



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

November 16, 2009

John McCarthy, Assistant Manager
Safety, Health and Environment
Power Resources, Inc.
P.O. Box 1210
Glenrock, Wyoming 82637

SUBJECT: NRC INSPECTION REPORT 040-08964/09-002

Dear Mr. McCarthy:

This refers to the announced, routine inspection conducted from September 15-17, 2009, at the Smith Ranch 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 by telephone on October 20, 2009.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred related to the failure to decommission mine units within 24 months and failure to request an alternate decommissioning schedule as required by 10 CFR 40.42. 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 it was identified by the NRC, rather than being identified by the licensee. Also, the violation is being cited to ensure that you provide to us the corrective actions necessary to prevent recurrence.

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, an excerpt from 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.

Based on the results of this inspection, the NRC has also determined that two additional Severity Level IV violations of NRC requirements occurred. These violations involve the failure of a plant operator to provide a monthly bioassay sample and the failure to collect a confirmatory sample for a potential excursion, both of which are required by your license. These non-repetitive, licensee-identified, and corrected violations are being treated as Non-

Cited Violations (NCVs), consistent with Section VI.A.8 of the Enforcement Policy. The NCVs are further described in the subject inspection report. If you contest the violations or significance of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region IV, and the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

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) 860-8299, or the undersigned at (817) 860-8197.

Sincerely,

/RA R. J. Evans

Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Docket: 040-08964
License: SUA-1548

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 040-08964/09-002
3. NRC Information Notice 96-28

cc w/enclosures 1&2:
Ms. Carol Bilbrough
Program Manager
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122 West 25th
Cheyenne, Wyoming 82002

Mr. Lowell Spackman
District I Supervisor
Land Quality Division
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122 West 25th
Cheyenne, Wyoming 82002

Wyoming Radiation Control Program Director

bcc w/enclosure via e-mail:

- A. Howell, D:DNMS
- C. Cain, DD:DNMS
- J. Whitten, C:NMSB-B
- L. Gersey, NMSB-B
- R. Evans, NMSB-B
- T. Youngblood, FSME/DWMEP/DURLD
- D. Mandeville, FSME/DWMEP/DURLD
- J. Saxton, FSME/DWMEP/DURLD
- T. Lancaster, FSME/DWMEP/DURLD
- R. VonTill, FSME/DWMEP/DURLD
- Fee Coordinator, DRMA, RIV

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LMGersey	DTMandeville	JEWhitten		
/RA/	/RA E Mailed	/RA RJ Evans for/		
11/13/2009	11/06/2009	11/16/2009		

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NOTICE OF VIOLATION

Power Resources, Inc.
Converse County, Wyoming

Docket 040-08964
License SUA-1548

During an NRC inspection conducted on September 15 through September 17, 2009, one violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 40.42 (h)(1) requires, in part, that licensees shall complete decommissioning of outdoor areas as soon as practicable but no later than 24 months following the initiation of decommissioning.

10 CFR 40.42 (i) states, in part, that the Commission may approve a request for an alternate schedule for completion of decommissioning of outdoor areas, if the Commission determines that the alternative is warranted.

Contrary to the above, the licensee failed to complete decommissioning of Mine Units 1 and C within 24 months and failed to request an alternate decommissioning schedule. Specifically, the licensee began decommissioning of Mine Unit 1 during July 2006 and Mine Unit C during May 1999, both of which continue to be decommissioned, and the licensee had not requested an alternate decommissioning schedule until August 13, 2009.

This is a Severity Level IV violation (NRC Enforcement Policy Supplement VI, Enforcement Manual Section 8.5).

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

ENCLOSURE 1

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 two working days.

Dated this 16th day of November 2009

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 040-08964

License: SUA-1548

Report: 040-08964/09-002

Licensee: Power Resources, Inc.

Facility: Smith Ranch In-Situ Recovery Facility

Location: Converse County, Wyoming

Dates: September 15-17, 2009

Lead Inspector: Linda M. Gersey, Health Physicist
Nuclear Materials Safety Branch B

Accompanied by: Douglas T. Mandeville, PE, Geotechnical Engineer
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Pete Hernandez, General Scientist, NSPDP
Division of Nuclear Materials Safety, RIV

Approved by: Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Attachment: Supplemental Inspection Information

EXECUTIVE SUMMARY

Power Resources, Inc. Smith Ranch In-Situ Recovery Facility NRC Inspection Report 040-08964/09-002

This inspection included a review of site status, site tours, management organization and controls, site operations, radiation protection, environmental protection, transportation and radioactive waste management, and emergency preparedness. Additionally, the inspection closed one Unresolved Item related to the potential for a purge storage reservoir to leak into the neighboring groundwater.

