UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

September 14, 2012

Arlene Faunce, Radiation Safety Officer
Power Resources, Inc.
P.O. Box 1210
Glenrock, Wyoming 82637

SUBJECT: NRC INSPECTION REPORT 040-08964/12-002 AND NOTICE OF VIOLATION

Dear Ms. Faunce:

This refers to the announced, routine inspection conducted from August 7-9, 2012, at the Smith Ranch uranium recovery facility in Converse County, Wyoming. This inspection was an examination of activities conducted under your license as they relate to safety and 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. The preliminary inspection findings were discussed with you at the exit briefing conducted at the conclusion of the onsite inspection. The final exit briefing was conducted with you telephonically on August 16, 2012.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The violation involves your use of a transportation package that did not meet the U.S. Department of Transportation general design requirements. This violation was evaluated in accordance with the NRC Enforcement Policy included on the NRC's Web site at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being cited because the NRC identified the violation rather than your staff. In addition, the violation is being cited to ensure that you provide us with the corrective actions necessary to prevent recurrence of the violation.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration and convenience, NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is enclosed. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response 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's Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards 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 M. Gersey at 817-200-1299 or the undersigned at 817-200-1191.

Sincerely,

/RA/ by Robert Evans

D. Blair Spitzberg, PhD, Chief
Repository and Spent Fuel Safety Branch

Docket: 040-08964
License: SUA-1548

Enclosures:
1. Notice of Violation
2. NRC Inspection Report 040-08964/12-002
3. NRC Information Notice 96-28

cc w/Enclosure:
Ms. Carol Bilbrough
Program Manager
Wyoming Department of Environmental Quality
Land Quality Division
122 West 25th
Cheyenne, Wyoming 82002

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
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122 West 25th
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Wyoming Radiation Control Program Director

bcc w/enclosure via e-mail:
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V. Campbell, DD:DNMS
J. Whitten, C:NMSB-B
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M. Herrera, Fee Coordinator, DRMA

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NOTICE OF VIOLATION

Power Resources, Inc. Docket: 040-08964
Converse County, Wyoming License: SUA-1548

During an NRC inspection conducted on August 7-9, 2012, one violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

> 10 CFR 71.5(a) requires that a licensee who transports licensed material outside of the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation in 49 CFR Parts 170 through 189.
>
> 49 CFR 173.427(b)(1) states, in part, that low specific activity (LSA) material must be packaged, at a minimum, in an industrial package, subject to Table 6.
>
> 49 CFR 173.427, Table 6, states, in part, that solid LSA-I material, in an exclusive use shipment, must be shipped in an industrial packaging type IP-1.
>
> 49 CFR 173.411(b)(1) starts, in part, that each IP-1 package must meet the general design requirements prescribed in 49 CFR 173.410.
>
> 49 CFR 173.410(f) states, in part, that the package will be capable of withstanding the effects of any acceleration, vibration, or vibration resonance that may arise under normal conditions of transport without any deterioration in the integrity of the package as a whole.
>
> Contrary to the above, on July 13, 2012, a package that the licensee had prepared for shipment split during transport, from the top of the container down a seam on the driver's side rear corner. This break in the package during transport deteriorated the integrity of the package as a whole. This LSA package contained an empty, used yellowcake dryer that was being shipped to a waste disposal facility.
>
> This is a Severity Level IV violation (Section 6.8).

Pursuant to the provisions of 10 CFR 2.201, Power Resources, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region IV within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time. If you contest this enforcement action, you should also provide a copy of your response, with the basis for

your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response 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, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within 2 working days.

Dated this 14th day of September 2012

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	040-08964
License:	SUA-1548
Report:	040-08964/12-002
Licensee:	Power Resources, Inc.
Facility:	Smith Ranch In-Situ Recovery Facility
Location:	Converse County, Wyoming
Dates:	August 7-9, 2012
Inspector:	Linda M. Gersey, Health Physicist Repository and Spent Fuel Safety Branch
Accompanied by:	Elise Striz, PhD, Hydrogeologist Uranium Recovery Licensing Branch Office of Federal and State Materials and Environmental Management Programs
	Douglas T. Mandeville, PE, Senior Project Manager Uranium Recovery Licensing Branch Office of Federal and State Materials and Environmental Management Programs
	Tanya P. Oxenberg, PhD, Health Physicist Uranium Recovery Licensing Branch Office of Federal and State Materials and Environmental Management Programs
	John Buckley, Senior Project Manager Reactor Decommissioning Branch Office of Federal and State Materials and Environmental Management Programs
	Reggie Augustus, Financial Project Manager Special Projects Branch Office of Federal and State Materials and Environmental Management Programs
Approved by:	D. Blair Spitzberg, PhD, Chief Repository and Spent Fuel Safety Branch
Attachment:	Supplemental Inspection Information

EXECUTIVE SUMMARY

Power Resources, Inc. Smith Ranch In-Situ Recovery Facility
NRC Inspection Report 040-08964/12-002

This inspection included a review of site status, site tours, management organization and controls, site operations, radiation protection, environmental protection, transportation, radioactive waste management, and emergency preparedness.

