



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 E. LAMAR BLVD.  
ARLINGTON, TX 76011-4511

April 17, 2014

Mike Thomas, Vice President  
Environmental, Safety, and Health  
Uranerz Energy Corporation  
1701 East "E" Street  
P.O. Box 50850  
Casper, Wyoming 82605

SUBJECT: NRC TEAM INSPECTION 040-09067/13-001

Dear Mr. Thomas:

The U.S. Nuclear Regulatory Commission (NRC) conducted a preoperational team inspection at your Uranerz Nichols Ranch ISR Project, Nichols Ranch Unit, in Johnson and Campbell Counties, Wyoming during November 18-21, 2013, and January 28-30, 2014. Pursuant to License Condition 12.3 of Materials License SUA-1597, the purpose of the inspection was to confirm that written operating procedures and approved radiation safety and environmental monitoring programs are in place and to verify that preoperational testing was complete.

During this inspection, the NRC staff examined activities conducted under your license as they relate to public health and safety to confirm compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Materials License SUA-1597, page 13, states that, prior to the commencement of operations, the license shall be amended to address the items described in License Conditions 12.7 to 12.14. The NRC's conclusions about your submittals, and the NRC's authorization to commence with plant operations, will be provided to you under separate correspondence.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Ms. Linda Gersey, Health Physicist, at 817-200-1299, or Dr. Robert Evans, Senior Health Physicist, at 817-200-1234.

Sincerely,

*/RA/*

Linda L. Howell, Deputy Director  
Division of Nuclear Materials Safety

Docket No.: 040-09067

License No.: SUA-1597

cc:

Ms. Carol Bilbrough  
Program Manager  
Wyoming Department of Environmental Quality  
Land Quality Division  
122 West 25th  
Cheyenne, WY 82002

Mr. Mark Rogaczewski  
District 3 Supervisor  
Land Quality Division  
2100 West 5<sup>th</sup> Street  
Sheridan, WY 82801

Director, Wyoming Radiation Control Program

Should you have any questions concerning this inspection, please contact Ms. Linda Gersey, Health Physicist, at 817-200-1299, or Dr. Robert Evans, Senior Health Physicist, at 817-200-1234.

Sincerely,

**/RA/**

Linda L. Howell, Deputy Director  
Division of Nuclear Materials Safety

Docket No.: 040-09067  
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cc:  
Carol Bilbrough, Program Manager, WDEQ  
Mark Rogaczewski, District 3 Supervisor, WDEQ  
Director, Wyoming Radiation Control Program

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ADAMS	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> SUNSI Review Complete		Reviewer Initials: LMG
	<input checked="" type="checkbox"/> Publicly Available		<input checked="" type="checkbox"/> Non-sensitive		
	<input type="checkbox"/> Non-publicly Available		<input type="checkbox"/> Sensitive		
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LMGersey	RJEvans	RCLinton	EAStriz	LLHowell	
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U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket: 040-09067

License: SUA-1597

Report: 040-09067/13-001

Licensee: Uranerz Energy Corporation

Location: Nichols Ranch ISR Project, Nichols Ranch Unit  
Johnson and Campbell Counties, Wyoming

Dates: November 18-21, 2013  
January 28-30, 2014

Inspectors: Linda M. Gersey, Health Physicist, Team Leader  
Repository and Spent Fuel Safety Branch  
Division of Nuclear Materials Safety

Robert Evans, Ph.D., P.E., C.H.P., Senior Health Physicist  
Repository and Spent Fuel Safety Branch  
Division of Nuclear Materials Safety

Ron L. Linton, Project Manager  
Uranium Recovery Licensing Branch  
Decommissioning and Uranium Recovery Licensing Directorate  
Division of Waste Management and Environmental Protection  
Office of Federal and State Materials and Environmental  
Management Programs

Elise A. Striz, Ph.D., Hydrogeologist  
Uranium Recovery Licensing Branch  
Decommissioning and Uranium Recovery Licensing Directorate  
Division of Waste Management and Environmental Protection  
Office of Federal and State Materials and Environmental  
Management Programs

Approved by: Linda L. Howell, Deputy Director  
Division of Nuclear Materials Safety

Attachments: Supplemental Inspection Information  
Preoperational Inspection Field Notes

## **EXECUTIVE SUMMARY**

Uranerz Energy Corporation  
U.S. Nuclear Regulatory Commission (NRC) Inspection Report 040-09067/13-001

This announced, team inspection was conducted at the Nichols Ranch ISR Project, Nichols Ranch Unit, in Campbell and Johnson Counties, Wyoming. This inspection was conducted to determine if the licensee was prepared to commence with operations involving radioactive material as authorized by NRC Materials License SUA-1597, issued on July 19, 2011. This inspection was conducted, in part, to fulfill the requirements of License Condition 12.3.

Regulation 10 CFR 40.32(c) states, in part, that an application for a specific license will be approved if the applicant's proposed equipment, facilities and procedures are adequate to protect health and minimize danger to life or property. One purpose of this inspection was to determine if the licensee had constructed the plant and established support programs as described in the application. In summary, the licensee appears ready to commence with limited in-situ uranium recovery operations as described below. The licensee had established programs and procedures, constructed and tested plant equipment, and trained personnel as necessary to operate the plant in a manner that should be protective of occupational workers, the public, and the environment.

### **Site Status**

The licensee had constructed the Nichols Ranch Unit central processing plant up to the ion exchange columns. The plant appeared to be capable of producing uranium-loaded resins. At this time, the licensee had not constructed the elution, precipitation, and drying circuits. The licensee plans to ship uranium-loaded resins to a nearby mill, an NRC-licensed site, for further processing.

One wellfield and two header houses were in service, with additional header houses being constructed. The licensee was pumping water through system piping, in part, to ensure that no leaks were present. The licensee planned to construct about eight header houses in this production area. The licensee still needed to conduct the production area pump test in the second wellfield, in accordance with License Condition (LC) 10.8, before the licensee can commence with operations in this second production area.

The licensee had received permits for two deep disposal wells; therefore, the licensee was capable of disposing liquid waste effluents created during plant operations. The licensee had not completed construction of its wellfield restoration process circuit, but the licensee plans to install and test these plant systems prior to actually conducting wellfield restoration.

### **Management Organization and Controls**

All management level positions had been filled with qualified staff, although the licensee had not filled the senior process manager for operations position at the time of the inspection. All critical support positions were filled with trained and qualified staff. These support positions include the radiation safety, laboratory, environmental monitoring and operations staff. The inspectors concluded that the licensee had sufficient staff to commence with operations, but noted that more staff may be necessary when operational activities are expanded. Future operations include additional wellfields and construction and operation of the Hank unit.

The licensee has established and implemented the Safety and Environmental Review Panel (SERP) process. The NRC staff reviewed recently completed SERP conclusions, and the inspectors concluded that the licensee implemented the SERP process in accordance with the performance-based license requirements. The licensee established a quality assurance program, although the licensee was revising the program during the inspection. Recent changes to the quality assurance program will be reviewed during a future inspection. The licensee also established procedures for routine and non-routine reporting requirements, and the licensee has established a program for incident investigations including spills. Finally, the licensee has established programs for conducting routine audits and program reviews.

### **Plant Operations**

The licensee constructed and tested plant equipment (pumps, valves, tanks, etc.) from the wellfield production area up to the ion exchange columns. The inspectors noted that the plant flowpaths were constructed in accordance with the NRC-approved license application. Ion exchange resins and lixiviant chemicals were available to support plant operations.

A sufficient number of operators have been trained to operate equipment in accordance with approved operations procedures. Operational procedures have been established; although, these procedures are expected to be revised as problems and improvements are identified when the plant commences with full-scale operations. Task training will continue as plant systems are started and operated. The inspectors will review the licensee's implementation of operational procedures and training for the remaining systems when they are constructed, including the restoration flow paths.

The licensee has established a program and installed the instrumentation to monitor and record plant parameters (flow, temperature, pressure, etc.). Alarms and associated response instructions have been established for critical plant parameters. Certain procedures still need to be established for future operational activities such as groundwater restoration.

### **Wellfield Operations**

The licensee had constructed and tested portions of the first wellfield production area. The wellfield package for the first production area had been reviewed and approved by the NRC. The licensee had established procedures and trained a sufficient number of operators to commence with wellfield operations.

At the time of the inspection, two header houses were in operation, producing roughly 640 gallons per minute of total flow, with a licensed limit of 3,500 gallons per minute. Two other header houses were under construction during the inspection. The inspectors noted that the wellfields and header houses were constructed in accordance with license application commitments. The inspectors did not observe any line leaks, suggesting that the pipelines were structurally sound.

The licensee had established procedures for controlling the wellfield bleed, to ensure an inward hydraulic gradient to minimize the potential for an excursion event. The licensee also established procedures for excursion monitoring including collection of groundwater samples. Further, the licensee had established procedures for identifying, responding to, remediating, and reporting wellfield spills and leaks.

## **Radiation Safety**

The licensee implemented a radiation safety program that should be protective of workers and the public. The licensee had trained and qualified individuals to implement the program. The licensee established procedures for conducting the annual program review. Procedures have also been established for major activities including plant sampling, personnel monitoring, public dose assessments, and routine plant inspections. In addition, the licensee established a bioassay sampling program to monitor employees for potential uptakes of uranium.

The licensee had sufficient types and quantities of radiation measuring devices that were properly calibrated and functionally tested. Radiological postings were in place, although additional postings may be necessary as the plant starts to produce uranium. Procedures were established for initial and refresher training, and initial radiation protection training has been provided to plant staff and contractors.

The licensee established area radiation and contamination controls in accordance with license and regulatory requirements. Fences, gates, and perimeter signs helped define the site restricted area boundaries.

The licensee committed to implement the concept of As Low As Reasonably Achievable (ALARA) into its programs. The inspectors noted that the licensee had implemented the ALARA concept in its radiation protection procedures.

## **Environmental Monitoring**

The licensee implemented programs for effluent and environmental monitoring. Procedures have been established and implemented for collecting and analyzing environmental samples. The inspectors noted that the licensee has the necessary equipment to collect the samples including environmental monitoring sampling stations. The licensee had qualified staff to collect the samples. The licensee established a process for analyzing the samples. The licensee also established a program for reporting effluent and environmental sample results to the NRC.

At the conclusion of the onsite inspection, the licensee was still reviewing its environmental and effluent monitoring programs for compliance with the requirements of the quality assurance program. For example, the license was reviewing its program requirements for analyzing duplicate samples collected during routine environmental monitoring. This portion of the environmental monitoring program will be reviewed during a future inspection.

## **Training Program**

The licensee has established and implemented a training program. The training program included worker instruction for radiation safety, occupational safety, and operations. The licensee has established methods to track training including dates of training completed and dates when training is due to be completed. Initial radiation protection and safety training has been completed for site staff including contractors.

The licensee's operator task training program was noted to be exceptional because it ensures that operators are functionally trained on all aspects of system operations. At the conclusion of the onsite inspection, the licensee continued to provide training to operators, although it had a sufficient number of trained operators to operate the plant.

## **Transportation Activities**

The licensee has established and implemented a program for transportation activities. These transportation activities will include movement of uranium-bearing resins to another mill, disposal of waste material at an offsite disposal site, and movement of potentially contaminated materials within the licensed area. For resin shipments, the licensee plans to be the shipper of record for outbound shipments, a contractor will be used as the carrier, and the other mill site will be shipper of record for return shipments. The licensee has established procedures including development of shipping papers, instructions to drivers, radiological surveys of transportation vehicles, and responses to accidents.

At the time of the inspection, the licensee's staff was lacking U.S. Department of Transportation function-specific training. Training related to transportation activities had been provided to some employees, but the licensee will have to provide additional transportation training to selected site workers prior to conducting shipping operations. This program area will be reviewed during a future inspection.

## **Radwaste Management**

The licensee has established a program for handling liquid and solid wastes. The licensee has established procedures for handling and disposing of both types of wastes. For solid wastes, the licensee has a waste disposal agreement in place, as required by LC 9.9.

The licensee has established a waste water disposal pathway using two deep disposal wells. The licensee has also established contingency instructions if one or both of the deep disposal wells are inoperable. The licensee has received the necessary permits for using the two deep disposal wells. During the inspection, the licensee was in the process of revising the deep disposal well procedures, and these procedures will be reviewed during a future inspection.

## **Emergency Preparedness**

The licensee has established procedures for responding to emergencies, non-routine spills, and transportation incidents. The licensee established procedures for reporting of incidents/events. Further, the licensee has established verbal agreements with local emergency response agencies including the fire department, local law enforcement agencies, and a hospital.

The inspectors will review the licensee's implementation of its security program after the program has been fully established and implemented.