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 1.2.a).
- The Safety and Environmental Review Panel evaluations that were conducted by the licensee appeared to have been completed in accordance with license requirements (Section 1.2.b).

In-Situ Leach Facilities

- The licensee appeared to have conducted site operations at the licensee's in-situ recovery facilities in accordance with the performance-based license and regulatory requirements, with one exception (Section 2).
- One violation of 10 CFR 40.42 was identified related to the failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule (Section 2).
- One Unresolved Item was closed related to Purge Storage Reservoir 2 and its potential to leak into neighboring groundwater (Section 2).

Radiation Protection

- The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license (Section 3).
- One Non-Cited Violation was identified related to the failure of a worker to provide a routine monthly bioassay sample (Section 3.2.a).

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

- The licensee did not release effluents into the environment during the first and second quarters of 2009 in quantities exceeding regulatory limits (Section 4).
- The groundwater and environmental monitoring program reports were submitted to the NRC as required by the license (Section 4).

- The licensee's supplemental report of the January 2009 spill at Satellite 2 adequately addressed the corrective actions to prevent recurrence (Section 4.2.c).
- One Non-Cited Violation was identified related to failure to resample a monitoring well within 24 hours after two upper control limits were exceeded, as required by the license (Section 4.2.c).

Inspection of Transportation Activities and Radioactive Waste Management

- The licensee conducted transportation and waste disposal operations in accordance with license and regulatory requirements (Section 5).

Emergency Preparedness/ Emergency Procedures/Fire Protection

- The licensee maintained an emergency preparedness program that was adequate for current operations (Section 6).
- The licensee updated the emergency reporting procedure to include the correct annual limit on intake for natural uranium (Section 6).

Report Details

Site Status

At the time of the inspection, Power Resources, Inc. was mining uranium through the in-situ recovery process. Four satellite facilities (Sat-2, Sat-3, SR-1 and SR-2) were in service and supporting 10 operating wellfields. Two wellfields are in active restoration and the licensee is preparing three additional wellfields for restoration in calendar year (CY) 2010. The licensee indicated that before the end of CY 2009 they anticipate adding additional wells and header houses in Mine Unit 9. Uranium processing and drying operations were in progress at the Smith Ranch central processing plant (CPP). Uranium recovery operations are on standby at Satellite No. 1 and the Highland CPP.

The licensee was also conducting limited 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 for its plan of operations from the Bureau of Land Management. The licensee has installed the monitor well ring in Mine Unit 27 at Reynolds Ranch. Construction activities at Reynolds Ranch are planned for the spring of 2010 (with remaining regulatory approval). The licensee's Gas Hills, Ruth, and North Butte satellites remain in standby.

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 organization 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 determined that the licensee's current organizational structure was in agreement with the structure specified in Figure 9-1. At the time of the inspection, the licensee had 141 employees on staff, which is an increase of 21 staff members since the previous inspection in March 2009. New staff included a third environmental coordinator and a new dryer operator. The licensee hired a new manager of safety, health and environment who was scheduled to start the week following this inspection, and the former manager is now the manager of radiation safety and licensing. The inspectors determined that the licensee had sufficient staff to implement the radiation protection, groundwater monitoring, and environmental programs at its current operating level.

b. Safety and Environmental Review Panel

License Condition (LC) 9.4 of the performance-based license requires, in part, that the licensee establish a Safety and Environmental Review Panel (SERP) to evaluate if any program changes require a NRC license amendment prior to the licensee's implementation. At the time of the inspection, the licensee had performed three SERP evaluations in 2009. The first SERP evaluation, dated January 7, 2009, addressed bioremediation activities in Mine Unit C, which was reviewed by the inspectors during the

March 2009 inspection and was found to be adequate. The second SERP evaluation, dated March 3, 2009, addressed the startup of the Mine Unit K extension. The third SERP evaluation, dated April 16, 2009, was related to refresher training for the radiation safety officer. The findings for the evaluations were submitted to the NRC as required by LC 9.4(e), and the licensee concluded that the changes did not require a NRC license amendment. The inspectors reviewed the March 3 and April 16, 2009, SERPs and concurred with both SERP conclusions.