Management Organization and Controls

- The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress (Section 1.2a).

- The licensee was adequately supervising the contractors working at the Highland Central Processing Plant (Section 1.2a).

- The licensee's safety and environmental review evaluations were performed in accordance with license requirements (Section 1.2b).

- The licensee had provided the appropriate reports to comply with the additional protocol reporting requirements (Section 1.2d).

In-Situ Leach Facilities

- The licensee was conducting site operations in accordance with license and regulatory requirements (Section 2.2).

- Radiologically restricted areas were properly posted, plant parameters were within required operating intervals, and plant security met license requirements (Section 2.2c).

- The licensee had adequate procedures for preventing pressurized yellowcake drums (Section 2.2d).

Radiation Protection

- The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license (Section 3.2).

Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities as Low As Reasonably Achievable (ALARA)

- The licensee implemented groundwater and surface water monitoring programs in accordance with the license (Section 4.2).

- One Unresolved Item, related to two mechanical integrity test failures in Mine Unit 15, was satisfactorily addressed and closed (Section 4.2).

Inspection of Transportation Activities and Radioactive Waste Management

- One violation was identified by the inspectors related to the failure of a transportation package to maintain its integrity during shipment (Section 5.2).

- The licensee collected wastewater samples as required by the license application, and the sample results indicated that the fluid met the criteria for disposal by land application (Section 5.2).

Emergency Preparedness

- The licensee implemented an Emergency Response Program that was consistent with its license conditions and operating procedures (Section 6.2).

Report Details

Site Status

At the time of the inspection, Power Resources, Inc. was extracting uranium using the in-situ recovery process. Four satellite facilities (Sat-2, Sat-3, SR-1, and SR-2) were in service and supporting 11 operating mine units (MUs). Seven MUs were in active restoration. Uranium processing and drying operations were in progress at the Smith Ranch Central Processing Plant (CPP). Uranium recovery operations were on standby at the Highland CPP and the licensee was in the process of renovating this portion of the facility.

The licensee was conducting work at its other licensed satellite facilities. In order to initiate operations at the Reynolds Ranch satellite, the licensee was in the process of obtaining approval from the Wyoming Department of Environmental Quality (WDEQ). The Gas Hills, Ruth, and North Butte satellites are not in operation at this time. The licensee, however, has installed a meteorological station at North Butte, drilled 400 delineation holes, installed a deep disposal well and two surge ponds, designed the first wellfield, and is in the process of constructing the satellite building. The licensee has installed a meteorological station at Gas Hills and drilled two test holes to evaluate the target formation for the proposed deep disposal well. No activity is occurring or planned at the Ruth Satellite. Both the Gas Hills and Ruth Satellite are inspected once per quarter by the licensee.

During this inspection, NRC's financial assurance staff reviewed the Smith Ranch-Highlands annual surety estimate submittal for 2012. Staff toured the Smith Ranch CPP, satellite facilities, Highland facility, and header houses on site. Staff met with licensee personnel responsible for surety submittal and discussed information regarding cost estimate basis and assumptions.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

Ensure that the licensee had established an organization to administer the technical programs and to perform internal reviews, self-assessments, and audits.

1.2 Observations and Findings

a. Organizational Structure

The licensee's organizational structure is illustrated in Figure 9-1 of the February 2008 license amendment that was approved by the NRC on August 18, 2008. The inspectors reviewed the licensee's current organizational structure and found that it was in agreement with the structure specified in Figure 9-1. At the time of the inspection, the licensee had 161 full time employees. The licensee had four vacancies, which included an electrical maintenance person, satellite operator, wellfield maintenance technician, and a restoration operator. The licensee's radiation safety staff consisted of one Radiation Safety Officer (RSO), two qualified health physics technician (HPT), and two HPTs in training. The licensee uses contractors for drilling work and as needed. The inspectors determined that the licensee had sufficient staff to implement the radiation protection, groundwater monitoring, and environmental programs at its current operating level.

