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

September 11, 2015

Mr. John Cash
Lost Creek ISR, LLC
5880 Enterprise Drive, Suite 200
Casper, WY 82609

SUBJECT: NRC INSPECTION 040-09068/15-001 AND NOTICE OF VIOLATION

Dear Mr. Cash:

This refers to the unannounced inspection conducted at your Lost Creek in-situ recovery facility in Sweetwater County, Wyoming, from January 27-29, 2015. The 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 inspection findings were discussed with you telephonically on February 13, 2015. The U.S. Nuclear Regulatory Commission (NRC) staff re-exited with you telephonically on July 15, 2015, to discuss the decision to categorize one violation as a non-cited violation, and on August 20, 2015, to discuss one unresolved item that was included in the report.

Based on the results of this inspection, the (NRC) has determined that one Severity Level IV violation of NRC requirements occurred. The violation involves the failure to issue Radiation Work Permits, as required by License Condition 9.7. This violation was evaluated in accordance with the NRC Enforcement Policy included on the NRC's Web site at www.nrc.gov/aboutnrc/regulatory/enforcement/enforce-pol.html. The violation is being cited in the enclosed Notice of Violation (Notice) because it was identified by the NRC during the inspection. The circumstances surrounding the violation are described in detail in the subject inspection report.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The guidance in NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be helpful. You can find the Information Notice on the NRC Web site at https://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/1996/in96028.html. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Based on the results of this inspection, the NRC has determined that one additional Severity Level IV violation of NRC requirements occurred. This violation involved your failure to follow Standard Operating Procedures, which led to the pressurization of two drums of yellowcake, contrary to LC 10.4. This non-repetitive, licensee-identified, non-willful, and corrected violation

is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2.b, of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest these violations or their significance, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. 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 addition, it has been noted that previous issues related to contamination control in the Central Processing Plant were also identified during this inspection, and if not corrected could lead to a reportable event. We strongly suggest that additional management attention be given to this issue. We will continue to evaluate the effectiveness of your contamination control program during future inspections.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," 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 Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

Should you have any questions concerning this letter, please contact Ms. Linda Gersey, Health Physicist, at 817-200-1299.

Sincerely,

/RA by RSBrowder Acting For/

Ray L. Kellar, Chief
Repository and Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Docket: 040-09068
License: SUA-1598

Enclosures:
1. Notice of Violation (NOV)
2. NRC Inspection Report 040-09068/15-001
   w/attachment: Supplement Inspection Information

cc: S. Ramsay, Wyoming Office of Homeland Security
C. Bilbrough, Wyoming Department of Environmental Quality
M. Rogaczewski, Wyoming Department of Environmental Quality
J. Ericson, Wyoming Department of Environmental Quality
M. Bennett, Wyoming Department of Environmental Quality

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M. Bennett, Wyoming Department of Environmental Quality

DISTRIBUTION: See next page
DOCUMENT NAME: S:\DNMS\!RSFS\LMG\2015UR\Lost Creek IR 2015-001.docx

X SUNSI Review By: **LMG**		ADAMS **X** Yes ☐ No	**X** Publicly Available ☐ Non-Publicly Available		**X** Non-Sensitive ☐ Sensitive		Keyword:
OFFICE	DNMS:RSFS	NMSS	NMSS	C:RSFS			
NAME	LMGersey	JLSaxton	LXDesotell	RLKellar			
SIGNATURE	***/RA/***	***/RA by Email/***	***/RA by Email/***	***/RA by RSBrowder Acting For/***			
DATE	09/01/15	09/02/15	09/02/15	09/11/15			

OFFICIAL RECORD COPY

Letter to John Cash from Ray Kellar dated September 11, 2015

SUBJECT: NRC INSPECTION 040-09068/15-001 AND NOTICE OF VIOLATION

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NOTICE OF VIOLATION

Lost Creek ISR, LLC
Sweetwater County, Wyoming

Docket: 040-09068
License: SUA-1598

During the U.S. Nuclear Regulatory Commission (NRC) inspection conducted on January 27-29, 2015, one violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

A. License Condition 9.7, of NRC License SUA-1598, Amendment No. 2, states, in part, that the licensee shall follow the guidance set forth in Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As Reasonably Achievable (ALARA)" (as revised). Regulatory Guide 8.31, Section 2.2, "Operating Procedures", states, in part, that for work on non-routine maintenance jobs when the potential for exposure to radioactive material exists and for which no standard written operating procedure already exists, a Radiation Work Permit (RWP) should be used.