## **SUPPLEMENTAL INSPECTION INFORMATION**

### **Partial List of Persons Contacted**

H. Ballinger, Operations Supervisor  
G. Catchpole, Chief Executive Officer  
P. Goranson, President and Chief Operating Officer  
D. Kolkman, Permitting Manager  
A. Linard, Health Physics/Radiation Safety Technician  
J. McCarthy, Environmental, Safety & Health Manager/Radiation Safety Officer  
J. Mote, Mine Manager  
M. Mote, Safety Supervisor  
M. Norris, Wellfield Supervisor  
R. Schierman, Health Physics/Radiation Safety Technician  
W. Scoffield, Construction Supervisor  
B. Snesko, Lab Supervisor  
G. Thomas, Vice President, Operations  
M. Thomas, Vice President, Regulatory & Public Affairs  
D. Trammell, Environmental Supervisor

### **Items Opened, Closed, and Discussed**

#### Open

None

#### Closed

None

#### Discussed

None

### **Inspection Procedures Used**

IP 88005	Management Organization and Controls
IP 89001	In-Situ Leach Facilities
IP 83822	Radiation Protection
IP 88045	Effluent Control and Environmental Protection
IP 87102	Maintaining Effluents from Materials Facilities ALARA
IP 86740	Inspection of Transportation Activities
IP 88035	Radioactive Waste Management
IP 88050	Emergency Preparedness
IP 88055	Fire Protection

## Acronyms Used

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
CPP	central processing plant
DDW	deep disposal well
DOT	U.S. Department of Transportation
HAZMAT	hazardous materials
HMI	human-machine interface
IP	NRC Inspection Procedure
ISR	in situ recovery
LC	License Condition
LEPC	Local Emergency Planning Commission
NRC	U.S. Nuclear Regulatory Commission
PA#1	Production Area No. 1
QA/QC	quality assurance/quality control
QAP	Quality Assurance Plan
RG	Regulatory Guide
RSO	radiation safety officer
SERP	Safety and Environmental Review Panel
SOP	standard operating procedure

## Procedures Reviewed

ADM-SOP-02	Auditing Standard
ADM-SOP-03	Recordkeeping Standard
ADM-SOP-04	Standard Operating Procedure and Logsheet guidelines
ADM-SOP-05	Document Routing and Control
ADM-SOP-06	Management of Change & Safety Environmental Review Panel
ADM-SOP-08	Quality Assurance Program
ERM-SOP-01	Medical Emergencies
ERM-SOP-02	Fire, Electrical, or Gas Emergencies
ERM-SOP-03	Emergency Evacuation
ERM-SOP-04	Chemical Emergencies
ERM-SOP-05	Security Plan
ERM-SOP-06	Natural Emergencies
ERM-SOP-08	Transportation Emergencies
ERM-SOP-09	Emergency Notification and Reporting
ENV-SOP-01	Preoperational Ground and Surface Water Baseline Sampling
ENV-SOP-02	pH/Conductivity Meter Calibration Procedure
ENV-SOP-05	Unplanned Releases
ENV-SOP-06	Wellfield Excursions Verification and Reporting
ENV-SOP-09	Wildlife Surveys and Monitoring
ENV-SOP-10	Regulatory Reporting Procedure
ENV-SOP-14	Storage & disposal of Non-Hazardous Solid Waste
ENV-SOP-17	Spill Prevention Control and Countermeasures
ENV-SOP-19	Well Water Level Measurement
ENV-SOP-20	pH, Conductivity and Temperature Measurements
ENV-SOP-21	Operational Soil and Sediment Sampling
EXP-SOP-01	Drill Hole and Well Abandonment

## Procedures Reviewed, continued

EXP-SOP-05 General Drilling Expectations  
LAB-SOP-01 Lab Quality Assurance/Quality control Manual and Procedures  
PRD-SOP-01 Restoration Procedure  
PRD-SOP-03 Header House Operations and Flow Balancing  
PRD-SOP-05 Alarms  
PRD-SOP-06 Header House Emergency Shut Down and Re-Start  
PRD-SOP-19 Reverse Osmosis and Permeate Injection  
PRD-SOP-23 Waste Water System  
PRD-SOP-24 Deep Disposal Well Operations  
PRD-SOP-29 Human Machine Interface (HMI) Operations and Supervisory  
PRD-SOP-30 Emergency Shut Down and Emergency Plant Bypass  
PRD-SOP-31 Byproduct Material Handling  
PRD-SOP-42 General Maintenance and Radiological Controls  
PRD-SOP-45 Linda Braking and Purging  
RAD-SOP-01 Organization and Administration of the Radiation Safety Program  
RAD-SOP-02 ALARA Program  
RAD-SOP-03 Operational Radiation Safety Program  
RAD-SOP-04 Health Physics Instrumentation Quality Control and Procedures  
RAD-SOP-05 Contamination Control and Personnel Monitoring  
RAD-SOP-06 Decontamination and Release of Equipment and Materials  
RAD-SOP-07 Transportation and Handling of Radioactive Materials  
RAD-SOP-08 External Radiation Monitoring and Controls  
RAD-SOP-09 Airborne Radioactive Material Monitoring and Controls  
RAD-SOP-10 Bioassay Program  
RAD-SOP-11 Respiratory Protection Program  
RAD-SOP-12 Radiation Work Permit Policy  
RAD-SOP-13 Pregnant Worker Policy  
RAD-SOP-14 Radiation Dose Assessments  
RAD-SOP-15 General Radiological Controls and Housekeeping  
RAD-SOP-16 Quality Assurance Program (QAP) Radiological Effluent and Environmental Monitoring Programs  
RAD-SOP-17 Radiological Effluent and Environmental Monitoring Program  
SFT-SOP-07 Incident Analysis and Reporting  
SFT-SOP-08 Fire Prevention Plan  
SFT-SOP-16 Hazard Communication Policy  
SFT-SOP-17 Lockout/Tagout Policy  
SFT-SOP-24 Confined Space Entry  
TRN-SOP-01 Uranerz Employee Training  
WEL-SOP-01 Wiring Submersible Pump Motors  
WEL-SOP-03 Wellfield Flow Lines and Leak Detection Systems

**Uranerz Preoperational Inspection Field Notes**

Category:	Management Organization and Controls
Topic:	Organizational Structure
Reference:	IP 88005, Section 02.01
Requirement:	License Condition 9.2; Application Section 5.1.1
Findings:	<p>The licensee changed the organizational structure since initial licensing from the original commitments provided in License Application Section 5.1. The licensee produced Safety and Environmental Review Panel (SERP)-1-2013 to show changes made and supporting documentation as to why changes were made. The licensee handed out copies of the organizational chart during the opening meeting. In summary, the inspectors reviewed SERP-1-2013 and concluded that the SERP determination was performed in accordance with license conditions.</p> <p>The inspectors reviewed the qualification of several of the licensee's key staff. The NRC staff has determined that the key managers meet the training and experience requirements for their positions as specified in the license, as modified by SERP-1-2013. The licensee had staffed all management level positions. Management level staff members were highly qualified and experienced for the work to be performed. The licensee also had sufficient support staff to commence with plant startup and site operations. The support staff included plant and wellfield operators, laboratory technicians, and well drillers.</p> <p>NRC approved the Radiation Safety Officer (RSO) qualifications by letter dated July 2, 2013, in response to License Condition (LC) 12.5 (ML13183A096).</p>
Documents Reviewed:	Licensee Organization Chart; interviews with Vice President of Regulatory and Public Affairs on 11/19/13 and by phone on 03/05/14; SERP-1-2013

Category:	Management Organization and Controls
Topic:	Management and Administrative Practices for Operational Safety, Radiation Protection, Fire Protection, Chemical Safety, and Nuclear Criticality Safety
Reference:	IP 88005, Section 02.02
Requirement:	License Condition 9.4; Application Section 5.2.2
Findings:	<p>The Inspectors reviewed the Standard Operating Procedures (SOPs) for safety. Every procedure contained three approval signatures by responsible management and the RSO. Each of the LOG forms reviewed had approval signatures of the person responsible for their approval. The safety SOPs included instructions for fire prevention, bloodborne pathogen protection, fall protection, and confined space entry. The instructions for chemical safety was provided in the emergency procedure ERM-SOP-04, and the instructions for fire, electrical, and gas emergencies were provided in ERM-SOP-02.</p> <p>The Plant Safety Committee is headed by the Safety Supervisor. The Plant Safety Committee is not chartered by SOP. The Plant Safety Committee meets once per month, on the second Tuesday of each month. The Uranerz employee handbook outlines the committee makeup. Each new employee receives a copy</p>

## Uranerz Preoperational Inspection Field Notes

	<p>of the employee handbook during new hire orientation. The inspectors discussed with the licensee the advantages of documenting the requirements for the Plant Safety Committee in an administration (ADM) procedure.</p> <p>A Suggestion Box for employees was provided in the Administrative Assistants office. In an interview with the Vice President of Regulatory and Public Affairs, he indicated that safety related concerns are discussed then vetted with employees and management for a decision. The Vice President indicated that he has an open door policy for all employees.</p> <p>The inspectors reviewed a copy of the new employee Human Resources orientation handbook that is presented to all new employees. The Permitting Manager is responsible for environmental awareness training during new employee orientation. The Permitting Manager provided the handbook and the training to the inspectors that she provides at orientation. The Permitting Manager also provided annual environmental refresher training.</p> <p>The Safety Supervisor has developed a training program for all new and existing employees. A copy of the training handbook was provided to the inspectors. The inspectors noted that the training handbook included industrial and occupational safety information, information that was valuable for employee training. The inspectors reviewed the handbook and noted that it covered a broad range of topics involving industrial and occupational safety. Employee training is tracked on an excel spreadsheet. Annual refresher training is required for industrial and occupational safety.</p> <p>The RSO performed the radiation safety training for all new employees and contractors. Annual refresher training will also be performed for all employees and contractors. Training consists of a slide presentation, hands-on use of survey instruments, reading of SOPs, and an exam. Department of Transportation (DOT) Hazardous Material (HAZMAT) training is also conducted by the RSO or trained Health Physics Technician for employees who will be involved in the shipment radioactive materials.</p> <p>ADM-SOP-06 is the SOP for Management of Change and SERP. The RSO was listed as a required member of the SERP in accordance with LC 9.4. The SOP for the SERP was comprehensive and was found to be in accordance with LC 9.4 requirements.</p> <p>The inspectors determined that the licensee had an adequate program for management and administrative practices for operational safety, radiation protection, fire protection, and chemical safety. The inspectors determined that the licensee's staff understood their responsibilities related to operational safety, radiation protection, fire protection, and chemical safety.</p>
Documents Reviewed:	Interviews with Permitting Manager, Vice President for Regulatory and Public Affairs, and Safety Supervisor; reviewed Industrial and Safety training manual, employee handbook, and safety committee meeting minutes handbook; SOP ADM-SOP-06; various SFT-SOPs and various ERM-SOPs; Materials License SUA-1597

**Uranerz Preoperational Inspection Field Notes**

Category:	Management Organization and Controls
Topic:	Procedure Controls
Reference:	IP 88005, Section 02.03
Requirement:	License Condition 10.4; Application Sections 5.2, 5.7
Findings:	<p>SOPs are grouped into 11 categories, including Administration, Emergency Response, Environmental, Exploration, Laboratory, Land, Production, Radiation, Safety, Training, and Wellfield. These SOPs cover a broad range of topics and were found to be comprehensive.</p> <p>The licensee has procedures in place for management review of changes to the facility and site procedures. Changes to procedures include procedural requirements for management review and concurrence and staff training on the changes. Additional SOPs can be developed as needed using procedure ADM-SOP-04. Procedure SOP ADM-SOP-04 outlines the responsibilities and guidelines for writing an SOP and generating a LOG sheet, including formatting and process responsibilities. The licensee has committed in License Application Section 5.2.1.1 that procedures will be reviewed annually. Procedure ADM-SOP-05 outlines the responsibilities for SOP development and the annual review. The safety department will review safety SOPs annually, and the RSO will review radiation protection SOPs annually.</p> <p>Uranerz staff indicated that new employee's initial training on site procedures, safety, and company policies occurs in the Casper office. Training on safety and policy also occurs at the Nichols Ranch facility. Employees are assigned a mentor for a 2-week period. After the 2-week period, safety is again reviewed with the employee, and a safety-related quiz is given to employees to test their knowledge. Each individual has a training file where results of safety related issues are maintained.</p> <p>Procedure ADM-SOP-05, Document Routing and Control, states that Department Managers are responsible for ensuring that their staff is trained and in compliance with the most up-to-date procedures.</p> <p>The inspectors reviewed the SOPs on developing and managing procedures and found them to be in compliance with the license commitments and regulations. The inspectors also interviewed management and staff to determine if there was an understanding of the document control system. The inspectors concluded that the licensee had established a procedure control system that met license requirements.</p>
Documents Reviewed:	Various SOPs, ADM-SOP-05, License Application