The licensee was in the process of decontaminating the Highland CPP to prepare for installation of new process equipment. The licensee had hired experienced demolition contractors to perform all work related to the project. The licensee's radiation safety staff ensured that all work performed was in accordance with the licensee's procedures and license commitments. The inspectors observed the work being performed by the contractors and the licensee oversight process and found it to be adequate to ensure compliance with the license.

b. Safety and Environmental Review Panel

The inspectors reviewed Safety and Environmental Review Panel (SERP) number 02/12-1, dated February 9, 2012, related to qualifying a health physics technician under the qualifications outlined in NRC's Regulatory Guide (RG) 8.31. During the previous inspection, the inspectors challenged the licensee's determination that algebra classes met the definition of specialized training in radiation health protection. The licensee provided an additional 80 hours of radiation health protection training to the individual. The inspectors reviewed this additional information and now agree with the SERP decision to qualify the health physics technician under the qualifications outlined in RG 8.31.

The inspectors reviewed ORC/SERP 08/11-1, which addressed renovation of the Highland Processing Facility. This SERP documented activities related to removal of existing equipment, construction of new processing circuits within the existing building, and installation of new dryers that are similar in design and operation as the existing dryers at the Smith Ranch CPP. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance based license conditions. The inspectors also observed that the licensee will need to address License Conditions (LCs) 9.1, 10.1.2(c), and 10.1.12 prior to resuming operations at Highland.

The inspectors reviewed ORC/SERP 03/12-1, which addressed air sampler collection frequency from weekly to monthly. The SERP documented the analytical laboratory's request for the collection period be extended because the filters were not loading sufficiently to measure above the laboratory's detection limit. The SERP discussed that page changes could be made without requiring a license amendment, but if the license stated "based on statements in the application dated…" would require an amendment. Weekly sampling could be continued, but a composite sample composed of the weekly samples collected in a month may be sufficient to measure above the detection limit. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance based license conditions.

The inspectors reviewed ORC/SERP 04/12-1, which addressed construction activities planned for the North Butte remote satellite facility. The SERP documentation included a discussion of the previous NRC reviews conducted related to North Butte. The inspectors observed that previous NRC reviews for North Butte considered a full processing facility; the licensee only plans to conduct operations through the ion exchange step of the process. The inspectors concluded that the licensee had implemented the SERP determination in accordance with the performance based license conditions. The inspectors observed that LC 10.2.1, related to preparing an operating plan and environmental assessment for any activities not previously assessed by the NRC, still applied to activities at North Butte.

The inspectors reviewed ORC/SERP 05/12-2, which addressed construction of the storage ponds at the North Butte facility. The SERP documentation included a comparison of the updated storage pond design to what was previously approved by the NRC. The inspectors observed that the updated storage pond design falls within the envelope previously approved by the staff because it: (i) has a smaller footprint; (ii) has more freeboard capacity; (iii) has flatter outer slopes; and (iv) has a double liner system that reflects advances in lining technology. The inspectors determined that the licensee had implemented the SERP determination in accordance with the performance based license conditions.

c. Audits and Inspections

The inspectors reviewed the audits and inspections being generated by the licensee in accordance with LC 9.7 and RG 8.31. The licensee was conducting and documenting a daily walk-through of all work and storage areas of the facility to ensure good radiation practices were being followed. The HPTs performed the daily walk-through, except on weekends or holidays, when a trained plant operator performed them. The RSO, or an HPT when the RSO was not available, was performing a weekly inspection of all facility areas to observe general radiation control practices and review required changes in procedures and equipment. In addition, the RSO was generating a monthly report that summarized the results of the daily and weekly inspections and monitoring and radiation exposure data. The inspectors found that the audits and inspections met requirements contained in the license.

The licensee hired contractors to perform the annual audit of the radiation safety program as required by 10 CFR 20.1101(c). The inspectors reviewed the 2011 annual audit dated March 26, 2012. The audit included a review of occupational exposures, radiation survey results, and compliance with license and regulatory requirements. The inspectors found the audit to be adequate.

d. Additional Protocol Verification

The inspectors verified that the licensee had provided the NRC with appropriate documentation to comply with 10 CFR 75.11. The licensee had provided the three necessary forms that identified the capacity of yellowcake production, the actual annual yellowcake production, and the quality of yellowcake on hand. The licensee discussed how they determined these numbers, and the inspectors found the reports to be accurate, complete, and consistent for reports submitted from 2010 to 2012.