During the March 2009 inspection, the staff identified one minor violation of LC 9.4(e) pertaining to the licensee's failure to submit a SERP dated July 14, 2006 to the NRC. This SERP provided a summary of the safety and environmental evaluation of start up for Mine Unit K. The inspectors reviewed the July 14, 2006 SERP during the on site inspection and concurred with the conclusions presented in the SERP documentation.

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 SERP evaluations that were conducted by the licensee appeared to have been completed in accordance with license 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. Evaluate the four new monitoring wells near the Purge Storage Reservoir 2 (PSR2). Ensure compliance with decommissioning of wellfields as required by 10 CFR 40.42.

2.2 Observation and Findings

The inspectors conducted site tours to observe in-situ recovery operations in progress. Areas toured by the NRC inspectors included the Smith Ranch CPP, Satellites SR-2, Sat-2, and Sat-3, the Reynolds Ranch future processing area and associated deep disposal well location, Deep Disposal Well DDW-1 for Smith Ranch, the Highland Uranium project area (which is in standby), various wellfields, the new selenium plant, PSR2, irrigator 2, header houses in Mine Units C, D, E and 9, the east and west Storage ponds, and an area used for storage of old equipment (referred to as the "boneyard") and the nearest residence environmental station. During the site tours, the inspectors observed the condition of tanks, valves, yellowcake thickener, fences, radiation postings, and gates.

At the time of this inspection, 10 mine units were actively in operation. The Wyoming Department of Environmental Quality (WDEQ) and the NRC had approved restoration activities at Mine Unit A. The WDEQ approved restoration activities at Mine Unit B in early 2008. The licensee submitted its groundwater restoration completion report for Mine Unit B to the NRC in June 2009, which at the time of the inspection, is under review by the staff. Restoration activities are being performed at Mine Units C and 1, with Mine Units D, D-extension, E, F, and 4/4A being prepared for restoration.

During the inspection, the inspectors reviewed the licensee's compliance with the decommissioning requirements specified in 10 CFR 40.42, as it relates to wellfields. One violation of NRC requirements was identified related to failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule for wellfields that required greater than 24 months to decommission. Specifically, the licensee began decommissioning Mine Unit C during May 1999 and Mine Unit 1 during July 2006. Both Mine Units C and 1 continued to be decommissioned as of August 13, 2009, when the licensee formally requested an alternate decommissioning schedule. This is a violation (VIO 040-08964/0902-01) of 10 CFR 40.42 (h)(1) and 10 CFR 40.42 (i).

The inspectors conducted independent radiological surveys using NRC-issued portable survey meters. The surveys were conducted using a Ludlum Model 19 microRoentgen meter and a Ludlum Model 2401-P meter (NRC No. 015544 with a calibration due date of 04/04/10, calibrated to radium-222 and NRC No. 232484 with a calibration due date of 10/30/09, calibrated to cesium-137, respectively). The ambient gamma exposure rates observed by the inspectors varied from the background exposure rate of 15 microRoentgen per hour ($\mu\text{R/hr}$) up to greater than 5000 $\mu\text{R/hr}$ observed in the processing areas of the CPP and near some structures inside the satellite buildings. The dose rates observed by the NRC inspectors were consistent with licensee's measurements, and all areas with exposure rates in excess of 5 millirems per hour (5000 $\mu\text{R/hr}$) were posted as radiation areas as required by regulations.

The inspectors visited the boneyard area near the Smith Ranch CPP. The inspectors noted that the licensee had made significant improvement in the visual appearance of the boneyard since the March 2009 NRC inspection. Specifically, the licensee has been surveying equipment in the boneyard and any items found to be contaminated with byproduct materials is disposed of at an off-site 11e.(2) disposal facility. The volume of equipment in the boneyard has been reduced and the licensee has reseeded approximately 1 acre of the southern boneyard area. The licensee indicated to the inspectors that at a minimum these boneyard reduction efforts will continue through the remainder of 2009 and into 2010. The NRC staff will review the licensee's progress in reducing the boneyard inventory during the next inspection.

The inspectors visited the PSR2 impoundment to verify the condition of the embankment along the southern and eastern side of the reservoir. The repairs made by the licensee in 2008 continue to appear to be effective. The inspectors observed that the water levels in PSR2 were near the bottom of the intake structure for the irrigation system.