Contrary to the above, on September 11, 2014 and December 24-29, 2014, the licensee failed to use a RWP for a non-routine maintenance job, when the potential for exposures to radioactive material existed and no standard written operating procedure existed.

Specifically, on September 11, 2014, two operators used a pry bar to loosen plugged yellowcake from the knife valve in the yellowcake dryer chute without a Standard Operating Procedure or by working under a Radiation Work Permit. This work was non-routine with the potential for exposure to yellowcake for which no written operating procedure already existed. Consequently, approximately 1,400 pounds of dried yellowcake poured to the floor of the dryer room. Additionally, from December 24-29, 2014, the hydraulic draw-down testing of Deep Disposal Well 4 was completed without a Standard Operating Procedure or by working under a Radiation Work Permit. This work was non-routine with the potential for exposure to radioactive material for which no written operating procedure already existed.

This is a Severity Level IV violation (Section 6.3.d).

Pursuant to the provisions of 10 CFR 2.201, Lost Creek ISL, LLC 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, with a copy to the Regional Administrator, Region IV.

Your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/ adams.html. To the extent possible, your response should not include any personal privacy, 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 two working days.

Dated this 11th day of September 2015

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	040-09068
License:	SUA-1598
Reports:	040-09068/15-001
Licensee:	Lost Creek ISR, LLC
Facility:	Lost Creek Project
Location:	Sweetwater County, Wyoming
Dates:	January 27-29, 2015
Inspector:	Linda M. Gersey, Health Physicist, Team Leader Repository and Spent Fuel Safety Branch Division of Nuclear Materials Safety
Accompanied By:	John L. Saxton, Project Manager Uranium Recovery Licensing Branch Division of Decommissioning, Uranium Recovery, and Waste Programs Office of Nuclear Material Safety and Safeguards Lloyd Desotell, Hydrogeologist Uranium Recovery Licensing Branch Division of Decommissioning, Uranium Recovery, and Waste Programs Office of Nuclear Material Safety and Safeguards
Approved By:	Ray L. Kellar, P.E., Chief Repository and Spent Fuel Safety Branch Division of Nuclear Materials Safety
Attachments:	Supplemental Inspection Information

EXECUTIVE SUMMARY

Lost Creek ISR, LLC, In-Situ Recovery Facility
NRC Inspection Report 040-09068/15-001

This inspection included a review of site status, site tours, management organization and controls, site operations, radiation protection, and excursion monitoring.

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

- One violation of License Condition (LC) 9.4(B)(V) was closed related to the failure to evaluate the potential for accidents when utilizing four storage tanks for waste water. (Section 1.2b)

- One violation of Section 5.3.1.3 of the License Application was closed related to the failure of the Radiation Safety Officer to generate monthly radiation safety reports. (Section 1.2c)

- The licensee was conducting audits and inspections as required by the regulatory requirements and the license. (Section 1.2c)

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

In-Situ Leach Facilities

- Recovery operations were being conducted as required by the license. (Section 2.2a)

- One violation was identified related to the failure to use a Radiation Work Permit to unblock a dryer valve. (Section 2.2b)

- One non-cited violation was identified related to the failure to follow Standard Operating Procedures, which resulted in two pressurized yellowcake drums. (Section 2.2b)

Radiation Protection

- Occupational exposures for calendar year 2014 were below regulatory limits. (Section 3.2a)

- One violation was closed related to the failure to clean up a yellowcake spill under a Radiation Work Permit, as required by the license. (Section 3.2b)

- Radiation protection surveys were conducted in accordance with the license commitments. (Section 3.2c)

Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities ALARA

- The licensee implemented the excursion monitoring and spill reporting in accordance with the license requirements. (Section 4.2c)

Inspection of Transportation of Activities and Radioactive Waste Processing, Handling Storage, and Transportation

- The licensee was conducting transportation activities in accordance with U.S. Department of Transportation and NRC requirements. (Section 5.2a)

- A second example was identified of a violation related to failure to use a Radiation Work Permit. (Section 5.2c)

- One Unresolved Item was identified related to potential Storage Pond leakage. (Section 5.2c)

Report Details

Site Status

Lost Creek ISR, LLC (Lost Creek) received NRC authorization to begin full operations on October 3, 2013 (see Agencywide Documents Access and Management System (ADAMS) No. ML13276A588). At the time of the inspection, Lost Creek was extracting uranium using the in-situ recovery process. The Central Processing Plant was in service and supporting operations in one mine unit, Mine Unit 1 (MU-1). Active uranium recovery was proceeding at eight header houses (HH) (Header House 1-1 (HH1-1) through HH1-8). Both dryers were in operation at the time of the inspection. During November 2014, the licensee had one new deep disposal well approved for operations, for a total of three DDWs. At the time of the inspection, two DDWs were in operation.

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 5.1-1 of the license application. At the time of the inspection, Lost Creek had approximately 56 full-time employees at the mine site. Contractors were used for drilling work and as needed. The licensee had one qualified Radiation Safety Officer (RSO) and one Health Physics Technician (HPT). A new Mine Manager was hired in June 2014. The inspectors reviewed the licensee's organizational structure for the Lost Creek operations and found that it was in agreement with the structure specified in the license application. The inspectors determined that the licensee had sufficient staffing for the work in progress.

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 program changes, tests, or experiments require an NRC license amendment prior to implementation. The inspectors reviewed the following three SERP evaluations performed by the licensee since the previous inspection. The inspectors concluded that the licensee had implemented the SERP determinations for the following evaluations in accordance with the performance-based LCs.

1. SERP LC14-03, dated May 1, 2014, related to adding a filter module in the pump house to the disposal wells to aid in filtering suspended solids.

2. SERP LC14-07, dated May 12, 2014, related to the moving of a condenser vent line from exhausting directly to outside air to exhausting into the dryer room.

3. SERP LC14-09, dated November 11, 2014, related to designating the HPT as an alternate RSO. The HPT has the education, training, and experience to qualify as an RSO, as required by LC 9.7

During the previous inspection, one violation (VIO 040-09068/1302-01) was identified by inspectors related to the failure to assess the use of temporary water storage tanks, as part of a SERP evaluation. The licensee responded to the violation in letters dated December 12, 2014 (ADAMS ML15005A135) and February 2, 2105 (ADAMS 15043A169). The licensee stated that the while a SERP review was completed for the larger project of water disposition, placement of the tanks was not covered with a sufficient specific technical review. The licensee removed the water storage tanks from the pond embankment on August 1, 2014. Additionally, the licensee revised the SERP procedure to include consulting the NRC Project Manager, if it is unclear whether a license amendment or other NRC approval is required for any proposed program changes. Future inspections will evaluate whether SERP evaluations are conducted in accordance with license requirements. This violation is considered closed.

c. Audits and Inspections

The inspectors reviewed the audits and inspections being generated by the licensee in accordance with LC 9.7, which states in part, that the licensee shall follow the guidance in Regulatory Guide (RG) 8.31, "Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be ALARA." The RSO, HPT, or one of the four designees were conducting and documenting a daily walk-through of all work and storage areas of all facilities to ensure good radiation practices were being followed. The RSO and a site Manager also performed a weekly walk-through of all plant areas to observe general radiation control practices. In addition, changes to procedures and equipment were reviewed as required.

During the June 2014 inspection, the inspectors identified a violation (VIO 040-09068/1402-01) related to the failure of the RSO to generate a monthly summary of the radiation safety program and provide the report to management. The licensee responded to the violation in letters dated December 12, 2014 (ADAMS ML15005A135) and February 2, 2105 (ADAMS 15043A169). The licensee stated that all monthly reports were completed in a timely manner by June 2014. The inspectors verified that all monthly reports had been completed through December 2014. Future inspections will evaluate whether the monthly RSO report has been completed and distributed to management. This violation is considered closed.