1.3 Conclusions

The organizational structure and staffing levels maintained by the licensee during the inspection period met the requirements specified in the license and were sufficient for the work in progress. The licensee was adequately supervising the contractors working at the Highland CPP. The licensee's safety and environmental review evaluations were performed in accordance with license requirements. The licensee had provided the appropriate reports to comply with the additional protocol reporting requirements.

2 In-Situ Leach Facilities (89001)

2.1 Inspection Scope

Determine if in-situ recovery activities were being conducted by the licensee in accordance with the NRC's regulatory requirements and the license.

2.2 Observation and Findings

a. PSR 2 Shallow Ground Water Characterization Plan

On a previous inspection in August 2011, the licensee provided the inspectors with two separate reports prepared by a contractor to determine if the waste water in Purge Storage Reservoir 2 (PSR 2) was leaking into the surrounding groundwater. The first report was titled, "Purge Storage Reservoir No. 2 Shallow Groundwater Characterization Monitoring Plan," dated August 17, 2011. The second report was titled, "Work Plan for Installing Groundwater Monitoring Wells," dated August 30, 2011. Based on these reports and their own analysis, the inspectors concluded that PSR 2 was seeping water into the subsurface sediments; however, it was unknown if ground water had been impacted.

During this inspection, the inspectors asked for an update on this investigation to assess if water seeping into the sediments around PSR2 has impacted a groundwater aquifer. The licensee informed NRC that the characterization had not taken place because WDEQ had not approved the plan. The licensee also informed NRC that the casing leak investigation in the shallow aquifers in the northern part of MU C might provide some information on any groundwater impacts from PSR 2, as these aquifers are down-gradient from the impoundment. As already noted, the licensee will provide the casing leak investigation quarterly reports to NRC. NRC will review these reports when received and take appropriate action if any impacts are reported.

b. Recovery Operations and Restoration

At the time of this inspection, recovery operations were being performed at Highland MUs F, H, I, J, K, and K-North. Recovery operations were also being conducted at Smith Ranch MUs 2, 3, 9, 15, and 15A. Restoration activities were in progress at MUs C, D/D-extension, and E on the Highland side and MUs 1, 4 and 4A on the Smith Ranch side. Development is underway in MUs 7 and 10. Delineation is underway in MUs 8, 11, 16, 17, and I extension. The licensee was continuing installation of replacement wells and upgrading header houses for several older mine units at the facility. These efforts have impacted progress on restoration activities.

The inspectors inquired into the issue identified by WDEQ concerning the disclosure that the licensee had installed monitoring wells outside of the license boundary at MU 9. The licensee stated that monitoring wells had been installed outside the license boundary and showed the inspectors maps of the well locations. The licensee also stated these wells would not be used for NRC licensed activities at MU 9 until the license boundary was amended.

At the time of the inspection, the licensee had seven deep disposal wells that were installed and available for use. Two additional wells were permitted for operation but

had not been installed. In addition to the deep disposal wells, the licensee was authorized to dispose of wastewater via land application.

The inspectors also conducted a review of the licensee's control of its disposal pathways for plant wastewater. The sources of wastewater include the production bleed stream, plant wash-down water, sump water, laboratory wastes, and reverse osmosis system water. At the CPP, the sources of wastewater also include the yellowcake thickener overflow and filter press wash water. As described in the license application, the licensee is authorized to dispose of wastewater through land application or by deep-disposal well injection. The licensee provided the inspectors with the waste disposal rates for each of the currently operating deep disposal wells. The range of actual capacity reported by the licensee for the seven wells was 19-95 gallons per minute (gpm) with a total capacity of approximately 320 gpm. The land application system provides an additional 180 gpm of disposal capacity.

At this time, seven MUs are in restoration, with MU C in restoration since 1999. Only one wellfield, MU A, has had its restoration approved by NRC and WDEQ. The groundwater restoration completion report for MU B was submitted to the NRC by letter dated June 26, 2009. NRC staff completed its acceptance review and determined that the report was insufficient. The licensee was notified by letter dated September 29, 2009, that the report was considered unacceptable for the purposes of conducting a detailed technical review. The licensee was in the process of revising its groundwater restoration completion report to request alternate concentration limits for the MU B. The licensee stated it plans to submit the groundwater restoration completion report in 2013 for NRC review and approval.

c. Site Tours

The inspectors conducted site tours to observe in-situ recovery operations in progress. Areas toured included the Smith Ranch CPP, the Highland CPP and surrounding areas, the SR-2 and SR-3 satellite facilities, selected mine units, PSR 2 and PSR 1, multiple header houses, the radium/selenium treatment building, and Fowler's Ranch Air Sampling Station. The inspectors reviewed the status of plant equipment, radiation protection postings, and site security. Plant parameters were within required operating intervals, plant equipment appeared to be in good condition, radiological postings were in place, and site security was adequate. In summary, the licensee was maintaining control of the areas and equipment in accordance with license and regulatory requirements.

