	24	NWNE	Stock, Miscellaneous	12/8/1976	Abandoned		TE 24	25 gpm		
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	12	SWSE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	12	SESE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	12	NESE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	12	NWSE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	NWSE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	SWSE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	SESE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	SWSW	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	SESW	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	NESE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	SENE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	NESW	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	NWSW	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	NENE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	NWNE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	13	SWNE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	14	NWSE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	14	SWSE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	14	SESE	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	14	SWSW	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	14	SESW	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220
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P37637W	USDI, BLM -- Texasgulf Inc.	25N	93W	23	SWNW	Miscellaneous	5/5/1977	Cancelled		TE 38	25 gpm	380	220

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Table 2.2-3 Abandoned and Cancelled Wells (Page 4 of 5)

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Permit Number	Applicant	Township	Range	Section	¼ ¼	Uses	Priority	Status	HeadGate-Outlet-Well	GW Permit Facility Name	Yield	Well Depth (ft)	Static Well Depth (ft)
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P68449W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	12	SESE	Miscellaneous	8/10/1984	Cancelled		TE 38	25 gpm	380	220
P68449W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	12	NESE	Miscellaneous	8/10/1984	Cancelled		TE 38	25 gpm	380	220
P68449W	USDI, BLM -- Texasgulf Inc.	25 N	93 W	12	NWSE	Miscellaneous	8/10/1984	Cancelled		TE 38	25 gpm	380	220
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2.3 Population Distribution and Socioeconomic Conditions

This section provides a description of the existing population and economy of the Permit Area and nearby regions within 50 miles (80 kilometers [km]) of the Permit Area, which includes the potentially affected communities of Rawlins, Sinclair, Bairoil, and other outlying towns in Carbon and Sweetwater Counties, Wyoming.

2.3.1 Demographics

Table 2.3-1 presents the demographic information for Sweetwater and Carbon Counties and Figure 2.3-1 shows the population centers within a 50-mile (80-km) radius from the center of the Permit Area. The information for Jeffrey City is from the 2000 census, and may not reflect the current condition. As seen in the picture, the Project is located in a remote area in the Great Divide Basin, with Bairoil being the closest town about 15 miles northeast of the Permit Area. There are no population centers within two miles of the Permit Area.

Table 2.3-2 shows the population distribution by race for the environmental justice analysis, which is discussed in detail in **Section 7.1.12**. Within the area potentially affected by the Project, minimal minority populations will be affected.

Food production is limited to cattle grazing, discussed in **Section 2.2** in greater detail. The total AUMs associated with the study area is 3,662, which would provide year-round forage for the equivalent of 305 cows. For a 1,000-pound cow, the average meat yield is 550 pounds (National Sustainable Agriculture Information Service, 2007); therefore, the annual total meat production associated with the Permit Area is approximately 168,000 pounds, if all the cattle are slaughtered each year. Similar levels of meat production are anticipated in the future. There is no vegetable production from the Permit Area.

2.3.1.1 Sweetwater County

As shown in Table 2.3-1, the Sweetwater County population in 2000 was 37,613 people, down (-3.1 percent) from 38,823 people in 1990. According to US Census Bureau estimates, the population of Sweetwater County increased slightly (0.4 percent) between 2000 and 2004 (US Census Bureau, 2005a).

According to the 2000 Census, Sweetwater County had a population density of 3.6 people per square mile and 89.1 percent (33,512 people) of the population lived in urban clusters. Of the 4,101 rural residents, only 416 (10.1 percent of rural residents; 1.1

percent of county residents) resided on farms. Bairoil is the community in Sweetwater County nearest to the Permit Area.

In January 2006, the Sweetwater Economic Development Association (SWEDA) estimated the population of several communities, including Bairoil and Wamsutter, using Pacific Power electrical hook-ups (SWEDA, 2006), in order to get a more accurate estimate of the current population. For Bairoil, including incorporated and unincorporated areas, the estimated population was 162 and 643 people, respectively, based on 2.57 persons per household. Conversations with the Bairoil Mayor and Police Chief suggest that the population is less than this, at 97 people. Bairoil is an example of an oil and gas boom-and-bust town. The population of Bairoil was estimated around 240 people in the 1980s and early 1990s. Subsequently, with the rise and fall of oil and gas prices and the sale of oil properties to Merit Energy Company, many people have moved from Bairoil. Amoco Production Company had once required all employees who worked in Bairoil to live in the town.