The licensee had hired contractors to perform the annual audit of the radiation safety program as required by 10 CFR 20.1101(c). The inspectors reviewed the 2014 annual audit, dated November 2014. The audit included a review of occupational exposures, radiation survey results, documented training activities, and compliance with license and regulatory requirements. The inspectors found that the audits met the requirements of 10 CFR 20.1101(c).

d. Additional Protocol Verification

The inspectors verified that the licensee had provided the NRC with appropriate documentation to comply with 10 CFR 75.11 which relates to the Agreement Between the United States of America and the International Atomic Energy Agency for the

Application of Safeguards in the US. The licensee had provided the three necessary forms that provide contact information, the capacity of yellowcake production, the actual annual yellowcake production, and the quantity 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 the reports submitted for calendar years (CYs) 2013 and 2014.

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's safety and environmental review evaluations were performed in accordance with license requirements. One violation of LC 9.4(B)(V) was closed related to the failure to evaluate the potential for accidents when utilizing four storage tanks for waste water. One violation of Section 5.3.1.3 of the License Application was closed related to failure of the Radiation Safety Officer to generate monthly radiation safety reports. The licensee was conducting audits and inspections as required by the regulatory requirements and the license. 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. Recovery Operations

Since the previous inspection in June 2014, the licensee had brought online three more HHs HH1-6, HH1-7, and HH1-8 and one DDW-3. The daily production for the facility was between 500 and 2400 gallons per minute; in general the higher production rates were more recent (since December 2014). The facility throughput is within the maximum average daily flow rate of 6000 gallons per minute, as required by LC 10.2. The reported daily bleed rate was between 0.5 and 1.74 percent. On several days the bleed rate dropped below 0.5 (July 1 through July 6, 2014 and August 1 and 2, 2014). The licensee informed the NRC Project Manager of the lower bleed rates shortly after they occurred. The inspectors determined that the bleed rates were in compliance with LC 10.7.

At the time of the inspection, the daily injection rate to DDW-1, DDW-3 and DDW-4 was 0.0, 20 and 10 gallons per minute, respectively. The licensee did not report any issues with disposal of the wastewater during the inspection period.

During the inspection, the ponds were ice covered and the pipelines into the ponds were frozen. The only water reportedly being released to the ponds was waste water from swabbing of various production wells. Generally, approximately 1000 gallons of waste water are generated during the swabbing of a well and approximately 9 to 10 wells are swabbed per week.

b. Site Tours

The inspectors conducted tours of all areas in the CPP, several HHs, MU-1, Storage Ponds, and the DDW header and pump houses. The inspectors noted that yellowcake contamination control continues to be an issue in the CPP. Surface contamination has been the result of equipment failure, lack of systems monitoring, and inexperienced and/or inadequate training of personnel. The inspectors observed yellowcake on the sump grating and flooring near a slurry tank that had over-flowed on January 21, 2015, resulting in a spill of 14,000 gallons of yellowcake slurry in the CPP. This was the result of the failure of the cast iron plug beneath the slurry tank. The licensee stated that a stainless steel plug should have been used on the slurry tanks. The inspectors reviewed the Radiation Work Permit (RWP) used to clean up the spill and confirmed that stainless steel plugs were installed on both slurry tanks. No occupational exposures were exceeded and no releases of radioactive material outside the Restricted Area occurred.