**Uranerz Preoperational Inspection Field Notes**

Category:	Management Organization and Controls
Topic:	Problem Identification, Resolution, and Incident Investigations
Reference:	IP 88005, Section 02.04
Requirement:	License Conditions 9.7, 9.10, 10.4, 11.2; Application Section 5.3
Findings:	<p>The inspectors reviewed procedure ADM-SOP-05, Document Routing and Control. The SOP states, "At least annually, the RSO shall review all existing operating procedures that have a radiation component....The Safety Department shall review safety documents annually to ensure continued compliance with newly revised regulations." The Mine Manager will annually perform a document review related to the master document list, outdated versions of documents, and archiving of documents. The SOP adequately defines the roles and responsibilities for annual reviews of SOPs and safety related documents.</p> <p>The licensee's incident analysis policy, outlined in procedure SFT-SOP-07, ensures near misses and incidents are properly analyzed and reported according to applicable Federal, State, and company regulations, policies, and procedures. The definition of an incident is provided in the SOP. Incidents and near misses are tracked on specific LOG forms. The licensee also determines if there are any reporting requirements associated with an incident. As part of the incident investigation, the licensee has a method for reporting and tracking near miss incidents to prevent a true incident. The inspectors reviewed the procedure and LOG forms and found them adequate to address identification, reporting, follow-up and close out of problems and incidents.</p> <p>Application Section 5.3.2 provides the commitments for daily and weekly inspections and monthly written summary of radiation and environmental conditions. The licensee also committed to following RG 8.30 in LC 9.7. Procedure RAD-SOP-03 indicates that the RSO or Health Physics Technicians shall perform daily walk-through facility inspections. The RSO and Operations Supervisor shall perform weekly inspections. The RSO will review monthly the results of the daily and weekly inspections. In summary, the licensee has procedures for the daily and weekly inspections and monthly review of those inspections.</p> <p>An ALARA audit is required by LC 11.2, and the instructions for the ALARA audit were provided in procedure RAD-SOP-02.</p> <p>Licensee personnel indicated to the inspectors that weekly storm water management inspections are conducted by the Environmental Supervisor in accordance with requirements specified in the storm water pollution prevention plan procedure (ENV-SOP-04). Licensee personnel indicated to the inspectors that a monthly site audit is performed by the regulatory affairs staff. Spill prevention control and countermeasure inspections are performed monthly and annually for oils/diesel/fuel in accordance with procedure ENV-SOP-17.</p> <p>The inspectors determined that the licensee has a program for facility systems inspection as required by the license conditions and implementing procedures. The SOPs indicate that the licensee will conduct periodic reviews, audits, and</p>

## Uranerz Preoperational Inspection Field Notes

	assessments to assure that safety commitments in the license are assessed at an appropriate frequency.
Documents Reviewed:	Procedures ADM-SOP-05, SFT-SOP-07, RAD-SOP-02, RAD-SOP-03, ENV-SOP-04, ENV-SOP-17; interview with licensee staff

Category:	Management Organization and Controls
Topic:	Plant Safety
Reference:	IP 88005, Section 02.05
Requirement:	License Conditions 9.4 A, B, C, D, E; Application Sections 5.1, 5.2
Findings:	<p>The licensee completed six SERP evaluations in 2012 and ten SERP evaluations in 2013. The inspectors reviewed each SERP evaluation, with the exceptions noted below, and concluded that the evaluations were completed in accordance with LC 9.4 and the instructions provided in SERP procedure ADM-SOP-06. The following is a summary of the SERPs reviewed by the inspectors:</p> <p>SERP-1-2012, dated August 8, 2012, made a determination to transport loaded uranium resins to a nearby NRC-licensed mill for yellowcake drying, instead of installing dryers at the Nichols Ranch Central Processing Plant.</p> <p>SERP-3-2012 dated December 20, 2012, updated the Mechanical Integrity Testing for wells from 30-90 minutes to 10 minutes as defined by NUREG 1569.</p> <p>SERP-5-2012, dated December 20, 2012, changed the seed mix used in reclamation activities, as requested by the land owner.</p> <p>SERP-6-2012, dated May 25, 2012, transferred RSO duties from one qualified individual to another.</p> <p>SERP-7-2012, dated October 12, 2012, changed the basement walls of the header houses from concrete to steel.</p> <p>SERP-8-2012, dated June 8, 2012, revised management titles in the license application to accurately reflect the current position titles.</p> <p>SERP-1-2013, dated March 28, 2013, revised management titles, roles, and responsibilities to reflect changes in management.</p> <p>SERP-2-2013, dated July 30, 2013, changed the use of snow fences to other fencing materials to delineate cultural sites during construction.</p> <p>SERP-3-2013, dated July 30, 2013, edited the license application to allow for use of gas heaters in the buildings at the Hank and Nichols Ranch Units.</p> <p>SERP-4-2013, dated July 29, 2013, modified the license application figures to align with the figures in the Wyoming Land Quality Division permit.</p> <p>SERP-5-2013, dated August 27, 2013, changed the location of the 11e.(2)</p>

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	<p>storage bins from storage on concrete pads to storage on gravel.</p> <p>SERP-6-2013, dated October 8, 2013, related to spill clean-up standards; this SERP conclusion will be further reviewed by the inspectors during a future inspection.</p> <p>SERP-7-2013, dated October 15, 2013, qualified two Health Physics Technicians, in accordance with NRC RG 8.31.</p> <p>SERP-8-2013, dated November 12, 2013, revised License Application Figure 3.3, Process Flow Chart, to reflect changes made in the facility, from central processing plant to satellite facility.</p> <p>SERP-9-2013, dated December 10, 2013, removed the water sampling SOP from the license application to allow for administrative updates.</p> <p>SERP-10-2013, dated December 10, 2013, qualified two Health Physics Technicians as RSOs, to allow them to act as RSO when needed.</p> <p>The inspectors discussed the Uranerz Safety Committee requirements with the licensee. The Safety Committee meets monthly. The Safety Committee is not chartered in SOPs but is listed in the Employee Handbook. The inspectors reviewed copies of Safety Committee Meeting minutes for 2013, including handwritten notes used to summarize outcome of meeting which is kept in a binder. The Safety Committee reviews "near miss" reports made by staff and has attempted to incentivize workers to report near misses and possible safety hazards.</p> <p>Incident analysis and reporting are required by procedure SFT-SOP-07. Immediate reporting is required after an incident, and a report of the incident is due at end of shift. Additional corrective actions are reviewed by the Safety Supervisor and his supervisor. Radiological issues are referred to the RSO.</p> <p>In summary, the licensee uses the SERP and the Safety Committee to review safety incidents and provide changes to the facility as needed to improve safety conditions. The licensee has developed adequate procedures for the SERP process. The licensee is implementing the SERP according to SOPs and in compliance with the license and application commitments.</p>
Documents Reviewed:	Procedures ADM-SOP-06, ADM-LOG-03, SFT-SOP-07; completed SERPs 2012-1 to 2013-10, Semi-Annual Reports dated July 2012, January 2012, July 2013

Category:	Management Organization and Controls
Topic:	Quality Assurance Programs
Reference:	IP 88005, Section 02.06
Requirement:	License Condition 12.13; Application Sections 5.2, 5.7.9

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Findings:	<p>The inspectors reviewed the Quality Assurance Program (QAP) submitted to NRC by the licensee (ML14050A023) as required by LC 12.13. The QAP contains the organizational structure and responsibilities of managerial and operational personnel as well as the specifications for qualifications of personnel. Initial training, on the job training, and refresher training of personnel is addressed in the QAP and referenced SOPs. The licensee has developed a comprehensive set of operating SOPs and instructions. The SOPs were reviewed by the inspectors during the preoperational inspection. The licensee's SOPs contain instructions, procedures, and schedules that should be prepared for the functions associated with the QAP program as suggested in RG 4.14, Section C(3).</p> <p>The licensee committed to maintaining records as required by NRC license SUA-1597 and has developed a SOP for record retention. The individual responsible for record retention is identified in the QAP. The licensee has developed multiple SOPs to implement and ensure quality control for environmental sampling including radiological and effluent sampling, surface and groundwater sampling, soil and sediment sampling, and air particulate sampling and monitoring programs. The environmental sampling quality control program includes a discussion of quality control samples, sample documentation, sample handling, storage, and shipping.</p> <p>The QAP contains a discussion of the laboratory management and quality control program as well as the calibration and quality control of instruments, measuring devices, and test equipment for the radiological effluent and environmental monitoring program. The RSO is principally responsible for the validation and verification of activities. The verification and validation section of the QAP contains discussions of anomalous data, data screening, technical review, corrective action, laboratory variance and nonconformance, and quality control sampling. The licensee committed in its QAP to perform annual reviews of the radiation protection and ALARA program and the QAP program. The QAP contains a list of areas that will be audited during the annual reviews. The preventive and corrective action program is also discussed in the QAP.</p> <p>In summary, the NRC staff had determined that the QAP is adequate and consistent with RG 4.15.</p>
Documents Reviewed:	Quality Assurance Program (ML14050A023); Various SOPs referenced by QAP

Category:	In-Situ Leach Facilities
Topic:	Facilities
Reference:	IP 89001, Section 02.05
Requirement:	License Conditions 9.2, 10.1, 10.2, 10.5 and 10.11; Application Section 3.0
Findings:	Regulation 10 CFR 40.32(c) requires that the applicant's proposed equipment, facilities and procedures are adequate to protect health and safety and minimize danger to life or property. Basic descriptions and details about the plant are provided in Section 3.0 of the License Application. The major surface facilities

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for the Nichols Ranch Unit consist of a central processing plant and associated wellfields. The licensee has constructed the recovery and extraction circuits. The licensee pumps lixiviant from the central processing plant through the wellfields. The uranium-laden production fluid is then pumped back to the central processing plant where ion exchange columns remove the uranium from the production flow. When the ion exchange column resins are fully loaded, the licensee plans to transfer the resins to a different NRC-licensed facility for processing. The licensee plans to create a cone of depression in the wellfields to help minimize excursion events. Two deep disposal wells have been installed and permitted. These wells will be used to dispose of plant waste water and similar liquid effluents.

In general, the licensee has constructed the plant in accordance with the information provided in the License Application. The licensee plans to construct the Hank Unit at a later date. In addition, the licensee has elected to construct the precipitation, elution, and drying circuits, including the yellowcake dryer, at a later date.

The licensee plans to conduct mining operations using a lixiviant that contains carbon dioxide gas, sodium bicarbonate, and dissolved oxygen. All three chemicals were available onsite. The design flowrate for the Nichols Ranch Unit was 3,500 gallons per minute. At the time of the inspection, the licensee had two header houses in service, and the approximate flow rate per header house was 320 gallons per minute, suggesting that the licensee could operate up to about 11 header houses at a time.

The deep disposal wells, wellfields, header houses and wellfield infrastructure conform to the application commitments in Chapter 3 with two notable differences, as approved per LC 9.2. First, the wellfield header houses and infrastructure are operated through and monitored by a centralized computer system (PRD-SOP-29) and human-machine interfaces (HMIs). There are no manual procedures for header house or wellfield operation. Second, the basement of all header houses will be treated as confined spaces, and access will be limited by confined space entry regulations if any of the infrastructure in the basement fails. A manual shut-off is located on the outside of each header house, in case entry is not possible. All production, injection and excursion monitoring wells have been constructed and mechanically integrity tested as required by LC 10.5. There are no impoundments at the facility.

The licensee has designed and constructed the plant with the ALARA concept in mind. For example, the ventilation system was designed to minimize worker exposures to radon-222 and radioactive particulates. Alarms and interlocks were constructed to minimize the potential for spills, or to quickly minimize spills if they were to occur.

At the time of the inspection, the licensee had not fully constructed the groundwater restoration portion of the plant. Since there are no wellfields in restoration, this portion of the plant is not necessary to commence with operations. The licensee plans to construct and test this portion of the plant prior to actual use.