2.3.1.2 Carbon County

As shown in Table 2.3-1, the Carbon County population declined by 6.1 percent between 1990 and 2000. The Wyoming census population estimates for 2005 show that Carbon County continues to decline in population. However, recent economic activity related to pipeline and construction projects has caused the transient population to grow. The actual number of residents in Carbon County may be higher than the estimated 2005 population of 15,331 people.

Rawlins and Sinclair are the Carbon County communities that are most likely to be affected by the Project. As summarized in Table 2.3-1, growth in Rawlins is on the upswing. The population of Rawlins has increased by 1.4 percent from 2000 to 2005 to a population estimate of 8,658 people. The estimated 2005 population was 406 people in Sinclair. Population forecasts for Sweetwater and Carbon Counties are shown in Table 2.3-3.

2.3.2 Socioeconomic Conditions

The economy in Carbon and Sweetwater Counties has historically depended on industrialized activities, including mining, oil and gas development, power generation, related services, and agricultural activity, including grazing and farmland. Recently, the service and trade sectors have become increasingly important in providing services to the growing population. Many of the service sector jobs are directly and indirectly associated with oil and gas development. Employment growth has fluctuated in some sectors of the economy since 1990 due to the recession from 2001 to 2003. However,

recent activity in the past two to three years shows significant increases in oil and gas development and production, which will be reflected in the mining and service sectors.

2.3.2.1 Employment Sectors and Industry Income

In 2003, the mining sector employment (including oil and gas) was not disclosed for Sweetwater County, but represented 1.9 percent of the 9,580 person workforce in Carbon County. Besides retail trade, other important sectors in Sweetwater County included services (21 percent) and government (17 percent). In Carbon County, services represented 28 percent, retail represented 11.7 percent, and government represented 23 percent of the total employment. Many of the employment sectors have shown growth during the 13-year period between 1990 and 2003 for the counties included within the study area. Much of the increase in employment in the mining and service sectors has been filled by workers who have moved into the area either from other parts of Wyoming or from outside of the State of Wyoming. For every direct mining sector job created, additional service jobs are also created. Jobs in the mining and related gas service sectors are competing for workers in the lower paying jobs. Many government, retail, and other service workers are leaving the lower paying jobs to work in the mining sector. All cities and towns are having a hard time finding minimum-wage workers or workers for the lower paying jobs, including police, sheriff, and public works departments (Allen, D. Business Development Specialist, City of Rawlins. Personal communication. March, 2006).

Wyoming's mining and minerals sector contributes more to Gross State Product (GSP) than any other sector of the economy (Coupal et al., 2003). Minerals (including oil and gas) accounted for 23.7 percent of Wyoming's GSP, or over \$4.5 billion in 2000, and supported approximately 19,387 full-time wage earners, or 5.9 percent of Wyoming's employment base (US Bureau of Economic Analysis, 2003). In 2000, government-led industry income provided 23.4 percent of income, followed by services (20.0 percent), retail trade (9.3 percent), construction (8.5 percent), and transportation, communication, and public utilities (8.3 percent). In real terms, based on Year-2000 dollars, for the 20-year period (1980 to 2000), the Wyoming industry income fell in farm, mining, oil and gas, construction, transportation, communication, public utilities, wholesale trade, and retail trade. The most industry-income growth occurred in non-farm agricultural services (156.4 percent; 4.8 percent average annual growth) and government (27.5 percent; 1.2 percent average annual growth) (US Bureau of Economic Analysis, 2003).

In 2004, figures were not available in the mining, utilities, and wholesale trade sectors for Sweetwater County. The sectors contributing the most to the Sweetwater County economy included government (13 percent), manufacturing (eight percent), construction (seven percent), and retail trade, transportation, and warehousing (five percent). The only

sector showing a decline in income generation from 2001 to 2004 was manufacturing.

In 2004, Carbon County's income generated by the government sector led other industries (20 percent of the total). Total mineral extractions provided three percent of the industry income. Transportation and warehousing (six percent) and retail trade (four percent) were also important sectors in income generation. Data from 2004 were not available for construction and manufacturing, which generated substantial income in 2001. Over the three-year study period (2001 through 2004), slight losses occurred in total mining and transportation and warehousing.