On July 14, 2014, the licensee had a significant spill of strong acidic solution from Precipitation Tank #3 in the CPP. After rich eluate was transferred into the Precipitation Tank #3, the Plant Operator added hydrochloric acid in automatic mode. In automatic mode, the system will continue to add acid until a pH set point is reached. Unbeknownst to the operator, there was no pH probe installed in the tank that would indicate the exceedance of the set point. The following day, another Plant Operator switched the acid addition to the Precipitation Tank #3 to manual mode, which disabled the high level tank switch and kept the chemical addition pumps in continuous flow. As a result of adding acid solution for two days, the tank overflowed onto the floor. A leak developed in the pH probe port due to its incompatibility with the high acidity, and a valve at the bottom of the tank failed. The result was a spill of approximately 500 gallons of an acid solution that was contained in the plant. No injuries occurred. The licensee responded to the incident by cleaning up the spill and transferring 4 feet of solution from the Precipitation Tank #3 to the slurry storage tank so the remaining solution could be neutralized. The licensee performed an investigation and determined that operators had failed to adequately communicate during the shift change, inexperienced operators failed to recognize that the precipitation was taking longer than usual, and components that were incompatible with concentrated acid were used in the system. The licensee corrected all of these findings in a timely manner. The inspectors reviewed the corrective actions and determined that they should prevent a recurrence of this type of incident. No violations were identified related to this incident.

On September 11, 2014, the licensee had a significant spill of dried yellowcake while filling yellowcake drums. While a Dryer Operator was attempting to fill a drum with yellowcake from dryer 2, it appeared that the dried yellowcake had plugged up the knife valve in the dryer chute. A second Dryer Operator assisted the first operator with clearing the plug by prodding the yellowcake with a pry bar, which is contrary to the Standard Operating Procedure (SOP). The yellowcake plug broke and approximately 1,400 pounds of yellowcake came out of the dryer shoot before the operators could close the knife valve. The operators were wearing the appropriate respiratory protection and protective clothing. Both operators were covered with yellowcake and immediately exited the drumming room and showered and changed clothes. The incident occurred after hours and the Plant Foreman determined that no cleanup of the dryer room should be performed until the HPT returned the next day, which would also allow for the yellowcake dust to settle. The dryer room is within the Restricted Area and was cleaned up in accordance with licensee procedures. The inspectors reviewed the air sampling

and bioassay results from the incident and determined that no worker exceeded a regulatory occupational dose limit. This incident was caused by the failure to use an RWP while attempting to unblock the knife valve. The Standard Operating Procedure (SOP) for filling a drum did not proceduralize the unplugging of the knife valve. This is a violation (VIO 040-09068/1501-01) of LC 9.7, which states, in part, that the licensee shall follow the guidance in RG 8.31. Section 2.2, Operating Procedures, of RG 8.31, states, in part, that for work on non-routine maintenance jobs when the potential for exposure to radioactive material exists and for which no standard written operating procedure already exists, an RWP should be used.

One Non-Cited Violation (NCV 040-09068/1501-02) was identified, which related to the failure of the licensee to follow the SOP for yellowcake drumming, which resulted in two drums becoming pressurized. On September 9, 2014, during the daily walk around, the RSO discovered two drums in the drum storage room that showed signs of pressurization. A RWP was used to drill small holes in the lids of the drums to relieve the pressure. The licensee's investigation determined that the Dryer Operator had sealed the drum lids approximately 12.5 hours after being filled, instead of the 18 hours as directed specifically by the SOP, in order to allow adequate time for venting the gases from the drum. The licensee identified that the Dryer Operator had not reviewed the recorded time that the drums had been filled as indicated on the Dryer Log Sheet. Normally the drums are filled mid-day, and the drum lids are sealed the following morning. In this instance, the drums were not filled until 9:15 P.M. the previous evening. The Dryer Operator also stated that the consequences of sealing the lids before 18 hours after filling to allow for venting was not emphasized during training. The inspectors reviewed the licensee's corrective actions, which included revision of the SOP to emphasize the importance of drum venting time and providing the Dryer Operators with additional training on the revised SOP. The inspectors interviewed several Dryer Operators and were satisfied that the Dryer Operators understood the importance of proper venting of yellowcake drums. Although this incident was a violation of LC 10.4, which requires the licensee, in part, to develop and implement SOPs for all operational activities involving radioactive materials associated with licensed activities, the licensee identified the violation, immediately corrected it, and the corrective actions should prevent future recurrence. This non-repetitive, licensee-identified, and corrected violation is being treated as a Non-Cited Violation, consistent with Section 2.3.2.b of the NRC Enforcement Policy.