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Documents Reviewed:	<p>Figure 3-1, Nichols Ranch Unit Site Facility Diagram; Figure 3-2, Nichols Ranch Unit Process Flow Diagram; Figure 3-5, General Flow Process Schematic; Figure 3-6, Plant Material Balance</p> <p>Procedures EXP-SOP-01 to EXP-SOP-05; PRD-SOP-01 to PRD-SOP-45; WEL-SOP-01 to WEL-SOP-03; SFT-SOP-17 and 24; Quarterly Reports (3rd Quarter 2011-3rd Quarter 2013); NICH DW-1 and DW-4 Injection Well Permit 10-392 Authorization to Inject; personnel interviews; deep disposal well, wellfield and header house inspections</p>
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Category:	In-Situ Leach Facilities
Topic:	Equipment and Instrumentation
Reference:	IP 89001, Section 02.06
Requirement:	License Condition 9.2; Application Section 3.5
Findings:	<p>The design of the facility includes instrumentation and controls in various applications. Most tank levels, flows and pressures are monitored. Controls are also used to manipulate plant equipment either locally or remotely. Remote controls are provided by the plant computer system and human-machine interfaces (HMIs). The licensee developed alarm response procedures which specify operator actions to take in response to abnormal plant parameters. The licensee also installed controls for abnormal events including automatic startup of the diesel generator, emergency plant shutdown, and emergency plant bypass. The licensee conducted functional tests of these controls as part of the plant startup process. The licensee had not completely installed all portions of the plant computer control system, and this area will be reviewed during a future inspection. The licensee has established a maintenance program for critical components including the diesel generator and plant ventilation air handling units. The licensee also established a quality assurance program that includes identification and correction of deficiencies involving operating procedures and plant components.</p> <p>The deep disposal well, wellfields, header houses, and associated infrastructure instrumentation conform to the application commitments in Chapter 3 with one notable difference, as approved per LC 9.2. The header house and wellfield infrastructure are operated through and monitored by a centralized computer system and individual HMIs. There are no manual procedures. Leak detection and well head pressure monitoring is present on all production and injection wellheads in the wellfields. Alarm systems have been installed and have procedures for response.</p>
Documents Reviewed:	<p>Procedures ADM-SOP-08; QAP; PRD-SOP-01 to PRD-SOP-45; WEL-SOP-01 to WEL-SOP-03; Semi-Annual and Annual Reports January 2012-July 2013; Quarterly Reports (3rd Quarter 2011-3rd Quarter 2013); NICH DW-1 and DW-4 Injection Well Permit 10-392 and associated technical reports and state inspections; personnel interviews; deep disposal well, wellfield and header house inspections</p>

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Category:	In-Situ Leach Facilities
Topic:	Materials
Reference:	IP 89001, Section 02.07
Requirement:	10 CFR 20.1801 and 1802; License Conditions 9.2, 9.9,10.11,11.1; Application Sections 5.2, 5.3, 5.6, and 5.7
Findings:	The licensee developed a program for receipt and transfer, in-plant possession, and security and control of source material. The licensee has procedures in place for shipping radioactive materials including uranium-loaded resins and byproduct waste materials. The licensee also established procedures for maintaining inventory of source material. The licensee's planned responses to security threats are included in the Security Plan SOP. Access to restricted areas is maintained by camera surveillance and locked entries.
Documents Reviewed:	Procedures ERM-SOP-09, ERM-SOP-08, ERM-SOP-05, ENV-SOP-14, RAD-SOP-07. Discussions with licensee employees and observations of cameras and locked entries.

Category:	In-Situ Leach Facilities
Topic:	Training
Reference:	IP 89001, Section 02.08
Requirement:	10 CFR 19.12, 49 CFR 172.704, License Conditions 9.2, 9.10, 10.4, 11.6, 12.8,12.9,12.14; Application Sections 5.4 and 5.5
Findings:	<p>The Uranerz Employee Training SOP provides guidance for training of employees, contractors and visitors. The training program includes industrial safety training as required by Occupational Safety and Health Administration (OSHA), radiation safety training as required by NRC, function specific training for transportation of radioactive material as required by DOT, and environmental protection training as required by the Environmental Protection Agency (EPA) and the Wyoming Department of Environmental Quality (WDEQ). Each type of training program includes classroom, task observation, and annual refresher training. The inspectors determined that the radiation safety training meets the requirements of 10 CFR Part 19, RG 8.31, RG 8.13, RG 8.29, and RG 8.25.</p> <p>Each employee is given initial training, job specific training, and annual refresher training. Section 5.4 of the License Application provides the minimum qualifications for RSO and the health physics technician. Any employee who is designated as a HAZMAT employee, as defined by DOT, is provided initial training, job specific training, and refresher training every 3 years. All employees had completed initial training including radiation safety, industrial safety, and emergency response training.</p> <p>At the time of the inspection, the licensee had adequate personnel for the wellfield, plant, radiation safety, and environmental monitoring programs. The senior-level personnel had significant experience in operations.</p> <p>The licensee established a training program for plant and wellfield operators. At</p>

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	<p>the time of the inspection, the licensee had nine plant operators and four wellfield operators. To support operator training, the licensee established an extensive task training program. During task training, operators are taught how to operate plant systems. The operator must complete task training before being granted authorization to operate plant systems without supervisory oversight. Training was not complete for all operators for all plant systems, in part, because the plant systems have to be operated to allow the operators to complete task training. As required by LC 9.10, operator training is documented on several procedural log sheets. The licensee eventually plans to cross-train the operators between the plant and the wellfield.</p>
Documents Reviewed:	<p>Procedures ADM-SOP-04, ADM-SOP-05, TRN-SOP-01, SFT-SOP-31; Procedure log sheets PRD-LOG-11 and PRD-LOG-12; Discussions with licensee employees and contractors</p>

Category:	In-Situ Leach Facilities
Topic:	Area Radiation and Contamination Control
Reference:	IP 89001, Section 02.09
Requirement:	10 CFR Part 20; License Conditions 9.2, 9.6, 9.7, 9.10, 12.9; Application Section 5.7
Findings:	<p>The licensee established area radiation and contamination controls in accordance with license and regulatory requirements. The controls include area postings and boundaries. Fences, gates, and perimeter signs are used to help define the site restricted area boundaries. The radiologically restricted areas are identified in a map provided to the inspectors. Due to the remote location, most deliveries are announced in advance. Breaches of security or loss of control of radioactive material will require activation of the Emergency Plan. The licensee had adequate instrumentation to identify surface and removable alpha and beta contamination and to detect radiation areas. Procedures were in place to perform routine and reactive contamination surveys. Protective clothing was available for work with radioactive material.</p>
Documents Reviewed:	<p>Procedures ENV-SOP-17, PRD-SOP-31, PRD-SOP-42, RAD-SOP-05, RAD-SOP-06, RAD-SOP-15; Discussions with licensee employees</p>

Category:	In-Situ Leach Facilities
Topic:	Radiation Protection
Reference:	IP 89001, Section 02.10
Requirement:	10 CFR Part 20; License Conditions 9.2, 9.6, 9.7, 9.10, 10.3, 10.13, 10.14, 11.2, 11.6, 11.9, 12.8, 12.9, 12.11; Application Section 5.0
Findings:	<p>The licensee established a radiation protection program that met the intent of 10 CFR Part 20, the license, and the license application. Program areas include procedures, use of and calibration of instrumentation and equipment, personnel radiation monitoring, bioassays, radioactive air monitoring and internal and external exposure calculations. Bioassays and dosimetry are sent off site for processing. The radiation training of site staff was complete at the time of the</p>

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	onsite inspection.
Documents Reviewed:	Procedures PRD-SOP-31, RAD-SOP-01 through RAD-SOP-17; Discussions with radiation safety staff

Category:	In-Situ Leach Facilities
Topic:	Environmental Protection
Reference:	IP 89001, Section 02.11
Requirement:	License Conditions 9.2, 10.8; 10.9; 10.11; 11.3 A, B, C, D, E; 11.4;11.5; 11.6;11.7; 12.1; 12.4; 12.10; 12.14; Application Section 5.7.8
Findings:	The pre-operational and operational groundwater and surface water monitoring, excursion monitoring, wellfield operation, excursion detection and correction, and waste water disposal operations meet the commitments in the application (LC 9.2). License Condition 10.8 was met by submission of the Wellfield Package for Production Area Number 1 (PA#1) which was verified by NRC in September 2013 (ML13223A236). License Condition 10.9 will be satisfied by execution of PRD-SOP-06, "Header House Shutdown and Startup," PRD-SOP-03, "Header House Operations and Flow Balancing," and commitments to maintain disposal capacity as specified in PRD-SOP-24, "Deep Disposal Well Operations." License Condition 10.11 is met by commitments in PRD-SOP-24. License Conditions 11.3 and 11.4 were met by data submitted in the Wellfield Package for PA#1 (ML1322A236). License Condition 11.5 will be met by implementation of procedure ENV-SOP-06. The licensee has obtained all permits for operation and submitted copies to NRC as required in LC 12.1. In accordance with LC 12.4, the licensee identified, described and sampled one new well which had been installed within 2 kilometers of the proposed production areas before operations began (ML13304B814). To meet LC 12.10, the licensee provided the monitoring well sampling results for all private wells within 2 kilometers of the proposed production areas at Nichols Ranch Unit. As required in LC 12.14, the licensee submitted written procedures in PRD-SOP-24 which address how waste disposal capacity will be maintained if a deep disposal well (DDW) becomes inoperable. There were no impoundments proposed or installed at the facility.
Documents Reviewed:	Procedures ENV-SOP-01, 03, 06, 07, 19 and 20; Procedures PRD-SOP 03, 06, and 24; Semi-Annual and Annual Reports January 2012-July 2013; Quarterly Reports (3 <sup>rd</sup> Quarter 2011-3 <sup>rd</sup> Quarter 2013); NICH DW-1 and DW-4 Injection Well Permit 10-392, Authorization to Inject, associated technical reports and state inspections; monitoring report reviews and maps provided on site; personnel interviews; disposal well, wellfield and header house inspections

Category:	In-Situ Leach Facilities
Topic:	Effluent Monitoring Program
Reference:	IP 89001, Section 02.12
Requirement:	License Conditions 9.2, 10.11, 11.6, 11.9 and 12.8; Application Section 5.7.7

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Findings:	<p>The licensee established an effluent monitoring program that was consistent with the requirements established in the License Application. The routine effluent monitoring program consisted of waste water disposal via deep disposal wells, sampling of airborne radioactivity at various locations around the licensed area, and measurement of ambient gamma radiation levels at various locations. The licensee planned to collect soil, sediment, and surface water samples to supplement the airborne effluent monitoring program. (The licensee will collect surface water and sediment samples if the samples are available. Currently, there are no natural bodies of water within the licensed area.)</p> <p>As required by LC 10.4, the licensee established various procedures for collecting environmental samples. The licensee also established a QAP to demonstrate the effectiveness of the effluent and environmental monitoring programs and to allow for identification of deficiencies so that corrective action can be taken.</p> <p>License Condition 12.8 required the licensee to verify that its survey and monitoring programs could account for the principal radionuclides being released from all point and diffuse sources. At the conclusion of the inspection period, the NRC was still reviewing these amendment requests. License Condition 12.8 will be reviewed and closed through the license amendment process.</p>
Documents Reviewed:	Procedures RAD-SOP-16; RAD-SOP-17; ADM-SOP-08

Category:	In-Situ Leach Facilities
Topic:	Air Sampling
Reference:	IP 89001, Section 02.13
Requirement:	License Conditions 9.2, 9.7, 10.14 and 11.9; Application Sections 4.1, 5.1.2, 5.5, 5.7.1 and 5.7.7
Findings:	<p>The air sampling program consists of in-plant air sampling via the radiation protection program and effluent monitoring via environmental sampling stations. The principle radionuclides are radon-222, radon progeny, and uranium. The licensee does not plan to install and operate the yellowcake dryer at this time, a decision which minimizes worker exposures to airborne uranium particulates. The licensee has sufficient calibrated equipment for measuring the airborne concentrations of radioactive materials within the buildings and in the environment. The licensee has also incorporated the concept of ALARA into site programs including training and procedures.</p> <p>To minimize occupational exposures to radon gas and particulates within site structures, the licensee will use engineering controls, primarily ventilation systems, within the main processing plant and header houses. The ventilation systems will incorporate airflow patterns to remove airborne radioactivity from the air within the structures. The ventilation systems also have filters to remove particulates from the airflow. The licensee planned to conduct an airflow study after the completion of the onsite inspection, and the inspectors will review this study during a future inspection. The licensee plans to issue respirators to site</p>

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	workers, as necessary for special tasks such as cleaning of tanks.
Documents Reviewed:	Procedures RAD-SOP-02; RAD-SOP-09; RAD-SOP-17

Category:	In-Situ Leach Facilities
Topic:	Financial Assurance
Reference:	IP 89001, Section 02.14
Requirement:	License Condition 9.5; Application Section 6.2.8
Findings:	The licensee has provided an acceptable financial assurance for operations at the Nichols Ranch ISR Project. The NRC approved the financial surety amount of \$6,800,000 on January 28, 2014 (ML13227A375). The financial assurance estimate includes costs for ground water restoration in PA#1, well plugging and abandonment, building demolition, surface reclamation, and topsoil placement.
Documents Reviewed:	Financial assurance (ML13227A375)

Category:	In-Situ Leach Facilities
Topic:	Waste Management
Reference:	IP 89001, Section 02.15
Requirement:	License Conditions 9.2, 9.7, 9.9, 10.11, 12.6; Application Sections 3.2.6, 4.2.2.2 and 5.7.1
Findings:	The licensee established programs for management of solid and liquid wastes. Solid wastes will be stored onsite in containers until transfer to the disposal site. Liquid wastes will be disposed via deep well. The licensee had a valid contract for disposal of 11e.(2) solid waste at a licensed facility. The licensee had procedures in place to perform surveys and manifest shipments of solid waste. Four waste storage tanks in the CPP hold liquid waste until released to the deep disposal wells. Trash bins containing radioactive waste will be transferred to an intermodal or dumpster for temporary storage until shipped for offsite disposal. The temporary storage bin for the solid waste is located in a restricted area. Paperwork for waste disposal off site included the required manifest forms.
Documents Reviewed:	Procedures RAD-SOP-07 and RAD-SOP-03; Review of the 11e.(2) waste disposal agreement; Discussions with licensee employees

Category:	In-Situ Leach Facilities
Topic:	Transportation
Reference:	IP 89001, Section 02.16
Requirement:	10 CFR 71.5; License Condition 9.2; Application Sections 5.5 and 7.5.1

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Findings:	The licensee established a procedure for transportation of radioactive material, including uranium-bearing resins, 11e.(2) byproduct material, and laboratory samples. The training procedure provides instructions for DOT HAZMAT training. The Transportation Emergency Procedure provides instructions for actions to be taken in response to a transportation event.
Documents Reviewed:	Procedures ERM-SOP-08, RAD-SOP-07, TRN-SOP-01; Discussions with licensee employees.