In response to Unresolved Item 040-08964/0801-03, identified by the NRC during the March 2008 inspection, in letter dated June 22, 2009, the licensee committed to installing four monitoring wells near PSR2 to determine if PSR2 was leaking into the surrounding groundwater. The inspectors were able to verify the presence and location of the four monitoring wells and review the installation records for these wells. The licensee stated that that groundwater sampling from the wells has been performed although the results were not available during the inspection. The Unresolved Item has been closed, and the inspectors plan to review the groundwater sampling results during the next inspection.

2.3 Conclusions

The licensee appeared to have conducted site operations at the licensee's in-situ recovery facilities in accordance with the performance-based license and regulatory requirements, with one exception. One violation of 10 CFR 40.42 was identified related to the failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule. One unresolved item was closed related to the PSR2 and its potential to leak into neighboring groundwater.

3 **Radiation Protection (83822)**

3.1 Inspection Scope

Determine if the licensee's radiation protection program was 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 through the second quarter of CY 2009. Approximately 64 employees were monitored for external exposures with thermoluminescent dosimeters that were exchanged on a quarterly basis. Occupationally monitored employees included Smith Ranch CPP operators, satellite/restoration operators, radiation technicians, and maintenance employees. The highest deep dose equivalent through the second quarter of 2009 was 264 millirem.

The licensee conducted air sampling, in part, for assessment of internal exposures. The inspectors reviewed the licensee's air sampling records for radon-222 and uranium particulates that were performed from March 2009 through September 2009. Through a review of air sampling records, the inspectors confirmed that the licensee had conducted sampling at the required intervals.

The licensee collected bioassay samples to assess the potential for intakes of uranium. The inspectors reviewed the bioassay program to verify compliance with LCs 11.2 and 11.3. Since the March 2009 NRC inspection, no bioassay sample results exceeded the action level of 15 micrograms per liter, which is the action level specified in Chapter 9 of the licensee's approved license application, for the implementation of corrective actions.

During the inspection, the licensee discussed with the inspectors a self-identified violation. In July 2009, a new CPP operator failed to provide a routine monthly bioassay sample. This is a violation (NCV 040-08964/0902-02) of LC 9.7, which states, in part, that the licensee will follow the guidance in NRC Regulatory Guide 8.22, "Bioassay at Uranium Recovery Facilities", and of Section 9.9 of the NRC approved license application. Regulatory Guide 8.22 and Section 9.9 both require monthly urinalysis for employees working in yellowcake areas. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A.8 of the NRC Enforcement Policy. The licensee's corrective actions include changing their procedure to require workers to submit routine bioassays within the first two weeks of every month. If a worker does not submit a bioassay within the first two weeks of a month, an e-mail notice from the radiation safety staff is sent to

the employee's supervisor as a reminder. This procedure ensures that the employee, the employee's supervisor, and the radiation safety staff are aware if an individual had not provided a bioassay sample within the month. The inspectors concluded that the revised procedure was adequate.

The licensee determines an occupationally exposed individual's internal exposure by using the combined totals from radon sampling, particulate sampling, personnel lapel monitoring, and bioassays for that individual. The highest total effective dose equivalent determined by the licensee (the sum of the internal and external doses) through the second quarter of 2009 was 333 millirems, which was assigned to a CPP operator. The annual regulatory limit for occupationally exposed individuals is 5,000 millirems.

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. The inspectors verified that the licensee had performed the required routine quarterly gamma radiation surveys during the second and third quarters of 2009.

Alpha contamination surveys were conducted by the license on a weekly frequency in clean areas of the site and in the process areas, although Section 9.13 of the license application requires monthly process area surveys. Equipment, materials, and trash prior to leaving the licensee's site were also routinely surveyed as required, and the licensee maintained the corresponding records for these contamination surveys. A review of the contamination survey records by the inspectors indicated that nothing appeared to have left the site with contamination in excess of the licensee's prescribed release limits.

c. Training

The licensee conducts required training in accordance with LC 9.7 and Section 9.6 of the license application for its contractors and new employees, and provides annual refresher training for current employees. From March 2009 through September 2009, 25 new employees and contractors were provided training in radiation safety. The annual radiation safety refresher training occurred during June 2009. The inspectors reviewed radiation safety training records for four current employees, four new employees hired since March 2009, as well as several U.S. Department of Transportation (DOT) training records. All training activities and records were in accordance with the requirements of the license, NRC, and DOT regulations.