In addition to the areas identified above, the inspectors visited the Ruth and North Butte remote satellite facilities. No activities were occurring at the Ruth remote satellite facility. The inspectors observed the processing building and some processing equipment that remain from research and development activities. Radiological postings were in place and site security was adequate. At the North Butte remote satellite, the licensee was constructing the processing building, surge ponds, and infrastructure related to the first mine unit. The licensee appeared to be performing the construction activities in a manner consistent with license requirements.

The inspectors conducted independent radiological surveys of the gamma exposure rates present in the plant CPP, satellite facilities, header houses, selenium plant, and the Highland CPP. The surveys were conducted using a Ludlum Model 19 microRoentgen

survey meter (NRC 015525, calibration due date of 03/14/13), and a Ludlum Model 2401-EC survey meter (NRC 21176G, calibration due date of 01/10/13). Gamma exposure rates measured by the inspectors were as expected, ranging between background readings of 40 µR/hr outside the CPP and satellite buildings, to 80 µR/hr in the new laboratory area in the upper level of the CPP, to 700 µR/hr around the drums of yellowcake awaiting shipment in the restricted area outside the CPP. The highest gamma exposure reading in the CPP was measured near a fresh eluent tank (T-40). Background gamma exposure rates at the Highland site were about twice the background measured at Smith Ranch, 80 µR/hr. The inspectors attributed the higher background to the open pit at the Highland site. The inspectors did not identify any areas that had not already been identified and posted as radiation areas by the licensee.

d. Dryer Operations

The inspectors interviewed two dryer operators to assess the licensee's procedures for filling of yellowcake drums and preventing buildup of pressure in the full drums. The dryer operators stated that it takes approximately three minutes to fill a yellowcake drum. After the drum has been filled, the operators wait 2 minutes to lower the lid and ring on the drums, but do not secure them. The procedure requires the operators wait 12 hours before tightening the lids, although in practice, the operators waited 24 hours to tighten down the barrel lids. The operators look for pressurization of the drums during the placing of shipping labels and during the radiation surveys. The inspectors found the procedures to be adequate to prevent drum over-pressurizations.

2.3 Conclusions

The licensee was conducting site operations in accordance with license and regulatory requirements. Radiologically restricted areas were properly posted, plant parameters were within required operating intervals, and plant security met license requirements. The licensee had adequate procedures for preventing pressurized yellowcake drums.

3 Radiation Protection (83822)

3.1 Inspection Scope

Determine whether the licensee's radiation protection program was being conducted in compliance with license and 10 CFR Part 20 requirements.

3.2 Observations and Findings

a. Occupational Exposures

The inspectors reviewed the licensee's dose assessment records from January through July 2012. Approximately 156 employees and contractors were monitored for external exposures using thermoluminescent dosimeters that were exchanged on a quarterly basis. Occupationally monitored employees included CPP operators, satellite/restoration operators, health physics staff, and maintenance workers. The highest deep dose equivalent for the first seven months of 2012 was a dryer operator that received 194 millirems (1.94 milliSieverts).

The licensee conducted air sampling, in part, for assessment of internal exposures. The inspectors reviewed the licensee's radon-222 air sampling records and the uranium particulate and worker breathing zone sample results for the first seven months of 2012. The highest derived airborne concentration in hours (DAC-hrs) for radon daughters for an employee in the first seven months of 2012 was a laboratory worker that received 19.04 DAC-hrs. The highest derived airborne concentration in hours for radon progeny received by a contractor during this period was 21.0 DAC-hrs. The highest employee airborne uranium exposure was 57.96 DAC-hrs, received by a dryer employee. The highest contractor airborne uranium exposure during this period was 21.0 DAC-hrs. The inspectors confirmed that the licensee had conducted air sampling at the required intervals.

The licensee collected urine bioassay samples between January and July 2012 to assess the potential for intakes of uranium. The inspectors reviewed the bioassay program to verify compliance with LCs 11.2 and 11.3. Only one bioassay result exceeded the action level of 15 micrograms uranium per liter of urine (µg/L). The sample was collected on June 5, 2012, and measured 103 µg/L. The sample was analyzed in triplicate with consistent results. The worker was a drilling contractor and the licensee's investigation found that he may have contaminated the sample with gloves. This contractor had collected the sample after working in the field and failed to alpha survey his gloves prior to leaving the drill field as required by LC 9.2. The licensee self identified the problem and conducted alpha survey procedure training for all drill operators as a corrective action. The inspectors found the corrective actions to be adequate to prevent future recurrence.