2.3.2.2 Labor

Both labor force and employment have increased in Sweetwater and Carbon Counties from 1990 to 2004, as seen in Table 2.3-4. Labor force statistics reflect employment by residence, unlike employment by sector statistics, which reflect employment by work location. The State of Wyoming labor force increased from 236,043 to 284,538 laborers, a 20.5 percent increase throughout the period (Wyoming Department of Employment, 2006).

From 1990 to 2004, Carbon County showed a decrease in the labor force (8,825 to 7,841 laborers) of 11.2 percent compared to an 11 percent increase in Sweetwater County. The most recent unemployment rate in Carbon County was 4.0 percent in 2005, compared to 5.2 percent in 1990 and 4.2 percent in 2000.

The labor force in Sweetwater County increased from 20,354 to 22,732 laborers, an 11.7 percent increase from 1990 to 2004. In recent years, the unemployment rate throughout the region may have fluctuated due to seasonal employment. The months with highest unemployment are typically December through March. The average annual unemployment rate in 2005 in Sweetwater County was 3.0 percent, compared to 5.3 percent in 1990 and 4.0 percent in 2000.

2.3.2.3 Personal Income

Income levels throughout the study area are diverse. The most recent estimate of per capita personal income was \$28,438 in Carbon County and \$34,656 in Sweetwater County in 2004. Median income in 2004 was \$40,750 in Carbon County and \$54,700 in Sweetwater County. These numbers are fairly consistent with the economic base of the area, which is mineral resource and agriculturally driven. The most recent poverty status statistics are from 2003 census data. These data showed a poverty rate of 11.8 percent in Carbon County and 8.6 percent in Sweetwater County (US Census Bureau, 2003). Since

the economic base of the study area is largely rural-agriculture and resource-extraction based, low income areas are dispersed within the study area.

2.3.3 Other Resources

2.3.3.1 Housing

The existing housing situation is difficult to characterize quantitatively with any degree of certainty since the status of the housing market and availability is changing constantly. The effect on housing demand from the oil and gas industry has had a significant impact on the availability and price of both owner-occupied and rental units. The housing situation is a major issue for the two-county region. Lack of affordable housing has contributed to social problems in the area and has created a transitory workforce that has little invested in the local communities.

According to the Wyoming Housing Database Partnership (WHDP), there were seven out of 298 total rental units available for rent in Carbon County in July 2006; 24 out of 1,290 rental units available for rent in Sweetwater County; and 49 out of 3,118 rental units available for rent in Natrona County (WHDP, 2006). The vacancy rates were 2.4 percent in Carbon County, 1.9 percent in Sweetwater County, and 1.6 percent in Natrona County. The average rents are shown in Table 2.3-5 for Carbon, Sweetwater, and Natrona Counties for 2005 and 2006 (WHDP, 2006). The average single-family sale price in 2005 was lowest in Carbon County (\$96,200) and highest in Sweetwater County (\$179,000). The average sales price in Natrona County was \$156,281 (WHDP, 2006). Some vacant units can be attributable to second-home growth in the State of Wyoming.

Sweetwater County

According to a November 4, 2005 Casper Star Tribune article, housing in Sweetwater County is inadequate for the current demand for two reasons: 1) housing in the Sweetwater County is not readily available; and 2) housing currently on the market is expensive (Gearino, 2005). To help meet the demand for new housing, the SWEDA has made housing development a priority for the county; and it is anticipated that 500 new housing units will be constructed in Sweetwater County by next year (Gearino, 2005).

Temporary housing resources in Wamsutter include three mobile home parks. One has 26 spaces; the second has 70 spaces; and the third has 52 spaces. Most of these parks have units that are equipped to serve recreational vehicles (RVs). There has recently been a limited amount of subdivision activity and housing construction in Wamsutter. A local developer/mobile home park owner is in the process of applying for a permit to develop additional RV spaces (BLM, 2006).

Carbon County

According to the community Development Director for Rawlins, the housing market has become exceedingly tight in the past year. Sales prices have escalated by 25 percent in 2006 with sales prices ranging from \$200,000 to \$390,000. Very few homes are in the \$100,000 to \$130,000 range. Rawlins is proactively involved in bringing affordable owner and rental housing to Rawlins. Rawlins is currently working on a project with a developer to build 150 to 300 affordable units on a 50-acre parcel of infill land. Other development projects are also being discussed for long-term residential, commercial, and industrial development just outside of Rawlins (Allen, D. Business Development Specialist, City of Rawlins. Personal communication. March, 2007).