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. One NCV was identified related the failure of a worker to provide a routine monthly bioassay sample.

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. Ensure the licensee's supplemental report of the January 2009 spill at Satellite 2 adequately addressed the corrective actions to prevent recurrence.

4.2 Observations and Findings

a. Environmental Monitoring

License Condition 12.2 states, in part, that the results of effluent and environmental monitoring shall be reported to the NRC in accordance with the provisions of 10 CFR 40.65. The inspectors reviewed the licensee's Semiannual Effluent and Environmental Monitoring Report for January 1 through June 30, 2009, dated August 26, 2009, (referred to in this report as "semiannual report"). The licensee's environmental monitoring program consisted of air particulate, radon, ambient gamma radiation, groundwater, and surface water. As part of the licensee's wastewater land application permit from the WDEQ, monitoring of soil and vegetation, irrigation fluid and radium treatment system samples, soil water samples at the irrigation areas, and monitor wells at Purge Storage Reservoir 1 and PSR2 are sampled.

Continuous air particulate sampling was conducted at three locations: a background station, a downwind boundary station, and a nearest downwind resident station. The licensee sampled the air for uranium, radium-226, and lead-210 particulate concentrations. The licensee also elected to voluntarily sample for thorium-230 concentrations in air. None of the sample results for the first quarter of 2009 exceeded the respective effluent concentration limits specified in 10 CFR Part 20, Appendix B. The results from the second quarter 2009 were not available at the time of the inspection.

The licensee also sampled for radon-222 concentrations in air at the three sample stations. The inspectors reviewed the radon-222 airborne concentration results for the first and second quarters 2009. All sample results taken by the licensee were less than the effluent concentration limit specified in 10 CFR Part 20, Appendix B.

The licensee measured ambient gamma radiation levels at the three sample stations using thermoluminescent dosimeters. For the first and second quarters of 2009, all sample results were comparable to background levels.

b. Groundwater and Environmental Water Sampling

The inspectors reviewed surface water, groundwater, and effluent monitoring data for the Highland and the Smith Ranch sites contained in the semiannual report and the quarterly monitoring wells report. Irrigator 1 did not operate during the monitoring period; therefore, irrigator 1 fluid was not analyzed. Additionally, Irrigator 1 and 2 lysimeter samples were not analyzed due to insufficient water for sampling.

The inspectors concluded that the licensee had implemented the groundwater and surface water monitoring programs in accordance with Chapter 5 of the license application. The monitoring consisted of quarterly sampling for natural uranium and radium-226 in groundwater wells and surface water sites used for livestock or for domestic water located within 1 kilometer of the operating wellfields. The sampling consists of 10 surface water (stock) ponds, 7 windmills (groundwater) and 11 wells (groundwater). The semiannual report provided sample data for 16 out of 20 possible surface water samples (10 locations sampled two quarters; 4 samples were not collected because the surface water was dry). For the groundwater locations, the semiannual report provided sample data for 13 out of 36 possible groundwater samples (23 samples were not collected because the windmill or well was not operating at the time of sample collection). All reported values for natural uranium and radium-226 were within the respective effluent concentration limits.

The semiannual report also included data from the Irrigator 2 water data for the months of May and June 2009, the Satellites Sat-2 and Sat-3 radium filter press effluents, and PSR2 shallow groundwater monitoring data. The soil and vegetation sampling results at the irrigators were not available at the time of the inspection.

c. Wellfield and Excursion Monitoring

License Condition 12.1 requires, in part, that the licensee maintain documentation on spills of source materials, 11e.(2) byproduct materials, or process chemicals. The licensee is also required to report any wellfield excursions, spills, or pond leaks involving source materials, 11e.(2) byproduct materials, or process chemicals that may have an impact on the environment.

The licensee reported five spills that had taken place since the last inspection. The spills occurred on April 2, May 12, May 26, June 10, and August 26, 2009. All five of these spills were located in the wellfields. The total volume of fluids released (i.e., not including any fluids recovered) ranged from 190 gallons to 6,500 gallons. Uranium concentrations of the spilled fluids ranged from 0.7 to 19.8 milligrams per liter.