Category:	In-Situ Leach Facilities
Topic:	Posting and Labeling
Reference:	IP 89001, Section 02.17
Requirement:	10 CFR Part 20; License Conditions 9.2, 9.7, 9.11; Application Section 5.7
Findings:	The licensee established a program for posting and labeling that met the intent of the license and regulations. Postings were observed at the entrance to the wellfield and Restricted Areas, including the CPP. Caution signs are available for future use as necessary. The transportation procedure includes the necessary labelling, placarding, and marking requirements for radioactive shipments.
Documents Reviewed:	Procedures PRD-SOP-42, RAD-SOP-02, RAD-SOP-03, RAD-SOP-08, RAD-SOP-15; observation of radiological postings

Category:	In-Situ Leach Facilities
Topic:	Generic Communications of Information
Reference:	IP 89001, Section 02.18
Requirement:	None
Findings:	The inspectors discussed with the licensee how NRC Generic Communications or other types of correspondence would be processed. The licensee stated that correspondence is received at the main office in Casper and then distributed to the appropriate manager for action. Communications that should be posted, such as inspection reports, are brought to the facility as appropriate.
Documents Reviewed:	Discussions with licensee management.

Category:	In-Situ Leach Facilities
Topic:	Notifications and Reports
Reference:	IP 89001, Section 02.19
Requirement:	10 CFR Subpart M; 10 CFR 40.60; License Condition 11.1; Application Section 5.2.1.4
Findings:	The Inspectors confirmed that the licensee has been sending quarterly and semi-

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	<p>annual reports to NRC since the license was issued on July 18, 2011, as required by LC 11.1. See documents with accession numbers ML14051A560, ML13205A199, ML13037A310, ML12227A770 (last four semi-annual reports) for examples.</p> <p>The licensee has submitted a spill report per LC 11.6 for a grey water spill. The licensee notified NRC within 24 hours on 8/14/13 and followed up with a written report on 8/20/13 (ML13248A028) as required by the license.</p> <p>Procedure ENV-SOP-10 contains the quarterly, semi-annual, and annual reporting requirements that are due to various regulatory agencies, including NRC reporting requirements. The licensee had procedures in place to evaluate radiological incidents and determine if the incident is reportable to the NRC. Procedure ERM-SOP-09 includes details of the reporting requirements.</p> <p>The inspectors determined the licensee has established a program for routine and non-routine notifications and reports. The program includes routine reports and reporting of excursions and spills to the NRC.</p>
Documents Reviewed:	Procedures ENV-SOP-05, ENV-SOP-10, ERM-SOP-09; Verbal discussion with VP Regulatory and Public Affairs; Documents ML14051A560, ML13205A199, ML13037A310, ML12227A770, ML13248A028

Category:	In-Situ Leach Facilities
Topic:	Special License Conditions
Reference:	IP 89001, Section 02.20
Requirement:	License Conditions 9.8,12.2; Application Section 5.2.1
Findings:	<p>License Condition 12.2 states, "Prior to commencement of operations, the licensee shall coordinate emergency response requirements with local authorities, fire department, medical facilities, and other emergency services. The licensee shall document these coordination activities and maintain such documentation on-site." In summary, the inspectors determined the licensee is abiding by the license and commitments in the license application.</p> <p>The licensee met with Johnson County, Natrona County, and Campbell County Local Emergency Planning Commission (LEPC), individually. LEPC consists of fire, National Guard, ambulance, emergency medical, and law enforcement. During the meetings, the licensee gave the LEPCs an overview of the Uranerz facility and what hazards may exist at the site. Johnson County LEPC toured the site. Each county was provided with a binder with contacts and coordinates of the facility.</p> <p>Licensee staff provided records of emergency coordination with LEPCs to the inspectors. Uranerz provided a sign in sheet and agenda for the following:</p> <ul style="list-style-type: none"> <li>• Campbell County LEPC meeting on 5/22/12</li> <li>• County LEPC meeting on 03/27/13.</li> <li>• Johnson County LEPC meeting on 07/25/12.</li> </ul>

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	<p>Licensee staff indicated that during new hire and contractor training, staff explains that emergency calls to 911 can be forwarded to any one of the three counties. Employees have been trained to be very specific about calling 911 and reporting incidents and coordinates.</p> <p>Uranerz has indicted there is only one cultural resources avoidance site. Inspectors requested Uranerz not to put this site on any maps sent to NRC for public release. The avoidance site is delineated to keep construction traffic off of it.</p>
Documents Reviewed:	Verbal discussion with Vice President, Regulatory and Public Affairs, and Mine Manager; records as stated

Category:	In-Situ Leach Facilities
Topic:	Independent and Confirmatory Measurements
Reference:	IP 89001, Section 02.21
Requirement:	NRC Manual Chapter 2641, Section 7
Findings:	The NRC inspectors routinely measure ambient gamma radiation exposures, and on occasion, surface contamination levels. Since the licensee has not commenced with operations, the inspectors did not conduct independent and confirmatory measurements during the preoperational inspection. However, the inspectors plan to conduct confirmatory measurements during future inspections, after the licensee has started handling radioactive source and byproduct materials.
Documents Reviewed:	NRC Inspection Procedures

Category:	Radiation Protection
Topic:	Radiation Protection Program
Reference:	IP 83822, Section 02.01
Requirement:	10 CFR Part 20; License Conditions 9.2, 9.6, 9.7, 9.10, 10.3, 10.13, 10.14, 11.2, 11.6, 11.9, 12.8, 12.9, 12.11; Application Section 5.0
Findings:	The licensee established a radiation protection program that met the intent of 10 CFR Part 20, the license and the license application. Program areas established include procedures, use and calibration of instrumentation and equipment, personnel radiation monitoring, bioassays, radioactive air monitoring and internal and external exposure calculations. The licensee has a procedure for performing an annual review of the radiation safety program in accordance with RG 8.31. License Condition 11.2 requires this report to be submitted to the NRC.
Documents Reviewed:	Procedures PRD-SOP-31, RAD-SOP-01 through RAD-SOP-17; Discussions with radiation safety staff

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Category:	Radiation Protection
Topic:	Radiation Protection Procedures
Reference:	IP 83822, Section 02.02
Requirement:	License Conditions 9.2, 9.7, 9.10, 19.9; Application Section 5.2
Findings:	Radiation protection procedures have been established for instrumentation use and control, radiation surveys and release of equipment, internal and external dose monitoring and reporting, air monitoring, radiological controls, and transportation activities. Administrative procedures are in place to ensure SOPs are reviewed annually by the RSO and other responsible managers. Changes in procedures require management approval. Training is provided to licensee's staff when procedures are changed.
Documents Reviewed:	Procedures ADM-SOP-03, ADM-SOP-04, ADM-SOP-05, RAD-SOP-01 through RAD-SOP-17; Discussions with radiation safety staff

Category:	Radiation Protection
Topic:	Instruments and Equipment
Reference:	IP 83822, Section 02.03
Requirement:	License Conditions 9.2, 12.11; Application Section 5.7
Findings:	The licensee established procedures for controlling radiation protection equipment, including instrument calibrations. The licensee also established procedures, log sheets, and forms for routine monitoring and recording of survey results. The inspectors observed staff appropriately using the exit survey instruments. The types of equipment available are appropriate for the work.
Documents Reviewed:	Procedure RAD-SOP-04; Observation of available instrumentation

Category:	Radiation Protection
Topic:	Exposure Controls (external exposure, internal exposure and respiratory protection)
Reference:	IP 83822, Section 02.04
Requirement:	License Conditions 9.6, 9.7, 9.10, 10.4, 10.13, 10.14, 11.9, 12.9; Application Section 5.7
Findings:	The licensee established procedures for measuring and recording internal and external exposures. The licensee also established an RWP process to help control exposures during non-routine activities. The respiratory protection program was implemented to control the inhalation of radioactive material during non-routine maintenance work. The licensee established a bioassay program to monitor for potential uptakes of radioactive material. The licensee also established a program for controlling contamination, including requirements for personnel surveys. The inspectors observed that site employees conducted alpha and beta contamination surveys prior to exiting the restricted areas at the

## Uranerz Preoperational Inspection Field Notes

	<p>CPP in accordance with license requirements.</p> <p>During future inspections, the inspectors will review the licensee's implementation of personnel contamination surveys. The inspectors will ensure that site workers understand contamination survey techniques and are capable of demonstrating their proficiency in conducting contamination surveys.</p>
Documents Reviewed:	Procedures RAD-SOP-01 through RAD-SOP-17

Category:	Radiation Protection
Topic:	Posting, Labeling and Control
Reference:	IP 83822, Section 02.05
Requirement:	10 CFR Parts 19 and 20; License Conditions 9.7 and 9.11; Application Sections 5.7.2, 5.7.3, 5.7.7.6
Findings:	The licensee implemented a posting program that included notices to workers and identification of radiation areas, radioactive materials areas, and mill entrances. The licensee also established controls over the restricted areas that included physical boundaries and locked doors and gates. During site tours, the inspectors confirmed that the various areas of the site, including the wellfields, were properly posted, labeled, and controlled.
Documents Reviewed:	Procedures RAD-SOP-02, RAD-SOP-03, RAD-SOP-08, RAD-SOP-09, RAD-SOP-11, RAD-SOP-15, PRD-SOP-31, and PRD-SOP-42

Category:	Radiation Protection
Topic:	Surveys
Reference:	IP 83822, Section 02.06
Requirement:	10 CFR 20.1501 and 20.2103; License Conditions 9.2, 9.6, 9.7, 9.10, 10.4, 10.13, 10.14, 12.9; Application Sections 5.7.2, 5.7.3, 5.7.6
Findings:	The licensee established contamination controls including surveys for surface contamination, personnel, equipment prior to release, and transportation of radioactive material. The licensee had the equipment, procedures, and forms for conducting and documenting these surveys.
Documents Reviewed:	Procedures RAD-SOP-03, RAD-SOP-05, RAD-SOP-06, RAD-SOP-07, RAD-SOP-08, RAD-SOP-09, RAD-SOP-11, RAD-SOP-15

Category:	Radiation Protection
Topic:	Notifications and Reports
Reference:	IP 83822, Section 02.07
Requirement:	10 CFR 19.13, 10 CFR Part 20, Subpart M, Reports; License Conditions 9.2, 9.3, 9.7, 10.11, 11.1, 11.2, 11.5, 11.6, 11.8

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Findings:	Emergency notification instructions involving radioactive materials are provided in the Emergency Notification and Reporting procedure. These instructions include the immediate, 24-hour, 48-hour, and 30-day reporting requirements as specified in 10 CFR Part 20, Subpart M, as well as 10 CFR 40.60. The license has LCs pertaining to reporting of shutdown of the deep disposal wells (in certain instances), quarterly and semiannual reporting of production activities, SERP change pages, annual radiation program evaluation, excursions, and spills.
Documents Reviewed:	Procedures ERM-SOP-05, ERM-SOP-08, ERM-SOP-09, RAD-SOP-01, SFT-SOP-07, SFT-SOP-16

Category:	Radiation Protection
Topic:	As Low As Reasonably Achievable (ALARA)
Reference:	IP 83822, Section 02.08
Requirement:	10 CFR 20.1101(b); License Conditions 9.2, 9.7; Application Sections 5.1.2, 5.3
Findings:	The licensee established an ALARA program in accordance with the regulations, license commitments, and RG 8.30. The program includes a management commitment to ALARA as well as routine ALARA audits. The radiation safety staff has the authority to ensure that ALARA policies are carried out. The RSO will review radiation safety procedures annually for ALARA improvements. The licensee's radiation protection program encourages worker suggestions on radiation protection. The ALARA program also includes routine inspections of plant conditions and training/retraining of site workers. Adequate equipment and supplies are available with proper procedures for their use.
Documents Reviewed:	Procedures RAD-SOP-02, RAD-SOP-15, ADM-SOP-02, ALARA Commitment and Audit

Category:	Effluent Control and Environmental Protection
Topic:	Management Controls
Reference:	IP 88045, Section 02.01
Requirement:	LCs 9.2, 9.7, 9.10, 10.4 and 11.1.D; Application Sections 5.1 and 5.2
Findings:	Management responsibilities are provided in Section 5.1 of the License Application. The President has overall responsibility and authority for the environmental compliance programs. The executive vice president is responsible for ensuring that operations personnel comply with environmental protection programs. The Environmental Safety and Health Manager is responsible for all environmental programs and for ensuring compliance with all regulatory requirements. The Environmental Safety and Health Manager is also responsible for routine auditing of the environmental program. The Environmental Supervisor and Environmental Technicians are responsible for the orderly collection and recording of all data from the environmental safety program. At the time of the preoperational inspection, the licensee had staffed all license-required positions.