Temporary lodging is also being built. Two new motels have been built in the past year and two are slated for development in 2007. One-hundred-forty rooms have been added to the total of approximately 700 existing rooms (19 motels and four RV parks). Motels are at capacity; but with the two planned motels, temporary demand should be met. In addition to the estimated 900 motel rooms, approximately 450 campsites are available for RVs in the local area.

For longer-term housing, there are 18 mobile home parks with over 550 pads (Allen, D. Business Development Specialist, City of Rawlins. Personal communication. March, 2006), about half of which were vacant during the fall of 2005. The 2000 census listed 285 units in two- to four-unit housing structures in Rawlins and 467 units in structures with over five units (US Census Bureau, 2000); there are rarely vacancies in these housing types. Although Rawlins has some vacant single-family houses, most of the affordable units are substandard and would require some rehabilitation to make them attractive to buyers (BLM, 2006).

2.3.3.2 Public Facilities and Services

Bairoil and Wamsutter are the two nearest towns in Sweetwater County to the Permit Area. Sweetwater County provides the typical county government services, including county assessor, county attorney, county commissioners, treasurer, road and bridge, engineering, planning, landfill, emergency management, health and human services, sheriff, search and rescue, parks and recreation, museum, libraries, and community arts center. Bairoil and Wamsutter have limited services; however, Bairoil provides similar municipal services, including administration, public works, police, fire, and parks and recreation services. The landfill is located in Wamsutter.

In Carbon County, the communities of Rawlins, Sinclair, and other outlying areas would potentially be affected by the Project. Carbon County provides the typical county government services, including county assessor, county attorney, county commissioners, treasurer, road and bridge, planning, emergency management, public health, and sheriff.

Law Enforcement and Fire Protection

The Carbon County Sheriff has an office and 74 jail beds in Rawlins, a substation in Medicine Bow, a deputy in Baggs, and a part-time deputy in Saratoga. The sheriff's office has 17 patrol officers, 23 detention deputies, seven full-time and three part-time dispatchers, and 11 other employees. The sheriff covers a service area of 8,000 square miles. The sheriff's department is adequately staffed and will possibly add a patrol officer this year to handle the slight increase in calls caused by the increases in oil and gas activity in the area (Colson, J. Sheriff, Carbon County Sheriff's Office. Personal communication. March 2007; Morris, M. Deputy Sheriff, Carbon County Sheriff's Office. Personal communication. March 2007). Rawlins has a police department with one chief, two detectives, 12 patrol officers, and 19 additional staff employees. All law enforcement offices have 911 emergency telephone services. Fire protection is provided by Rawlins Fire Department, which has eight paid staff and 15 volunteers in the area. The fire department has two fire stations, a training center, five engines, a wildland engine, and a rescue truck.

Law enforcement near the Permit Area is primarily provided by the Bairoil Police Department, which consists of a police chief, one sergeant, and one part-time police officer. The department provides law enforcement for Bairoil and the surrounding unincorporated area of the Sweetwater County Sheriff's Department. This area is 165 square miles and extends 20 miles west and 15 miles south of Bairoil. Fire protection is provided by the Bairoil Volunteer Fire Department, with a station in Bairoil.

Law enforcement in the Wamsutter area is currently provided by the Sweetwater County Sheriff's Department; a deputy patrols the town daily. Two Wyoming Highway Patrol officers also live in Wamsutter. Wamsutter has positions for two part-time police officers; but the positions are currently vacant; and the town has not been able to hire officers for the positions for some time (BLM, 2006). Emergency response services are provided by 15 volunteer emergency medical technicians (EMTs) operating one ambulance and ten volunteer firefighters operating two fire trucks.

The volunteer fire and ambulance services provide coverage to surrounding oil and gas operations; and both services may have difficulty responding to more than one emergency at the same time. BP America recently provided a \$68,000 grant toward the purchase of a new ambulance; other energy and pipeline companies have also contributed

funds. Wamsutter has an ongoing effort to recruit new volunteers for both the fire and ambulance service.