During the March 2009 inspection, the inspectors discussed the January 10, 2009, spill that occurred at Satellite 2 with the licensee. Due to operator error, the spill occurred during a transfer of uranium-laded resins from an ion exchange vessel to a transport tanker truck. The spill released approximately 1,800 gallons of production fluid outside the Satellite 2 building. The licensee reported this spill to the NRC project manager, as required by LC 12.1, although the follow up report dated January 19, 2009, did not

address the licensee's corrective actions and the results achieved, as required by the license. The licensee had not completed their investigation by the conclusion of the March 2009 onsite inspection. The licensee had agreed to provide a supplemental report to the January 2009 letter when their investigation was complete. NRC received a supplemental report on June 22, 2009, which addressed the corrective actions which followed the investigation. The licensee determined that the underlying cause of the spill was inadequate mechanical aptitude and inadequate training for the individual involved in the incident. To prevent recurrence of this type of event, the licensee has committed to utilize an improved pre-employment screening for all satellite and plant operator positions and develop a standard operating procedure for emergency shutdown of inflow and outflow from satellites and CPP. The inspectors determined that the corrective actions were adequate.

The licensee reported four new excursions since March 2009. All four of the reported excursions occurred in Mine Unit I. Well IM-8 has been on and off excursion status several times since the last inspection. The licensee has retained a consulting hydrogeologist to investigate potential corrective actions in Mine Unit I.

License Condition 10.1.6 requires, in part, that the licensee maintain 4 feet of freeboard for the purge storage reservoirs. Purge Storage Reservoir 1 was not in service since the previous inspection. Purge Storage Reservoir 2 was in use since the March 2009 NRC inspection, and the inspectors reviewed the on-site log reports for the PSR2 weekly inspections. The inspectors concluded that the minimum 4-foot freeboard was maintained since the previous inspection.

License Condition 10.1.6 requires, in part, that the licensee maintain 3 feet of freeboard for the storage ponds. Two storage ponds (East and West ponds) were utilized by the licensee since the previous inspection. The inspectors reviewed the on-site logs for the daily inspections of the ponds. Based on the licensee's records, the minimum 3-foot freeboard was maintained for both ponds since the previous inspection.

The inspectors reviewed the daily visual inspection log records for the storage ponds, as required by LC 11.4. The NRC was notified on all occasions when the column exceeded the 6-inch minimum requirement and the sampling results indicated that the liquid in the leak detection system was from water in the pond (versus condensation). The inspectors noted that the licensee had revised the storage pond inspection procedures to record sampling results, when sampling is performed.

License condition 10.1.3 requires, in part, that a well integrity test (mechanical integrity test (MIT)) be performed prior to an injection or recovery well being brought into service. The inspectors observed an MIT being performed on well 15I-686. The inspectors noted that the MIT test was performed in accordance with the facility's Standard Operating Procedure 6614, and the well passed the MIT. All wells are required to have MITs performed every 5 years. Based on a review of the quarterly reports, the inspectors concluded that the licensee was performing the MIT tests in accordance with license.

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 the groundwater sampling records and

concluded that groundwater monitoring was being conducted as required by the license, with one exception discussed below.

During the inspection, the licensee discussed with the inspectors a self-identified violation. On July 7, 2009, two constituents at monitoring well FM-8 exceeded the upper control levels (UCLs) for alkalinity and conductivity. The UCL for alkalinity is 180 milligrams per liter, but the monitoring well FM-8 sample result was found to be 182 milligrams per liter. The UCL for conductivity is 972 micromhos per centimeter, but the monitoring well FM-8 sample result was found to be 1065 micromhos per centimeter. The licensee did not resample monitoring well FM-8 until July 20, 2009. This is a violation (NCV 040-08964/0902-03) of LC 11.5, which states, in part, that if two UCLs are exceeded in a well, the licensee shall take a confirmation water sample within 24 hours and analyze it for the excursion indicators. However, this non-repetitive, licensee-identified and corrected violation is being treated as an NCV, consistent with Section VI.A.8 of the NRC Enforcement Policy. The licensee's corrective actions include updating their monitoring well sampling procedure to have two separate individuals review the sampling results for any exceedances of parameters. The inspectors found the corrective action to be adequate.