The licensee also monitors for soluble uranium intake in compliance with 10 CFR 20.1201(e). The highest soluble intake of uranium in the first seven months of 2012 was received by a contractor and was calculated to be 2.055 milligrams of uranium. This is below the regulatory limit of 10 milligrams per week.

The highest total effective dose equivalent for an employee in the first seven months of 2012 was a dryer employee that received 214 millirem (2.14 milliSieverts). This is below the regulatory limit of 5000 millrems (50 milliSieverts).

b. Radiation Protection Surveys

Section 9.8 of the license application requires, in part, that the licensee perform quarterly gamma radiation surveys in specific locations throughout the satellite buildings and CPP areas to verify radiation area postings and to assess external radiation conditions. At the time of the inspection, the inspectors determined that the licensee was conducting the gamma radiation surveys on a weekly frequency in all areas, except the header houses. Various header houses were surveyed on a monthly basis that resulted in each being surveyed at least once during the year. The inspectors reviewed the survey results and found them to meet the requirements of the license.

Alpha contamination surveys were conducted by the licensee on a weekly frequency in clean areas of the site and in the process areas, although Section 9.13 of the license application authorizes the licensee to conduct monthly process area surveys. The inspectors reviewed the survey results and found them to meet the requirements of the license.

c. Training

The licensee is required to conduct training in accordance with LC 9.7 and license application Section 9.6 for its contractors and new employees, and provide annual refresher training for current employees. The inspectors reviewed radiation safety training records for two current employees and the Highland CPP contractors hired since the previous inspection. The annual refresher training for all staff was conducted during March 2012. The inspectors reviewed the training content and written exam and found them to meet the requirements of the license and regulatory requirements. All training activities and records were in accordance with the requirements of the license.

d. Instrumentation

The inspectors reviewed the licensee's operability, calibration, and maintenance records for portable radiation survey instruments. On an annual basis, the licensee sends all portable survey instruments to an outside vendor for calibration. The inspectors reviewed instrument calibration certificates for several portable survey instruments and found the calibration certificates to be adequate and the instruments currently calibrated. The inspectors observed survey meters being used by the licensee's employees when exiting restricted areas. The survey instruments examined by the inspectors were found to be in calibration and were being used appropriately by the licensee's staff.

3.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license.

4 Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities ALARA (87102 and 88045)

4.1 Inspection Scope

Determine if the environmental and effluent monitoring programs are adequate to monitor the impacts of site activities on the local environment.

4.2 Observations and Findings

a. Environmental Monitoring

The licensee's Semi-Annual Effluent Monitoring Report for January 1 through June 30, 2012, was not available for the staff to review during the inspection. The staff's review will be documented during the next inspection.

b. Wellfield and Excursion Monitoring

The licensee stated that two spills had taken place since the last inspection. The first spill occurred on March 7, 2012, in MU J. The second spill occurred on March 9, 2012, in MU H. Both spills were reported to the NRC as required by LC 12.1.

During the previous inspection, the inspectors identified one Unresolved Item (URI 040-08964/1102-03) related to the spill in header house 15-20. The unresolved item was

associated with the results of the mechanical integrity tests (MITs) performed on the injection wells closest to HH 15-20. The two injection wells closest to header house 15-20 failed the integrity test; these two wells (151-0739 and 151-0741) were plugged and abandoned in October 2011. The licensee indicated an evaluation would be undertaken to determine if there was any impact to groundwater due to the failure of the two MITs. During this inspection, the inspectors met with two of the licensees' geologists who provided a thorough analysis of the two well failures and any impacts. This analysis demonstrated that both injection well MIT failures were isolated to casing joints within the production zone. Therefore, if any leaks occurred through these failures, they would only impact the production zone aquifer. Based on the analysis, the inspectors concluded there is no impact to groundwater. This unresolved item is therefore considered closed.

License Condition 11.5 requires, in part, that the licensee monitor groundwater at the designated monitoring wells twice a month. The licensee has approximately 1,300 groundwater monitoring wells that are sampled during a typical month using six field sampling personnel. The inspectors reviewed some of the groundwater sampling records and concluded that these records indicated operational groundwater monitoring was being conducted as required by the license.