Health Services

Medical services within Carbon County are provided by the Memorial Hospital in Rawlins, a 35-bed acute care facility located, served by a 24-hour ambulance service (EMT and ambulance). The hospital has five physicians and 105 full-time equivalent (FTE) employees. Rawlins also has a Public Health Department, Senior Citizens Center, the South Central Wyoming Health Care and Rehabilitation, Senior Citizens apartment complex, and various private health care providers. No medical care is available in either Bairoil or Wamsutter. Sweetwater County is served primarily by the Memorial Hospital of Sweetwater County in Rock Springs, which has 99 beds. The study area is served by Memorial Hospital in Rawlins.

Education

Sweetwater School District Number One serves Wamsutter. Wamsutter has one elementary school and one middle school with an enrollment of 42 students in the elementary school and 15 students in the middle school (Desert Elementary School, 2007). Carbon County School District Number One provides educational services to the Rawlins and Bairoil area. The total enrollment in the district is currently estimated at 1,727 students (2006). This enrollment has fluctuated over the years with a previous high enrollment of 2,420 students in 1991 and 2,076 students in 1997. There are currently three elementary schools in Rawlins, a middle school, and a high school. Bairoil and Sinclair have elementary schools (Wyoming Department of Education, 2006). Bairoil has one elementary school with five students. Rawlins has the Carbon County Higher Education Center, which provides continued and extended education courses on-line. Some school capacities are being met; and additional school capacity may be required if economic activity in the area brings in more families.

Utilities

Rawlins provides water, sewer, landfill, and recycling services for its residents and businesses. Rocky Mountain Power provides electric service to all areas; and KN Energy provides natural gas to the community. The infrastructure in Rawlins has a capacity for increased population, as well as commercial and industrial growth. Bairoil provides water service for residents and businesses. The landfill is located in Wamsutter, but has a transfer station in Bairoil.

Qwest is the local provider of telephone services. Long-distance carriers include ATT,

MCI, Sprint, and others. Digital switching and fiber-optic systems are available. Local internet access is provided by Qwest and Bresnan.

Other

Other services in Carbon County include a public library, senior services, daycares, and recreation facilities, and services including a recreation center in Rawlins, golf courses, parks, ball fields, bike trails, and an airport. Other community services in Wamsutter consist of a town attorney and engineer, library, recreation center, city park, and maybe an indoor equestrian center soon. Wamsutter is developing a new library and has identified a variety of street and infrastructure improvements (BLM, 2006). Although the transient drilling and field development population in Wamsutter can be substantial from time to time, their demands on local government facilities and services have generally been minor (Wyoming Business Council et al., 2002).