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	<p>Section 5.1.2 of the License Application and LC 9.7 provide the ALARA requirements. The licensee committed to keep personnel and environmental exposures to radiation and radioactive material ALARA. Section 5.1.3 provides the audit requirements. This section requires the licensee to conduct annual audits of the radiation safety and ALARA programs. The QAP procedure ADM-SOP-08 provides the detailed instructions for conducting the ALARA audit. Per Section 5.1.3 and LC 9.10, written reports are required for each audit, and the reports are required to be provided to corporate and site management. A copy of the report is also provided to the SERP for action as appropriate.</p> <p>LC 10.4 requires procedures for identification of deficiencies and corrective actions for deficiencies, and LC 9.10 requires investigations and corrective actions to be documented. Section 10 of the QAP provides the instructions for identifying and documenting deficiencies and their corrective actions.</p>
Documents Reviewed:	Procedure ADM-SOP-08

Category:	Effluent Control and Environmental Protection
Topic:	Quality Control of Analytical Measurements
Reference:	IP 88045, Section 02.02
Requirement:	License Condition 9.2; Application Section 5.7.9
Findings:	<p>Section 5.7.9 of the application provides the quality assurance requirements. These requirements include quality control during sampling and laboratory analyses as well as use of quality control samples (field blanks, duplicate samples). The details are provided in the QAP, laboratory procedures, and individual sampling procedures.</p> <p>During the inspection, the inspectors noted that the licensee had not clearly established procedures to implement QA/QC requirements for environmental sampling, in particular, instructions for collecting and analyzing duplicate samples. The licensee updated procedures accordingly, including RAD-SOP-16 and 17. For example, Procedure RAD-SOP-17 provides the requirements for laboratory duplicates, spikes and blanks. The inspectors will review how the licensee implemented its QA/QC program during future inspections, when it begins to collect environmental samples that may contain radioactive material.</p> <p>Also, the inspectors questioned whether licensee's contractor laboratory could meet the lower limits of detection for environmental samples as specified in RG 4.14, Radiological Effluent and Environmental Monitoring at Uranium Mills. In response, the licensee changed its laboratory for certain samples and requested longer count times for air particulate samples. The inspectors will review the results of the licensee's efforts to ensure that its sampling program meets the lower limits of detection specified in RG 4.14 during a future inspection, when the licensee starts to collect environmental samples that may contain radioactive material.</p>
Documents Reviewed:	Procedures ADM-SOP-08, LAB-SOP-01, RAD-SOP-16, RAD-SOP-17

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Category:	Effluent Control and Environmental Protection
Topic:	Program Implementation
Reference:	IP 88045, Section 02.03
Requirement:	10 CFR Part 20 Subparts L and M; 10 CFR 40.65; License Conditions 9.2 and 11.9; Application Sections 5.7.7 and Exhibit 5.1
Findings:	<p>In Section 5.7.7 of the License Application, the licensee proposed to monitor air particulates, radon, and ambient gamma radiation at 13 locations around the facility. The licensee proposed to monitor air particulates, radon, and ambient gamma at six stations, and the licensee proposed to monitor radon and ambient gamma radiation at seven additional stations. The sample locations include a background station and a nearest residence station. The licensee collected baseline radiological samples in 2009-2010 as required by RG 4.14. The licensee recommenced with environmental air particulate sampling in the second quarter of 2013. The environmental monitoring equipment was in operation during the inspection, collecting background and baseline samples.</p> <p>The licensee established procedures for operating the environmental monitoring station. The operating instructions are provided primarily in RAD-SOP-17 as well as a few ancillary procedures for groundwater, surface water, sediment, and soil samples (ENV-SOP-03 and ENV-SOP-21). The inspectors observed some of the stations during the preoperational inspection and confirmed that the stations were in the locations specified in the application.</p> <p>LC 11.9 specifies that the licensee shall establish air particulate sampling stations in the three sectors with the highest predicted radioactive concentrations resulting from operations. This condition was added to the license because the licensee's original locations were based on meteorological data obtained from an offsite station. Using recent data obtained from the licensee's onsite meteorological monitoring station, submitted to the NRC by letter dated November 1, 2013, the inspectors recognized that the air sampling stations, as specified in the application, were not always located in the three sectors with the highest predicted radioactive concentrations based on the updated wind rose graphs. In response to the inspectors' findings, the licensee conducted a SERP review (documented in SERP-1-2014) that authorized the relocation of three air monitoring stations to optimize radiological airborne monitoring consistent with LC 11.9. The licensee submitted this updated information, with changes in environmental monitoring station locations, to the NRC for review and approval. At the conclusion of the onsite inspection, the NRC was still reviewing this license amendment request.</p> <p>The relocation of the three sample stations created an unavoidable problem for the licensee. The licensee had previously collected preoperational data at the sample stations. When the licensee relocated three stations, the licensee was no longer able to use the previously obtained preoperational data for direct comparison to the new locations. Instead, the licensee plans to compare future data collected during operations to the overall background results from baseline</p>

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	and preoperational sampling. The NRC inspectors will review how the licensee accounts for background at the three new locations during future inspections.
Documents Reviewed:	Licensee letter to NRC dated November 1, 2013, submitted in response to LC 12.7; Licensee letter to NRC dated February 3, 2014, submitted in response to LCs 11.9 and 12.7; Procedures SOP-RAD-SOP-17, ENV-SOP-03, ENV-SOP-21; RG 4.14

Category:	Effluent Control and Environmental Protection
Topic:	Radioactive Liquid Effluents
Reference:	IP 88045, Section 02.04
Requirement:	10 CFR Part 20 Subpart D; 10 CFR 20.2003; License Conditions 9.2, 10.4, 10.11 and 11.2; Application Sections 4.2.1 and 5.7.1.2
Findings:	<p>The licensee's control of liquid effluents is described in Sections 4.2.1 and 5.7.1.2 of the application. Liquid effluents are expected to be generated from process bleed, process solutions, wash-down water, and restoration water. The licensee plans to either dispose of liquid effluents via deep disposal wells or reuse the wastewater after treatment by reverse osmosis. The licensee constructed waste water tanks for storage of wastewater prior to disposal, a reverse osmosis system for treatment of water for reuse, and two deep disposal wells. The licensee received permits from the State of Wyoming for the two deep disposal wells in December 2013.</p> <p>In accordance with LC 10.4, the licensee established procedures for operating the waste water system, deep disposal wells, and reverse osmosis system. At the time of the onsite inspection, the licensee had not established procedures for conducting restoration of wellfields, but the licensee is expected to establish and implement these procedures before commencing with restoration activities. LC 10.11 specifies that the licensee is required to report volumes of solutions disposed in an annual report to the NRC. License Condition 11.2 specifies that the licensee shall submit an annual public dose assessment to the NRC. Procedure RAD-SOP-14 provides the instructions for calculating public doses.</p>
Documents Reviewed:	Procedures PRD-SOP-19, PRD-SOP-23, PRD-SOP-24, RAD-SOP-14

Category:	Effluent Control and Environmental Protection
Topic:	Radioactive Airborne Effluents
Reference:	IP 88045, Section 02.05
Requirement:	10 CFR 20.1101(d); 10 CFR Part 20 Subpart D; License Conditions 9.2, 10.4, 11.1.D, 11.2 and 11.9; Application Sections 5.7.1.1 and 5.7.7
Findings:	<p>The licensee installed six air sampling stations at various locations around the site to monitor radioactive airborne effluents. Each sampling station is capable of sampling air particulates, radon, and ambient gamma radiation levels. The licensee monitors radon and ambient gamma radiation at seven additional stations. As allowed by the performance-based license, the licensee relocated</p>

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	<p>three air sampling stations in response to updated meteorological monitoring data. The licensee's analysis was documented in SERP-1-2014.</p> <p>In accordance with LC 10.4, the licensee established procedures for monitoring radioactive airborne effluents. The operational requirements are provided in procedure RAD-SOP-17 and the QA/QC requirements are provided in RAD-SOP-16.</p> <p>License Condition 11.2 specifies that the licensee shall submit an annual public dose assessment to the NRC. Procedure RAD-SOP-14 provides the instructions for calculating public doses. Further, LC 11.1.D specifies that the licensee shall submit the results of the environmental and effluent monitoring program to the NRC on a semi-annual basis. This reporting requirement has been incorporated into Section 3 of environmental procedure ENV-SOP-10.</p>
Documents Reviewed:	Procedures RAD-SOP-16, RAD-SOP-17, RAD-SOP-14, ENV-SOP-10

Category:	Effluent Control and Environmental Protection
Topic:	Procedures for Controlling the Release of Radioactive Liquid and Gaseous Effluents
Reference:	IP 88045, Section 02.06
Requirement:	License Conditions 10.4, 11.1.D and 11.2
Findings:	<p>License Condition 10.4 specifies, in part, that the licensee shall develop and implement written SOPs prior to operation for environmental monitoring. The licensee developed written procedures for implementing the environmental monitoring program. The operational requirements are provided in procedure RAD-SOP-17 and the QA/QC requirements are provided in RAD-SOP-16.</p> <p>License Condition 11.1.D specifies that the licensee shall submit a semi-annual report summarizing the results of the operational effluent and environmental monitoring program. This reporting requirement has been incorporated into Section 3 of environmental procedure ENV-SOP-10.</p> <p>Further, LC 11.2 states that the licensee shall submit an annual report that includes a public dose assessment. Procedure RAD-SOP-14 provides the instructions for calculating public doses.</p> <p>The inspectors reviewed the procedures and confirmed that they provide adequate instructions for implementing the effluent and environmental monitoring programs. The inspectors observed some of the sampling stations in operation and confirmed that the stations were designed, constructed, and operated as required by procedure.</p>
Documents Reviewed:	Procedures RAD-SOP-16, RAD-SOP-17, RAD-SOP-14, ENV-SOP-10

Category:	Effluent Control and Environmental Protection
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Topic:	Identification and Resolution of Problems
Reference:	IP 88045, Section 02.07
Requirement:	License Conditions 9.2 and 9.10; Application Sections 5.1.1, 5.2.1.1 and 5.3.2
Findings:	License Condition 9.10 requires the licensee to document reviews, investigations, and corrective actions. Section 5.2.1.1 further specifies that the licensee will establish written operating procedures to include the corrective action system. Section 10 of Procedure ADM-SOP-08 provides limited instructions for identification and documentation of preventive and corrective actions. The licensee also developed two log sheets for tracking corrective actions. The Environmental Safety and Health Manager is responsible for advising senior management on matters involving radiation safety and implementing changes and/or corrective actions involving radiation safety. According to procedure ADM-SOP-01, the RSO is responsible for describing problems with recommendations for corrective action in the monthly reports. In summary, the license has developed a program for identifying problems and documenting corrective actions.
Documents Reviewed:	Procedures ADM-SOP-01, ADM-SOP-08; Log Sheets SFT-LOG-03, SFT-LOG-68

Category:	Maintaining Effluents from Materials Facilities ALARA
Topic:	Management Commitment
Reference:	IP 87102, Section 02.01
Requirement:	10 CFR 20.1101(b); License Conditions 9.2, 9.7 and 11.2; Application Section 5.0
Findings:	<p>The licensee has established management-level commitments for implementation of the ALARA concept into the environmental and effluent monitoring programs. Section 5.0 of the application states that organizational and management controls will be established to further implement the company's policy for providing a safe working environment including the philosophy of maintaining radiation exposures ALARA. Section 5.1.2 provides the ALARA requirements. All workers are responsible for implementing the ALARA philosophy. Section 5.1.2.2 provides the specific management responsibilities. These responsibilities include implementation of ALARA in the environmental protection program.</p> <p>Per Section 5.3.2, the Environmental Safety and Health Manager is responsible for reviewing trends important to ALARA considerations as part of the monthly reporting requirements. Section 5.3.1 specifies that an audit will be completed annually for the content and implementation of the radiation safety and ALARA programs, consistent with the information provided in RG 8.31. License Condition 11.2 specifies that the results of the annual review will be submitted to the NRC. This annual report is submitted to the NRC through the licensee's SERP which consists of management staff.</p> <p>Procedures RAD-SOP-02 and RAD-SOP-16 describe the implementation</p>