4.3 Conclusions

The licensee did not release effluents into the environment during the first and second quarters of 2009 in quantities exceeding regulatory limits. The groundwater and environmental monitoring program reports were submitted to the NRC as required by the license. The licensee's supplemental report of the January 2009 spill at Satellite 2 adequately addressed the corrective actions to prevent recurrence. One NCV was identified related to failure to resample a monitoring well within 24 hours after two upper control limits were exceeded, as required by the license.

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

The licensee's transportation records maintained since the March 2009 inspection were reviewed by the inspectors. 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 DOT regulations.

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 verified that the waste disposal agreement was current. Between March and September 2009, a total of 8 waste disposal shipments were made to a licensed waste disposal site. Material sent for disposal consisted of 11e(2) contaminated equipment such as filters,

pipes, and pumps. The inspectors reviewed a selected sample of the shipping records for the most recent disposal shipments and found them to be complete.

The licensee also ships licensed material off site. Between March and September 2009, a total of 28 shipments of yellowcake, loaded in 55-gallon drums, were shipped to an out-of-state processing facility. The inspectors reviewed a selected sample of shipping records and found them to be complete and in accordance with the DOT and NRC regulations. During the inspection, the inspectors observed a loaded trailer of 55-gallon drums containing yellowcake that was being prepared for shipment. The drums were properly secured in the trailer and the appropriate wipe surveys had been performed.

5.3 Conclusions

The licensee was conducting transportation and waste disposal operations in accordance with license and regulatory requirements.

6 Emergency Preparedness/ Emergency Procedures/Fire Protection (88050/88064/88055)

6.1 Inspection Scope

Ensure that the licensee's emergency preparedness program was being maintained in a state of readiness. Verify the licensee had updated the emergency reporting procedure to include the correct annual limit on intake for natural uranium (ALI).

6.2 Observations and Findings

Volume VIII of the licensee's Operations Manual details the health physics and safety requirements for emergency preparedness. The inspectors reviewed the licensee's procedures for radiological emergencies and emergency reporting. The inspectors conducted interviews with several CPP operators and determined that they were aware of their responsibilities and the licensee's expectations based on the specific type of emergency or spill that could be encountered. Fire extinguishers and first aid kits were found to be in good order in the CPP and other facilities visited by the NRC inspectors during the course of the inspection.

During the March 2009 inspection, it was noted by the inspectors that the licensee's emergency reporting procedure included an incorrect ALI for natural uranium (10 CFR 20, Appendix B). The licensee had stated that they would update the procedure to include the correct ALI for natural uranium. The inspectors verified that the procedure had been updated and included the correct ALI.

6.3 Conclusions

The licensee has an emergency preparedness program in place that was adequate for current operations. The licensee updated the emergency reporting procedure to include the correct ALI for natural uranium.

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 September 17, 2009. The final exit briefing was conducted via telephone on October 20, 2009. 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

T. Cannon, General Manager
K. Wenzel, Manager, Radiation Safety and Licensing
J. McCarthy, Assistant Manager, Safety, Health & Environment, Radiation Safety Officer
A. Faunce, Assistant 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
IP 88064	Emergency Response Procedures
IP 88055	Fire Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

040-08964/0902-01	VIO	Failure to decommission wellfields within 24 months and failure to request an alternate decommissioning schedule
040-08964/0902-02	NCV	Failure of a worker to provide a routine monthly bioassay sample
040-08964/0902-03	NCV	Failure to take a confirmatory sample within 24 hours when a monitoring well exceeded two upper control limits

Closed

040-08964/0801-03	URI	Demonstrate that PSR2 is not leaking into neighboring areas
040-08964/0902-02	NCV	Failure of a worker to provide a routine monthly bioassay sample
040-08964/0902-03	NCV	Failure to take a confirmatory sample within 24 hours when a monitoring well exceeded two upper control limits

Discussed

None

LIST OF ACRONYMS USED

ALARA	as low as reasonably achievable
CPP	central processing plant
CFR	Code of Federal Regulations
CY	calendar year
DOT	U.S. Department of Transportation
IP	NRC Inspection Procedures
LC	license condition
μR/hr	microRoentgens per hour
MIT	mechanical integrity test
NCV	Non-Cited Violation
NOV	Notice of Violation
PSR2	Purge Storage Reservoir Number 2
SERP	Safety and Environmental Review Panel
UCL	upper control limit
URI	Unresolved Item
VIO	Violation
WDEQ	Wyoming Department of Environmental Quality