2.3.3.3 Taxes and Revenues

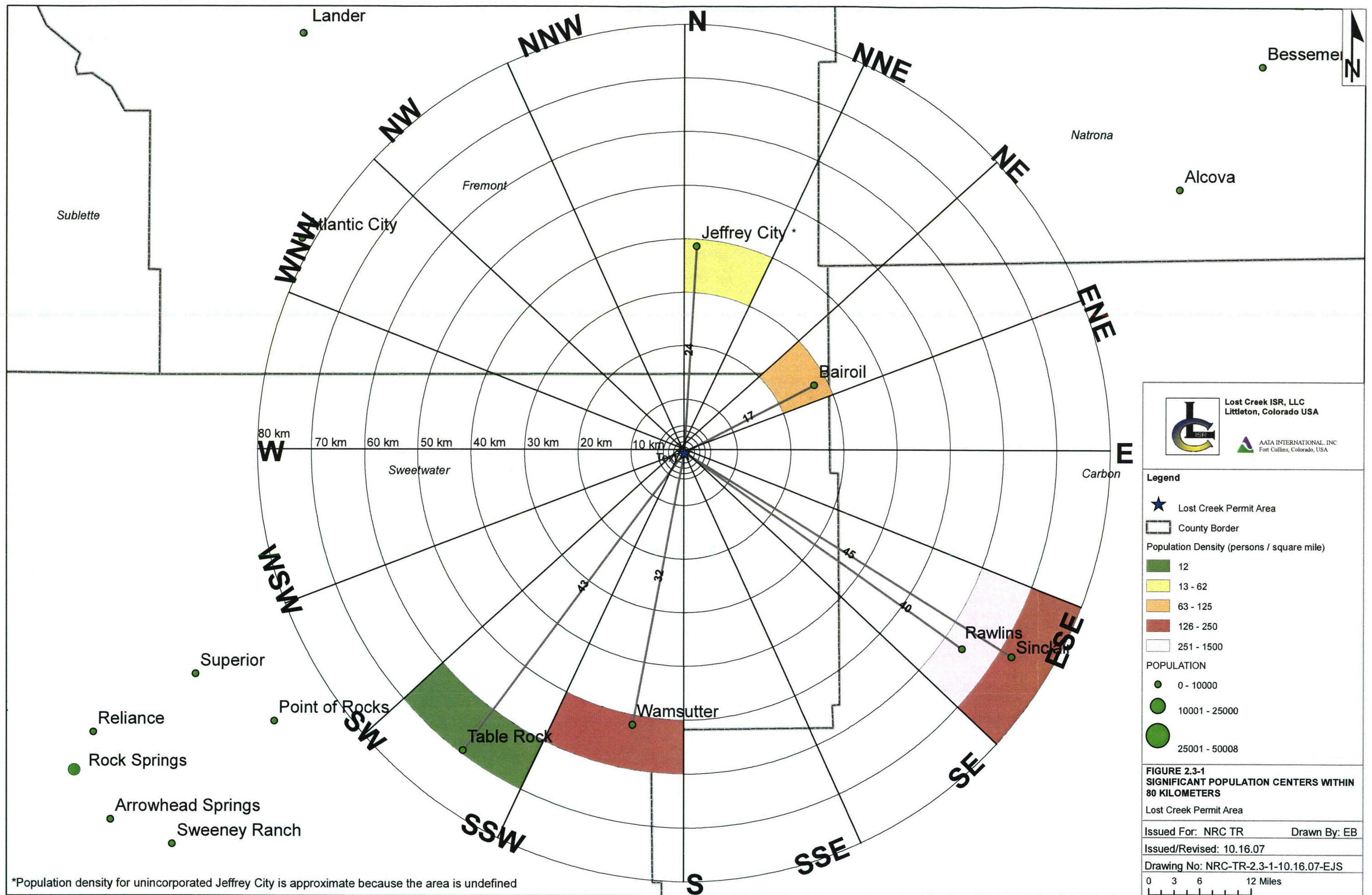
Financial resources of the study area refer to government revenue sources from local and state taxes on the production of natural resources in Carbon and Sweetwater Counties. These statistics are useful in helping to determine the financial impacts of industrial development on the counties potentially affected. Both counties will directly benefit from the increased tax base provided by the Project. And both counties could be financially impacted by secondary growth from residential development, increased retail sales, and increased demands on public services and facilities.

The minerals industry accounts for a substantial share of revenues to the state and to local governments in Wyoming. Produced minerals are classified as personal property; and mineral producers pay two types of taxes: 1) the county property (ad valorem-gross products) tax on production and 2) the state severance tax. Producers pay county property (ad valorem) taxes on plants, refineries, mining and well head equipment, pipelines, and other facilities used in the mineral production and transportation operations. A severance tax is an excise tax imposed on the present and continued privilege of removing, extracting, severing, or producing any mineral in Wyoming. Severance taxes are distributed according to Wyoming Statute (WS) 39-14-801. The Permanent Wyoming Mineral Trust Fund (PWMTF) is a fund that holds 25 percent of all severance taxes currently received by the State of Wyoming, functioning like a savings account. The fund balance was \$4.5 billion in December 2006 (Wyoming State Treasurers Office, 2006).

Local and state government fiscal conditions that would be affected by development of

the Project include: ad valorem property tax revenues of Sweetwater and Carbon Counties, Sweetwater County School District Number One, and certain special districts; sales and use tax revenues of the state, county, and municipalities; state severance taxes; and state gross products tax.

Both Sweetwater and Carbon Counties show an increase in valuation from natural resources development (Coupal et al., 2003). It is believed that mineral revenues will continue to rise and that gas production, particularly, will drive future revenues higher for the foreseeable future. Wyoming Department of Revenue reports indicate that in 2002, natural gas production contributed the greatest proportion of taxable value to the state (34.8 percent), followed by residential land and improvements (18.5 percent), mining production (15.9 percent), and oil production (9.7 percent). In 2004, natural gas production continued to contribute the greatest proportion of taxable value to the state (38.5 percent), again followed by residential land and improvements (17.8 percent), mining production (15.4 percent), and oil production (9.1 percent).