The inspectors conducted independent radiological surveys of the gamma exposure rates present in the CPP, office building, laboratory, and HHs. The surveys were conducted using a Ludlum Model 19 microRoentgen survey meter (NRC 015540, calibration due date of 07/22/2015). Gamma exposure rates measured by the inspectors were as expected. Background readings of 25 microRoentgen per hour (μR/hr) were found outside the CPP. The highest gamma exposure reading of 4500 μR/hr was measured near the resin water tank. The inspectors did not identify any areas that had not already been identified and posted as radiation areas by the licensee.

2.3 Conclusions

Recovery operations were being conducted as required by the license. One violation was identified related to the failure of a worker to use a Radiation Work Permit to unblock a dryer valve. One non-cited violation was identified related to the failure to

follow Standard Operating Procedures, which resulted in two 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 the license and 10 CFR Part 20 requirements.

3.2 Observations and Findings

a. Occupational Exposures

The inspectors reviewed the licensee's dose assessment records for CY 2014. Approximately 60 employees and contractors were monitored for external exposures using optically stimulated luminescence dosimeters that were exchanged on a quarterly basis. Occupationally monitored employees included CPP, Dryer, and wellfield operators, health physics staff, and maintenance workers. The highest deep dose equivalent for CY 2014 was a Dryer Operator that received 133 millirem (1.33 milliSievert).

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 CY 2014. The highest derived airborne concentration in hours (DAC-hrs) for radon daughters for an employee for CY 2014 was a Dryer Operator that received 71.04 DAC-hrs. The highest employee airborne uranium exposure during CY 2014 was 33.92 DAC-hrs for a Dryer Operator. All DAC-hrs results were below the regulatory limit of 2000 DAC-hrs. The inspectors confirmed that the licensee had conducted air sampling at the required intervals.

Urine bioassays are taken to ensure that the respiratory protection program and engineering controls for airborne uranium are being implemented appropriately. The licensee submits bioassays to an outside analytical laboratory, which is licensed by the NRC, for analysis on a weekly basis for the Dryer Operators and Plant Operators and monthly for maintenance and wellfield workers. The inspectors reviewed the bioassay program to verify compliance with LC 9.7. Since the previous inspection in June 2014, no bioassay results exceeded the action level of 15 micrograms uranium per liter of urine.

The licensee also monitors for soluble uranium intake in compliance with 10 CFR 20.1201(e). The highest soluble intake of uranium for CY 2014, was received by a Dryer Operator and was calculated to be 4.28 milligrams of uranium in one week. This is below the regulatory limit of 10 milligrams soluble uranium per week.

The highest total effective dose equivalent for employees and contractors for CY 2014, was a Dryer Operator that received 488.4 millirem (4.884 milliSievert). This is below the annual regulatory limit of 5000 millirem (50 milliSievert).

b. Radiation Work Permits

During the previous inspection, one violation (VIO 040-09068/1302-02) was identified related to the failure to use a RWP for cleanup of a yellowcake spill in the drumming room. The licensee responded to the violation in letters dated December 12, 2014 (ADAMS ML15005A135) and February 2, 2105 (ADAMS 15043A169). The licensee stated that the yellowcake spill was the first large spill the licensee had since commencing operations and the RSO was more focused on clean up and less focused on paperwork. The licensee stated that the RSO, HPT, and the Plant Foreman were each instructed on the circumstances that require an RWP. The inspectors verified that RWPs were being used when work was being conducted that was not covered in an SOP, although two exceptions were identified, as described in Section 2.2b and Section 5.2c of this report. The new violation related to failure to use an RWP is not considered a repeat violation, as defined in NRC's Enforcement Policy, Section 2.3, because the corrective actions from the previous violation would not have prevented the new violation. The corrective actions involved the radiation safety staff and managers only, not the Dryer Operators. Future inspections will verify that RWPs are being used as appropriate. This violation is considered closed.

c. Radiation Protection Surveys

Section 5.7.2.2, revised April 2010, (ML102100263, ML102420249) of the license application requires, in part, that the licensee perform quarterly gamma radiation surveys in approximately 46 areas throughout the CPP area 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 monthly frequency in approximately 70 areas, including the CPP, offices, HHs, and DDWs. The inspectors reviewed a sampling of survey results and found them to meet the requirements of the license.