Two wells, DM-003 and DM-010, were on long term excursion status and remain on excursion. According to the licensee, wells DM-003 and DM-010 are believed to be subject to the influence of nearby underground mine workings from previous uranium mine operators not associated with this licensee. During the inspection, the licensee showed the inspectors three interceptor wells that have been installed near these wells. Once these interceptor wells are plumbed to the lines, they will be pumped to correct the excursions at DM-003 and DM-010. Since the previous inspection, the licensee reported that two new wells went in excursion. Well JM-007 was reported on excursion in February 2012 and came off excursion on June 5, 2012. It was then reported back on excursion on August 8, 2012. Well FM-009 went on excursion status on July 30, 2012. The licensee told the inspectors that the FM-009 excursion was considered to be a consequence of groundwater sweep activities in MU E and corrective actions were underway.

The licensee reported that a casing leak investigation was being conducted in MUs C, E, and F by a contractor. While touring these mine units, the inspectors observed the contractors performing this investigation. While on site, the licensee allowed the inspector to read the report "Sampling and Analysis Plan for the Casing Leak Investigation Shallow Monitoring Wells, SR-HUP facility," prepared by a contractor and dated March 23, 2012. The report stated approximately 140 shallow monitoring wells were being installed in shallow aquifers in MUs C, E, and F to characterize any impacts to groundwater from casing leaks due to historical MIT failures. The report stated that all of the monitoring wells will be sampled quarterly and the results will be provided to the WDEQ in quarterly reports. NRC inspectors asked that copies of the reports be provided to NRC. The licensee agreed and said the first quarterly report will be available in September. NRC will review these reports when received and take appropriate action if any impacts are reported.

The inspectors determined that the licensee had conducted the requisite monitoring for the excursion monitoring program and submitted the required reports within a timely manner pursuant to LC 11.5.

Since the previous inspection, the licensee has not reported any new leaks in the storage ponds. The licensee has continued to provide monthly status reports related to the November 7, 2011, leak in the east storage pond. The inspectors found the leak was reported in a manner consistent with LC 12.1.

License Condition 10.1.3 requires, in part, that a MIT be performed prior to an injection or recovery well being brought into service and every 5 years thereafter. The inspectors reviewed the MIT reports for existing and new wells since the last inspection. The inspectors concluded the MITs were being conducted within a timely manner pursuant to LC 10.1.3.

4.3 Conclusions

The licensee implemented the groundwater and surface water monitoring programs in accordance with the license. One Unresolved Item, related to two MIT failures in Mine Unit 15, was satisfactorily addressed and closed.

5 Inspection of Transportation of Activities and Radioactive Waste Management (86740 and 88035)

5.1 Inspection Scope

Determine if transportation and disposal activities conducted by the licensee were conducted in compliance with regulatory requirements.

5.2 Observations and Findings

a. Inspection of Transportation Activities

The inspectors reviewed the licensee's transportation records maintained since the February 2012 inspection. Trucks with tanker trailers are routinely utilized by the licensee to transport resin to and from the satellite buildings and the CPP. The inspectors reviewed selected resin tanker trailer shipping papers and found them to include the pertinent information required by Department of Transportation (DOT) regulations.

The inspectors identified one violation (VIO 040-08964/1202-01) related to the failure of a transportation package to maintain its integrity during shipment. The licensee had prepared an old yellowcake dryer for shipment and placed it into a sea-land container for shipment to a waste disposal facility. After receiving the container, the licensee found that they were unable to place the dryer into the container because of its awkward size. The licensee cut the top off the container, placed the dryer inside, and covered the top of the container with a tarp. During transport, on July 13, 2012, the driver noticed that the dryer had shifted inside the container, and the shifting caused a split to occur from the top of the container down a seam approximately one foot at the driver's side rear corner. The licensee had an engineer respond to this event, the split was welded, and steel straps were placed around the container. The licensee's RSO performed surveys of the container and no release of radioactive material was found. The failure of the package to withstand the effects of any acceleration, vibration, or vibration resonance that may

arise under normal conditions of transport without any deterioration in the integrity of the package as a whole is a violation of 49 CFR 173.410(f).

License Condition 9.6 requires, in part, that the licensee possess a waste disposal agreement to dispose of 11e.(2) byproduct material at an offsite location. The inspectors reviewed the waste disposal agreement and found it to be valid. Material sent for disposal consisted of 11e.(2) contaminated equipment, such as filters, pipes, pumps, and soil. The inspectors reviewed selected shipping records found them to be complete.