*Population density for unincorporated Jeffrey City is approximate because the area is undefined

Table 2.3-1 Demographic Information

Location	Population ¹			Change in Population (Percent)		Projected Population		
	1990 ^{2,3}	2000 ³	2005 ^{1,4,5}	1990 to 2000	2000 to 2005	2010 ^{6,7,8}	2015 ^{6,7,8}	2020 ^{6,7,8}
US (thousands)	248,709	281,421	296,410	13.2	4.3	308,935	322,365	335,804
Wyoming	453,588	493,782	509,294	8.9	2.6	519,595	529,352	533,534
Sweetwater County	38,823	37,613	37,975	- 3.1	0.4	41,620	42,810	43,990
Bairoil	228	97	96	- 57.5	0	106	109	112
Wamsutter	NA	261	265	NA	1.5	291	300	308
Carbon County	16,659	15,639	15,331	- 6.1	- 2.0	15,730	15,590	15,440
Rawlins	9,380	8,538	8,658	- 9.0	1.4	8,912	8,833	8,748
Sinclair	500	423	406	- 15.4	- 4.0	421	417	413
Other								
Casper	46,765	49,644	51,738	6.2	4.2	53,903	56,107	58,369

¹ NA = Not available

² (Wyoming Department of Administration and Information (WDAI), 2000)

³ (WDAI, 2001)

⁴ (Census Bureau (US), 2005a)

⁵ (Census Bureau (US), 2005b)

⁶ (Census Bureau (US), 2005c)

⁷ (WDAI, 2004)

⁸ (WDAI, 2006)

Table 2.3-2 Population Distribution *

	Minority Group	Carbon County	Sweetwater County
Income	Persons Below Poverty Level (2005)	1,808	3,266
	Percent Below Poverty (2003)	11.8 percent	8.6 percent
Race ¹	White (2004)	96.3 percent	95.7 percent
	Black (2004)	1.0 percent	1.0 percent
	American Indian (2004)	1.2 percent	1.1 percent
	Asian (2004)	0.9 percent	0.9 percent
	Native Hawaiian or Pacific Islander (2004)	0.0 percent	0.1 percent
	Other Race (2004)	0.5 percent	1.3 percent
Other	Hispanic Origin (of any race) (2004)	13.0 percent	10.2 percent

* (Census Bureau (US), 2000a)

¹ Does not equal 100 percent due to rounding errors

Table 2.3-3 Population Forecasts for the Study Area *

	2007	2010	2015	2020	Percent change 2007 to 2020
Sweetwater County	39,540	41,620	42,810	43,990	0.82
Bairoil	101	106	109	112	0.79
Wamsutter	277	291	300	308	0.82
Carbon County	15,450	15,730	15,590	15,440	- .005
Rawlins	8,754	8,912	8,833	8,748	- .005
Sinclair	413	421	417	413	0

* (Wyoming Department of Administration and Information, 2006)

Table 2.3-4 Labor Force Statistics *

Location/Year	Labor Force	Employment	Unemployment	Unemployment Rate (percent)
Carbon County				
1990	8,825	8,366	459	5.2
2000	8,094	7,757	337	4.2
2005	7,841	7,530	311	4.0
Sweetwater County				
1990	20,354	19,281	1,073	5.3
2000	20,714	19,890	824	4.0
2005	22,732	22,044	688	3.0

* (Wyoming Department of Employment, Research and Planning, 2006)

Table 2.3-5 Average Rental Rates *

County	Apartments ¹			Mobile Home Lot ²			House ³			Mobile Home ⁴		
	2005	2006	Percent Change	2005	2006	Percent Change	2005	2006	Percent Change	2005	2006	Percent Change
Carbon	\$507	\$619	22.2	\$128	\$138	7.8	\$546	\$625	14.5	\$396	\$564	42.3
Sweetwater	\$512	\$684	33.6	\$214	\$238	11.2	\$673	\$816	21.1	\$594	\$669	12.7
Natrona	\$441	\$508	15.2	\$189	\$203	12.5	\$719	\$767	6.7	\$527	\$581	10.2
Statewide Average	\$504	\$549	8.9	\$203	\$210	3.5	\$693	\$748	8.0	\$505	\$547	8.4

* (Wyoming Housing Database Partnership, 2006)

¹ Two-bedroom, unfurnished, excluding gas and electric.

² Single-wide, including water.

³ Two or three-bedroom, single family, excluding gas and electric.

⁴ This price reflects total monthly rental expense, including lot rent.