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	requirements for the ALARA program. These procedures specify that the ALARA program, including the annual audit requirements, apply to radiological survey and sampling data as well as public exposures to radionuclides.
Documents Reviewed:	Procedures RAD-SOP-02, RAD-SOP-16; RG 8.31

Category:	Maintaining Effluents from Materials Facilities ALARA
Topic:	Audits and Appraisals
Reference:	IP 87102, Section 02.02
Requirement:	10 CFR 20.1101(c), License Conditions 9.2, 9.7 and 11.2; Application Section 5.0
Findings:	The licensee established a program for auditing the ALARA program. Application Section 5.3.1 specifies that an audit will be completed annually for the content and implementation of the radiation safety and ALARA programs, consistent with the information provided in RG 8.31. License Condition 11.2 specifies that the results of the annual review will be submitted to the NRC. Section 5.2.2.4 specifies that the annual audit will be submitted to the NRC through the SERP. Procedures RAD-SOP-02 and RAD-SOP-16 describe the implementation requirements for the ALARA program. These procedures specify that the ALARA program, including the annual audit requirements, apply to radiological survey and sampling data as well as public exposures to radionuclides. The inspectors will review these annual ALARA reports during future inspections.
Documents Reviewed:	Procedures RAD-SOP-02, RAD-SOP-16; RG 8.31

Category:	Maintaining Effluents from Materials Facilities ALARA
Topic:	Procedures, Engineering Controls, and Process Controls
Reference:	IP 87102, Section 02.03
Requirement:	License Conditions 9.2 and 10.4; Application Sections 2.9.1.1, 3.5, 5.1.2 and 5.7.1
Findings:	<p>Application Section 5.1.2 provides the ALARA requirements, while LC 10.4 specifies, in part, that written standard operating procedures will be developed and implemented for environmental monitoring. The instructions for implementing the ALARA program for effluent and environmental monitoring programs are provided primarily in procedure RAD-SOP-16. Details about the ALARA program are provided in procedure RAD-SOP-02. The licensee implements the ALARA program, in part, through routine training and audits.</p> <p>Engineering controls limit the release of liquid effluents into the environment. Liquid effluents are either recycled or disposed via deep disposal wells. Engineering controls are implemented primarily through early detection of leaks and spills. Section 2.9.1.1 of the application provides the engineering controls for wellfield leaks. License Condition 11.6 provides requirements for the licensee</p>

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	<p>to maintain documentation of unplanned releases. These requirements are incorporated into procedures ENV-SOP-05, Unplanned Releases, and ERM-SOP-08, Transportation Emergencies.</p> <p>Abnormal conditions in the plant will result in alarms, and operator training (TNR-SOP-01) will include alarm responses to minimize radiological impacts. The licensee has developed procedures (ENV-SOP-17, PRD-SOP-05, PRD-SOP-30) for responding to abnormal events, spills, and leaks. Ventilation systems are used within process buildings to control exposures of workers to radon. The process facilities are located in sparsely populated areas to minimize exposures to members of the public.</p>
Documents Reviewed:	Procedures RAD-SOP-02, RAD-SOP-16, ENV-SOP-17, PRD-SOP-05, PRD-SOP-30, ENV-SOP-05, ERM-SOP-08, TRN-SOP-01

Category:	Maintaining Effluents from Materials Facilities ALARA
Topic:	Instrumentation
Reference:	IP 87102, Section 02.04
Requirement:	LCs 9.2, 9.10 and 11.9; Application Sections 3.5, 5.2.1.3, 5.7.7 and 5.7.9.3
Findings:	<p>The licensee installed and maintained two types of instrumentation, one for monitoring environmental effluents and the second for detecting abnormal conditions. The licensee established programs for ensuring the operability of both types of instruments.</p> <p>The lower limits of detection requirements for environmental monitoring are provided in LC 11.9, Application Section 5.7.7, and procedure RAD-SOP-17. During the inspection, the inspectors noted that the licensee's preoperational environmental sample results did not always meet the lower limits of detection specified in RG 4.14, especially for radium-226. In response, the licensee took corrective actions including switching analytical laboratories and conducting longer count times. The licensee's corrective actions will be reviewed during a future inspection, when the licensee is sampling during operations, to ensure that the licensee complies with the lower limits of detection specified in RG 4.14.</p> <p>The requirements for instrumentation to detect abnormal conditions are provided in Section 3.5 of the Application. The alarms include high and low tank levels, flows, and pressures. These alarms help prevent spills and releases from occurring, or ensure that operators are aware of releases in progress. The operational requirements for these instruments are provided in various operating procedures. The alarm response instructions are provided in PRD-SOP-05, Alarms.</p> <p>License Condition 9.10 specifies, in part, that survey and monitoring equipment calibrations shall be documented. These calibration recordkeeping requirements are provided in Sections 5.2.1.3 and 5.7.9.3 of the Application. Procedures RAD-SOP-16 and RAD-SOP-17 provide the instructions and intervals for environmental monitoring instrument calibrations. At the time of the inspection, the air samplers were being routinely calibrated.</p>

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Documents Reviewed:	RG 4.14; Procedures PRD-SOP-05, RAD-SOP-16, RAD-SOP-17
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Category:	Maintaining Effluents from Materials Facilities ALARA
Topic:	Surveys and Effluent Monitoring
Reference:	IP 87102, Section 02.05
Requirement:	10 CFR 20.1302, 10 CFR 40.65; License Condition 12.8
Findings:	License Condition 12.8 required the licensee to discuss how the quantity of all principle radionuclides, from all point and diffuse sources, will be accounted for, and verified by, surveys and monitoring. This LC also requires the licensee identify the member of the public most likely to receive the highest exposure and determine how radon-222 progeny will be factored into public dose assessments. The licensee responded to this LC by letters dated October 8, 2013, and February 19, 2014. In its two response letters, the licensee indicated that its environmental monitoring program was sufficient to monitor all principal radionuclides from all point and diffuse sources. The licensee also determined that off-shift employees would be the maximally exposed members of the public, and an environmental monitoring station was placed near the workforce housing (man camp). With regards to radon-222 progeny, the licensee plans to monitor the radon using track-etch monitors and comparing the results to the derived air concentration value with radon progeny included, as provided in 10 CFR Part 20, Appendix B, Table 2. At the conclusion of the inspection period, the NRC had not completed its review of the licensee's two submittals.
Documents Reviewed:	Licensee letters dated October 8, 2013, and February 19, 2014

Category:	Maintaining Effluents from Materials Facilities ALARA
Topic:	Worker Training
Reference:	IP 87102, Section 02.06
Requirement:	10 CFR 19.12, License Conditions 9.2, 9.7; Application Sections 4.0, 5.1.2, 5.3, 5.5
Findings:	The inspectors reviewed the training procedures and training records and determined that employees are instructed in ALARA principles. Radiation safety training requirements were established and implemented as outlined in the ALARA Program and Uranerz Employee Training SOPs.
Documents Reviewed:	Procedures RAD-SOP-02, TRN-SOP-01; Discussions with employees and contractors

Category:	Maintaining Effluents from Materials Facilities ALARA
Topic:	Changes

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Reference:	IP 87102, Section 02.07
Requirement:	License Conditions 9.2 and 9.4; Application Section 5.2.2
Findings:	<p>License Condition 9.4 allows the licensee to make certain changes to the facility in accordance with its performance-based license. The licensee is required to make these changes through the SERP process, and to maintain documentation of the changes for the life of the license. A summary of the changes is required to be submitted to the NRC on an annual basis in accordance with LC 9.4.E. Details of the SERP program are provided in Application Section 5.2.2 and Procedure ADM-SOP-06. By procedure, the licensee is required to consider the environmental and radiological impacts of any proposed change. An ALARA review is part of the radiological considerations for the proposed change. These review requirements are incorporated into SERP template ADM-LOG-02, a log sheet used as a template for changes being proposed by the SERP.</p> <p>The licensee used the SERP process to relocate three environmental monitoring stations, to better align the stations with the predominant wind directions. This change was documented in SERP-1-2014, submitted to the NRC by letter dated February 3, 2014.</p>
Documents Reviewed:	Procedure ADM-SOP-06; Log sheet ADM-LOG-02, SERP Template; Licensee letter dated February 3, 2014

Category:	Inspection of Transportation Activities
Topic:	Preparation of Packages for Shipment
Reference:	IP 86740, Section 02.01
Requirement:	10 CFR 71.5, 49 CFR Parts 171-178; License Conditions 9.2, 10.4
Findings:	<p>The inspectors verified that the licensee has established a program to ensure that packages are prepared for shipment as required by NRC and DOT regulations. There are several types of radioactive material considered for shipment by the licensee: (1) ion exchange resins shipped to a licensed facility for processing; (2) shipment of radioactive waste to a licensed disposal site; and (3) liquid and solid samples shipped to an analytical laboratory. The licensee has procedures to ensure that packages have been prepared for shipment including preparation of shipping papers and marking and labeling of packages. Also, the inspectors verified that a program for external radiation and removable contamination monitoring was in place with appropriate survey methods that were able to detect the limits specified in 49 CFR 173.441 and 173.443.</p>
Documents Reviewed:	Procedures ERM-SOP-08, RAD-SOP-07

Category:	Inspection of Transportation Activities
Topic:	Delivery of Completed Packages to Carriers
Reference:	IP 86740, Section 02.02

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Requirement:	10 CFR 71.5, 49 CFR Parts 171-178; License Conditions 9.2, 10.4
Findings:	<p>The inspectors verified that the licensee had procedures in place for preparation of shipping papers that will include the appropriate radiological information, emergency contact number, and certification statement. The licensee had procedures in place for loading and placarding of exclusive-use shipments. The licensee plans to ship uranium bearing ion exchange resins to a licensed facility for further processing as exclusive-use shipments. The inspectors reviewed the shipping papers to be used for these shipments and found them to be complete for exclusive-use shipments. The licensee will ship byproduct waste material to a licensed disposal facility. The inspectors ensured that shipment paperwork met the waste shipping and disposal requirements of 10 CFR Part 20, Appendix G requirements.</p> <p>The licensee established procedures for designating HAZMAT employees. The training program for HAZMAT employees was outlined in the licensee's training procedure. All operators will be designated as HAZMAT employees when operations begin. At the time of the inspection, most satellite operators had received training, although the licensee will provide the required HAZMAT training prior to all employees performing radioactive shipments.</p>
Documents Reviewed:	Procedures ERM-SOP-08, RAD-SOP-07, TRN-SOP-01

Category:	Inspection of Transportation Activities
Topic:	Receipt of Packages
Reference:	IP 86740, Section 02.03
Requirement:	10 CFR 20.1906; License Condition 9.2
Findings:	The licensee does not expect to receive any radioactive material shipped as a Type A shipment or greater to the site that requires a receipt inspection, although procedure RAD-SOP-07 has instructions on checking in packages. The resin truck will be returned to the site with potentially contaminated resins and will be a LSA-I shipment.
Documents Reviewed:	Procedure RAD-SOP-07

Category:	Inspection of Transportation Activities
Topic:	Records and Reports
Reference:	IP 86740, Section 02.04
Requirement:	10 CFR 20.2202, 49 CFR 171.15 and 171.16; License Condition 9.2
Findings:	The licensee established procedures for reporting of incidents related to radioactive shipments. ERM-SOP-08 and ERM-SOP-09 describe the procedures for reporting of incidents related to transportation of radioactive material. Record requirements are provided in Procedure RAD-SOP-07.