The licensee also ships licensed yellowcake product to Canada for processing. The licensee has an NRC export license, held by a broker, that authorizes yellowcake to be brought into Canada for conversion into uranium hexafluoride and then returned to the U.S. for future processing. The inspectors reviewed a selected sample of shipping records and found them to be complete and in accordance with DOT and NRC regulations.

b. Review of Wastewater Treatment Activities

The license application authorizes the licensee to dispose of wastewater at both the Satellites 1 and 2 land application facilities. Prior to discharge to the purge storage reservoirs, the plant wastewater is processed to remove the excess uranium, radium-226, and selenium concentrations in the water. After treatment, the wastewater is sampled to ensure that it meets the criteria specified in the license application as well as WDEQ requirements for land application.

During 2012, the licensee disposed of wastewater at the Satellite No. 2 land application facility, but not the Satellite No. 1 land application facility. In accordance with Tables 5-8 and 5-9 of the license application, the licensee samples the irrigation fluid monthly at the PSR 2 suction line for the irrigator pivot for natural uranium, radium-226, selenium, and other chemical constituents.

5.3 Conclusions

One violation was identified by the inspectors related to the failure of a transportation package to maintain its integrity during shipment. The licensee collected wastewater samples as required by the license application, and the sample results indicated that the fluid met the criteria for disposal by land application.

6 Emergency Preparedness (88050)

6.1 Inspection Scope

Determine if Emergency Response activities were conducted in accordance with the licensees operating procedures.

6.2 Observations and Findings

The inspectors verified that the licensee documents spills of radioactive material as required by Section 7.1 of the Safety, Health, Environment and Quality Management System Emergency Procedures Manual, Volume VIII. The licensee's spill documentation indicates that there have been seven spills (two reportable and 5 non-

reportable) in 2012 to date. The inspectors examined all 2012 spill records to verify that the documentation was consistent with the requirements of Section 7.3.6 of the Manual. Based on this review it was determined that the spill records were adequate.

The inspectors also verified that the licensee's emergency preparedness activities were conducted in accordance with Manual VII, SHEQ-14: Emergency Preparedness. The inspectors interviewed the Incident Commander for the site and examined the training records for members of the hazardous material (HAZMAT) Team, Confined Space Rescue team, Wild Land Fire team, and Basic Emergency Care team. Based on this review it was determined that:

- A HAZMAT Team is currently in place and operational. The HAZMAT Team was restarted in April 2012. For some period of time before April 2012, a HAZMAT Team did not exist and no records were available. A contractor provided on-site training for team members. Records identify team members and show that training has been conducted. Refresher training meetings are held monthly.

- A Confined Space Rescue Team is currently in place and operational. A contractor provided on-site training for team members in July 2011. Records identify team members and show that training has been conducted. Refresher training meetings are held monthly.

- A Wild Land Fire Team was initiated in May 2012. Records identify the team members. Although formal training has not yet been conducted, team members received informal training from the Glenrock Fire Chief on May 10, 2012. Formal training is planned in the future.

- A Basic Emergency Care Team is currently in place and operational. Team refresher training was conducted in December 2011.

- On November 2011, a full-scale emergency preparedness exercise was conducted. A contractor planned and conducted the drill. The drill report was published on November 8, 2011. Another full-scale emergency preparedness exercise is planned for later in 2012.

6.3 Conclusions

The licensee was implementing an Emergency Response Program that was consistent with its license conditions and operating procedures.

7 Exit Meeting Summary

The NRC inspectors presented the preliminary inspection results to the licensee's representatives at the conclusion of the onsite inspection on August 9, 2012. The final exit briefing was conducted by telephone on August 16, 2012. During the inspection, the licensee did not identify any information reviewed by the NRC inspectors as proprietary that was included in the report.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

B. Berg, General Manager
D. Moody, Professional Services Manger
J. McCarthy, Corporate Radiation Safety Officer

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

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

040-08964/1202-01	VIO	Failure of a transportation package to maintain its integrity during shipment

Closed

040-08964/1102-03	URI	Failure to evaluate if wells exceeded injections pressures after an incident

Discussed

None

LIST OF ACRONYMS USED

CPP	central processing plant
CFR	*Code of Federal Regulations*
DAC-hrs	derived air concentration hours
DOT	U.S. Department of Transportation
gpm	gallons per minute
HAZMAT	hazardous material
HPT	health physics technician
IP	NRC Inspection Procedures
LC	License Condition
MIT	mechanical integrity test
MU	mine unit
µg/l	micrograms per liter
µR/hr	microRoentgens per hour
ORC	Operational Review Committee
PSR	purge storage reservoir
RG	NRC Regulatory Guide
RSO	Radiation Safety Officer
SERP	Safety and Environmental Review Panel
URI	unresolved item
VIO	violation
WDEQ	Wyoming Department of Environmental Quality