The inspectors reviewed selected records of surveys for fixed and loose surface contamination for unrestricted and restricted areas. Alpha contamination surveys are conducted by the licensee on a weekly frequency in clean areas of the site, with an internal action limit of 1000 disintegrations per minute per 100 squared centimeters. The inspectors reviewed the survey results for an instance where action levels for removable contamination was identified by the licensee and follow-up surveys were performed after cleaning the area. The inspectors found that contamination surveys were being conducted in accordance with LC 9.7 and RG 8.30, "Health Physics Surveys in Uranium Recovery Facilities."

3.3 Conclusions

Occupational exposures for CY 2014 were below regulatory limits. One violation was closed for failure to clean up a yellowcake spill under a Radiation Work Permit, as required by the license. Radiation protection surveys were conducted in accordance with the license commitments.

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

At the time of the inspection, the semi-annual environmental monitoring report was not available for review. This will be reviewed during a future inspection.

b. Doses to Members of the Public

At the time of the inspection, the semi-annual environmental monitoring report, including the determination of the doses to members of the public, was not available for review. This will be reviewed during a future inspection.

c. Wellfield and Excursion Monitoring

The inspectors reviewed data collected from the licensee's excursion monitoring program. License Condition 11.5 requires, in part, that the licensee monitor groundwater at the designated monitoring wells twice a month. Since the previous inspection, the licensee had been performing the excursion monitoring program in accordance with the established program. No wells were on excursion status during the inspection period.

License Condition 11.6 states, in part, that the licensee shall maintain documentation of unplanned releases of source or byproduct materials and process chemicals, and provides requirements for reporting any production area excursions and spills. Five spills were reported since the last inspection (on July 13, 2014, September 14, 2014, November 20, 2014, and two on January 9, 2015). Of those, the 30-day report for one spill on January 9 was pending and three reports contained follow-up actions. Of those three, the follow-up actions for one spill (September 14, 2014) was not completed. The follow-up actions for that report consisted of soil sampling for radium levels and revisions to the affected SOPs. Because of the frozen nature of the ground surface, the soil sampling has to be delayed until the spring thaw. The inspectors noted that the licensee had notified the NRC Project Manager for each of the spills and that the 30-day reports have been submitted in a timely manner, as required.

4.3 Conclusions

The licensee implemented the excursion monitoring and spill reporting in accordance with the license requirements.

5 Inspection of Transportation of Activities and Radioactive Waste Processing, Handling Storage, and Transportation (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 licensee ships yellowcake product to Honeywell facility for processing. During CY 2014, the licensee had made 17 yellowcake shipments. The inspectors reviewed a selected sample of shipping records and found them to be complete and in accordance with the U.S. Department of Transportation and NRC regulations. The inspectors also observed an HPT perform the radiological truck surveys for a yellowcake shipment prior to leaving the site. The surveys were conducted in accordance with licensee procedures and regulatory requirements.

The licensee also ships 11e.(2) byproduct waste to Pathfinder Shirley Basin, a licensed 11e.(2) waste disposal facility. During CY 2014, the licensee made two shipments to a waste disposal facility. The inspectors reviewed a selected sample of shipping records and found them to be complete and in accordance with the Department of Transportation (DOT) and NRC regulations.

b. Solid Byproduct Waste

License Condition 9.9 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 licensee stores 11e.(2) byproduct material in a restricted area. The inspectors observed that all waste storage bins were in restricted areas with surrounding fences and locked entries. Each area was posted appropriately as a restricted area.

c. Review of Wastewater Treatment Activities

As described in the license application, the licensee is authorized to dispose of plant and wellfield operations wastewater by DDW injection. The licensee currently has three DDWs, two of which were in operation during the inspection. The licensee provided the inspectors with the current waste disposal rates for each of the operating DDWs. The actual capacity reported by the licensee for the two wells was 10 and 20 gallons per minute. The licensee has two Storage Ponds to store liquid byproduct material prior to disposal in a DDW. License Condition 10.8 requires, in part, daily, weekly, quarterly, and yearly inspections of the Storage Ponds. The licensee had conducted most of the required inspections, unless severe weather prevented access to the facility.