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Documents Reviewed:	Procedures ERM-SOP-08, ERM-SOP-09, RAD-SOP-07
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Category:	Inspection of Transportation Activities
Topic:	General License Requirements
Reference:	IP 86740, Section 02.05
Requirement:	10 CFR Part 71, Subpart C; 49 CFR 173.410-426
Findings:	Shipping under a general license under 10 CFR Part 71 is not applicable for this licensee. The inspectors verified that all packages used for shipment are industrial or excepted packages which do not require use under a general license.
Documents Reviewed:	None

Category:	Inspection of Transportation Activities
Topic:	Management Controls
Reference:	IP 86740, Section 02.06
Requirement:	10 CFR 71.5, 49 CFR Parts 171-178; License Condition 9.2
Findings:	The licensee's RAD-SOP-07, Responsibilities Section, outlines the responsibilities for ensuring that all radioactive shipments are prepared and shipped in accordance with all applicable regulations.
Documents Reviewed:	Procedure RAD-SOP-07

Category:	Inspection of Transportation Activities
Topic:	Indoctrination and Training Program
Reference:	IP 86740, Section 02.07
Requirement:	10 CFR 19.12, 10 CFR 71.5, 49 CFR 172 Subpart H; License Condition 9.2
Findings:	The inspectors reviewed the licensee's training program for HAZMAT employees. The training consisted of interactive computer training, RSO or designee discussions using PowerPoint slides, and hands-on function-specific training. An exam is given to each HAZMAT employee to ensure understanding of the requirements. Training is given within 90 days of hire, or reassignment to a new position requiring knowledge of radioactive shipping, and every three years thereafter. The training documentation maintained by the licensee meets the requirements of 49 CFR 172.704(d). At the conclusion of the preoperational inspection, the licensee had not completed the hands-on function-specific training for site workers. The licensee is aware that this training has to be completed prior to the first shipment of radioactive materials. The inspectors will

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	review this program area during a future inspection.
Documents Reviewed:	Procedures RAD-SOP-07, TRN-SOP-01

Category:	Inspection of Transportation Activities
Topics:	QA/QC program
Reference:	IP 86740, Sections 02.08 through 02.12
Requirement:	10 CFR 71.101, 10 CFR 71.137
Findings:	These Inspection Procedure sections do not apply to this licensee.
Documents Reviewed:	None

Category:	Inspection of Transportation Activities
Topic:	Records, Reports, and Notifications
Reference:	IP 86740, Section 02.13
Requirement:	10 CFR 71.91(a), 10 CFR 20.1906(d); License Conditions 9.2, 12.13; Application Section 5.7.9
Findings:	The inspectors reviewed the measures taken to ensure that records of shipments are maintained on file for three years and that the records contain the required information. The procedures ERM-SOP-08 and ERM-SOP-09 describe the procedures for reporting incidents related to transportation of radioactive material. Documentation requirements are described in various sections of RAD-SOP-07.
Documents Reviewed:	Procedures ERM-SOP-08, ERM-SOP-09, RAD-SOP-07

Category:	Radioactive Waste Management
Topic:	Management Controls for Waste Classification, Shipping and Burial
Reference:	IP 88035, Section 02.01
Requirement:	License Conditions 9.2, 9.9, 10.11, 12.6; Application Sections 3.2.6, 4.2, 5.1.1
Findings:	The licensee's procedures RAD-SOP-01 and RAD-SOP-07 specify the responsibilities and instructions for classifying, shipping, and disposal of wastes. The RSO has overall responsibility for the classification and shipment of wastes.
Documents Reviewed:	Procedures RAD-SOP-01, RAD-SOP-07

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Category:	Radioactive Waste Management
Topic:	Quality Assurance
Reference:	IP 88035, Section 02.02
Requirement:	License Conditions 9.2, 12.13; Application Section 5.7.9
Findings:	As described in Procedure RAD-SOP-16, periodic audits will be conducted to: (1) verify that the QA program is effectively implemented; (2) verify compliance with applicable rules, regulations and license requirements; and (3) protect employees by maintaining effluent releases and exposures ALARA. The RSO has the primary responsibility for implementing the QA/QC programs.
Documents Reviewed:	Procedure RAD-SOP-16

Category:	Radioactive Waste Management
Topic:	Waste Classification
Reference:	IP 88035, Section 02.03
Requirement:	License Conditions 9.2, 9.9, 10.11, 12.6 ; Application Sections 3.2.6, 4.2, 5.1.1
Findings:	Procedure RAD-SOP-07 provides the waste classification instructions for 11e.(2) byproduct material. The byproduct material characteristics and classifications are provided in Section 1.4 of the procedure. Procedure PRD-SOP-24 describes the methods for liquid waste disposal in the DDWs.
Documents Reviewed:	Procedures RAD-SOP-01, RAD-SOP-07, PRD-SOP-24

Category:	Radioactive Waste Management
Topic:	Waste Form and Characterization
Reference:	IP 88035, Section 02.04
Requirement:	License Conditions 9.2, 9.9, 10.11; Application Sections 3.2.6, 4.2, 5.1.1
Findings:	Procedure RAD-SOP-07 provides the waste classification instructions for 11e.(2) byproduct material. The byproduct material characteristics and classifications are provided in Section 1.4 of the procedure. Procedure PRD-SOP-24 describes the methods for liquid waste disposal in the DDWs.
Documents Reviewed:	Procedures RAD-SOP-01, RAD-SOP-07, PRD-SOP-24

Category:	Radioactive Waste Management
Topic:	Waste Shipment Labeling

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Reference:	IP 88035, Section 02.05
Requirement:	10 CFR 71.5; Application Sections 3.2.6, 4.2
Findings:	Procedure RAD-SOP-07 provides the waste packaging, preparation, and loading instructions for 11e.(2) byproduct material. The byproduct material marking, labeling, and placarding requirements are provided in Sections 1.4, 2.4, and 3 of the procedure.
Documents Reviewed:	Procedure RAD-SOP-07

Category:	Radioactive Waste Management
Topic:	Tracking of Waste Shipments
Reference:	IP 88035, Section 02.06
Requirement:	10 CFR 71.5; Application Sections 3.2.6
Findings:	Procedure RAD-SOP-07 provides the waste packaging, preparation, and loading instructions for 11e.(2) byproduct material. The waste shipments include providing the shipper a copy of the waste manifest documentation.
Documents Reviewed:	Procedure RAD-SOP-07

Category:	Radioactive Waste Management
Topic:	Disposal Site License Conditions
Reference:	IP 88035, Section 02.07
Requirement:	License Condition 9.9
Findings:	License Condition 9.9 requires the licensee to have a valid 11e.(2) waste disposal agreement with a licensed disposal facility. The inspectors reviewed the licensee's disposal contract and found it to be sufficient for the solid waste disposal requirements.
Documents Reviewed:	Byproduct Material Disposal Agreement; Procedure RAD-SOP-07

Category:	Radioactive Waste Management
Topic:	Management Controls and Surveys for Solid Waste Storage:
Reference:	IP 88035, Section 02.08
Requirement:	10 CFR 71.5; Application Sections 3.2.6, 4.2.2
Findings:	The licensee has established procedure controls for surveys of solid wastes in storage. These surveys are considered part of the routine plant surveys. The RSO will maintain oversight of these surveys as part of the routine plant walk-

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	downs and document reviews as specified in RAD-SOP-03.
Documents Reviewed:	Procedures RAD-SOP-02, RAD-SOP-03, RAD-SOP-07, RAD-SOP-08, RAD-SOP-15

Category:	Radioactive Waste Management
Topic:	Radioactive Solid Waste
Reference:	IP 88035, Section 02.09
Requirement:	Application Section 3.2.6, 4.2.2
Findings:	The licensee uses intermodal containers for storage and shipment of solid radioactive waste. Solid waste is shipped off-site once the intermodal container is full.
Documents Reviewed:	Procedure RAD-SOP-07

Category:	Radioactive Waste Management
Topic:	Waste Burial
Reference:	IP 88035, Section 02.10
Requirement:	N/A
Findings:	This section does not apply to this licensee.
Documents Reviewed:	N/A

Category:	Radioactive Waste Management
Topic:	Adequacy of Storage Area
Reference:	IP 88035, Section 02.11
Requirement:	License Conditions 9.2, 10.11; 12.6; Application Sections 3.2.6, 4.2.2, 4.3
Findings:	<p>The licensee does not have a procedure specifically for the control of solid wastes being stored within the plant. The storage of solid wastes is considered part of general plant housekeeping. The restricted area access is controlled by postings, fencing, gates, or locked doors. Solid wastes stored in laydown yards are stored in fenced-in areas, while wastes stored in dumpsters or intermodals in the yard are identified with container markings and placards. With regard to control of wastes:</p> <ol style="list-style-type: none"> <li>a. Inspectors observed that DDWs have keypad locks for entry.</li> <li>b. Uranerz staff indicated all wastes will be removed on the northeast corner of the plant outside and placed in either waste containers, 55-gallon</li> </ol>

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	<p>drums or intermodal containers. They will have one intermodal in the wellfield and two intermodals at the plant.</p> <ul style="list-style-type: none"> <li>c. Inspectors observed the locations for the intermodals appear to be stable for placement of the intermodals. The intermodal in the wellfield area will be located near header house HH-5.</li> <li>d. Uranerz staff indicted that all wastes are stored outside to reduce contact with employees and for ALARA considerations.</li> <li>e. Uranerz staff indicted each waste container will be posted with Radioactive Material signs per LC 9.11 and will be fenced as needed to keep the boundary below 2 millirem per hour.</li> <li>f. Uranerz staff indicted common trash contains are marked, and employees are trained to distinguish between common trash and radioactive material trash.</li> <li>g. Uranerz staff indicted that a Lamella clarifier will be used to reduce the amount of backwash water from the sand filter that has to be disposed via the DDWs. The clarifier removes sand particulates, the particulates are filtered in dedicated filter press, and the particulates are disposed of as solid 11e.(2) byproduct material.</li> </ul> <p>Restricted area access is controlled by postings, fencing, gates, or locked doors. Solid wastes stored in laydown yards are stored in fenced-in areas, while wastes stored in dumpsters or intermodals in the yard are identified with container markings and placards. The licensee has identified a container that will be used to store 11e.(2) byproduct material. In summary, the inspectors concluded waste or waste packages were stored (or planned to be stored) in a stable manner, were adequately protected from the environment, were segregated from hazardous materials, and were appropriately labeled.</p>
Documents Reviewed:	Procedures RAD-SOP-15; Interview with Vice President for Regulatory and Public Affairs; onsite observations.

Category:	Radioactive Waste Management
Topic:	Earthen (Surface) Waste Retention Systems
Reference:	IP 88035, Section 02.12
Requirement:	None
Findings:	The licensee does not have any earthen waste retention systems.
Documents Reviewed:	None

Category:	Emergency Preparedness
Topic:	Program Changes, Implementing Procedures, Training and Staffing, Offsite Support Agencies, Test Drills and Exercises, Emergency Equipment and Facilities, and Audits and Assessments
Reference:	IP 88050

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Requirement:	License Conditions 10.4, 12.2; Application Sections 5.2.1, 7.5
Findings:	<p>The licensee has several emergency implementing procedures, ERM-SOP-01 through ERM-SOP-06, ERM-SOP-08 and ERM-SOP-09 where the following are covered:</p> <ul style="list-style-type: none"> <li>• Medical Emergencies</li> <li>• Fire, Electrical or Gas Emergencies</li> <li>• Emergency Evacuation</li> <li>• Chemical Emergencies</li> <li>• Security Plan</li> <li>• Natural Emergencies</li> <li>• Transportation Emergencies</li> <li>• Emergency Notification and Reporting</li> </ul> <p>Copies of the emergency response procedures are maintained in the CPP and site offices. The Safety Supervisor is lead for the licensee’s Mine Rescue Team. These team members have been trained in rescue operations. Training was provided by Casper Safety and included 10 hours of training. Uranerz committed in License Application Section 5.7.9 that, “Training on Uranerz Energy Corporation policies, procedures, and practices for employees will take place prior to beginning work at Uranerz and on an annual basis.”</p> <p>The licensee has coordinated emergency response operations with Johnson, Campbell and Natrona Counties. Uranerz met with Johnson County, Natrona County, and Campbell County Local Emergency Planning Commissions (LEPC), individually. The LEPCs consist of fire, National Guard, ambulance, emergency medical, and law enforcement. The license presented the LEPCs with an overview of the Uranerz facility and the hazards that may exist at the site. The Johnson County LEPC visited the site. Uranerz staff gave each county a binder with contact information and coordinates of the facility.</p> <p>Uranerz has completed mock confined space and fall protection rescue. Uranerz staff described an incident where an air compressor caught fire and 911 was called. The Kaycee volunteer fire department was the first on scene. Licensee sent staff out to highway to meet the fire department responders and direct them to site.</p> <p>Inspectors observed automated external defibrillator in the office and the plant, a first aid kit in the office and a rescue basket for confined space, fall injury in the plant. Uranerz also has fire extinguishers, water truck, retrieval wench for confined space extraction and fall protection rescue equipment such as carabineers and related equipment. The inspectors determined the licensee established a spill response procedure for responding to spills of radioactive and other hazardous liquids. Training includes first aid, CPR, fire extinguisher use, first responder awareness, and security-related incident responses.</p> <p>In summary, the licensee had equipment available for responding to emergencies, and the site staff were trained to respond to emergencies.</p>
Documents Reviewed:	ERM-SOP-01 through ERM-SOP-06, ERM-SOP-08, ERM-SOP-09

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Category:	Fire Protection
Topic:	Program Implementation, Annual Inspection, Identification and Resolution of Problems
Reference:	IP 88055
Requirement:	29 CFR Part 1910; License Conditions 10.4, 12.2; Application Section 7.5
Findings:	The licensee has established adequate fire protection procedures in SFT-SOP-08. Procedure SFT-SOP-08 references five additional procedures that contain information and specifics addressing fire protection in specific circumstances and emergency reporting. This includes general fire safety and prevention, fire protection systems, exit routes, welding and cutting, and hot work permits. The licensee also established a routine inspection program for fire extinguishers as well as fire suppression equipment.
Documents Reviewed:	Procedures ERM-SOP-02, Fire, Electrical, or Gas Emergencies; SFT-SOP-08, Fire Prevention Plan