License Condition 10.8A requires, in part, that a daily measurement of water in the standpipes of the pond leak detection system be taken. Action must be taken if water is found to be greater than six vertical inches in the standpipes, as this could indicate that the ponds are leaking. At the time of the inspection, the Storage Ponds were covered

with ice and snow and the lines into the ponds from the CPP were frozen. The only water reportedly being released to the ponds was waste water from swabbing of various production wells. Generally, approximately 1000 gallons of waste water are generated during the swabbing of a well and approximately 9 to 10 wells are swabbed each week. It appears that fluid has been accumulating in the leak detection system, although because the ponds are frozen, further investigation into the source of the fluid will be delayed until the ponds have thawed to prevent any possible damage to the liner system. The inspectors agreed with the licensee's request to wait until the ponds have thawed in order to evaluate the leak detection system. This unresolved item (URI 040-09068/1501-03), will be evaluated during a future inspection.

The inspectors identified a second example of a violation (VIO 040-08964/1501-01) of LC 9.7, in which the licensee failed to use an RWP for work on non-routine jobs when the potential for exposure to radioactive material exists and for which no standard written operating procedure already exists (as described in Section 2.2b). During December 2014, the licensee performed the hydraulic draw-down testing of DDW-4, for which no written procedure or RWP was utilized, although the licensee had used an RWP during the hydraulic draw-down testing on DDW-1 the week prior.

5.3 Conclusions

The licensee was conducting transportation activities in accordance with DOT and NRC requirements. A second example was identified of a violation of LC 9.7 related to failure to use a Radiation Work Permit. One Unresolved Item was identified related to potential Storage Pond leakage.

6 Exit Meeting Summary

The NRC inspectors presented the inspection results to the licensee's representatives at the conclusion of the onsite inspection on February 13, 2015, and telephonically on July 15, 2015 and August 20, 2015. During the inspections, 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

John Cash, Vice President, Regulatory Affairs Exploration, and Geology
Steve Hatten, Vice President, Operations
Mike Lueders, Mine Manager
Jay Douthit, Wellfield Operations Foreman
Charles Kelsey, Radiation Safety Officer
Mike Gaither, Manager of Environmental Health and Safety and Regulatory Affairs

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 Processing, Handling Storage, and Transportation

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

040-08964/1501-01	VIO	Failure to perform work under a Radiation Work Permit
040-09068/1501-02	NCV	Failure to Follow Procedures Resulting in Pressurized Drums
040-08964/1501-03	URI	Potential Storage Pond Leakage

Closed

040-09068/1302-01	VIO	Failure to evaluate the use of storage tanks
040-09068/1302-02	VIO	Failure to perform work under a Radiation Work Permit
040-09068/1402-01	VIO	Failure to Complete the RSO Monthly Reports
040-09068/1501-02	NCV	Failure to Follow Procedures Resulting in Pressurized Drums

Discussed

None

LIST OF ACRONYMS

ADAMS	NRC's Agencywide Documents Access and Management System
ALARA	as low as reasonably achievable
CY	Calendar Year
DOT	Department of Transportation
HH	Header House
HPT	Health Physics Technician
IP	NRC Inspection Procedures
LC	License Condition
NCV	Non Cited Violation
NOV	Notice of Violation
MU	mine unit
NRC	U.S. Nuclear Regulatory Commission
RG	Regulatory Guide
RSO	Radiation Safety Officer
RWP	Radiation Work Permit
SERP	Safety and Environmental Review Panel
SOP	Standard Operating Procedure
µR/hr	microRoentgen per hour
URI	Unresolved item
VIO	violation