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

August 4, 2017

Mr. John Cash, Vice President
Regulatory Affairs
Lost Creek ISR, LLC
58800 Enterprise Drive, Suite 200
Casper, WY 82609

SUBJECT: LOST CREEK ISR - NRC INSPECTION REPORT 040-09068/2017-001 AND NOTICE OF VIOLATION

Dear Mr. Cash:

This letter refers to the routine U.S. Nuclear Regulatory Commission's (NRC) inspection conducted at the Lost Creek in-situ recovery facility in Sweetwater County, Wyoming. The inspection was performed onsite from May 23 - 25, 2017. A preliminary exit was conducted with you and your staff on May 25, 2017. Additional in-office technical reviews involving survey instrumentation and a proposed facility change were conducted after the preliminary exit. The enclosed inspection report documents the inspection results which were discussed at the conclusion of the inspection with you and your staff at the final telephonic exit conducted July 6, 2017.

The purpose of the inspection was to examine activities conducted under your license as they relate to public health and safety, and to confirm compliance with the Commission's rules and regulations and the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, tours of the uranium recovery facilities, environmental monitoring locations, and interviews with personnel.

Based on the results of this inspection, the NRC determined two Severity Level IV violations occurred. These violations involved the failure to include the name of each radionuclide on associated shipping papers and the failure to ensure radioactive waste containers were covered. The violations were evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at (http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html). These violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the enclosed inspection report.

If you contest the violation or significance of the violation, 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 with a copy to the Regional Administrator, Region IV.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure, 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 matter, please contact Ms. Bernadette Baca, Health Physicist, at (817) 200-1235.

Sincerely,

/RA/

Ray L. Kellar, P.E., Chief
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

Docket: 040-09068
License: SUA-1598

Enclosure:
1. Notice of Violation (NOV)
2. NRC Inspection Report 040-09068/2017-001

w/Attachment: Supplemental Information

cc:
S. Ramsay, WY Office of Homeland Security
M. Rogaczewski, WY Dept. of Env. Quality, Region III
R. Schierman, WY Dept. of Env. Quality, Land Quality Division
N. Williams, WY Dept. of Env. Quality, Region II

NOTICE OF VIOLATION

Lost Creek ISR, LLC
Sweetwater County, Wyoming

Docket: 040-09068
License: SUA-1598

During a U.S. Nuclear Regulatory Commission (NRC) inspection conducted on May , 2017, two violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

A. Title 10 CFR 71.5(a) requires, in part, that each licensee who transports licensed material outside the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the Department of Transportation regulations in 49 CFR Parts 171 through 180, appropriate to the mode of transport.

   Title 49 CFR 172.203(d)(1-2) requires, in part, that the description for a shipment of Class 7 (radioactive) material must include the name of each radionuclide in the Class 7 (radioactive) material that is listed in 49 CFR 173.435 on the associated shipping paper.

   Contrary to the above, from March 3, 2016, to May 25, 2017, the licensee failed to ensure the description for a shipment of Class 7 (radioactive) material included the name of each radionuclide in the Class 7 (radioactive) material that is listed in 49 CFR 173.435 on the associated shipping paper.

   Specifically, the licensee did not include the name of each radionuclide, such as natural uranium, on 11e.(2) shipping papers between March 3, 2016, and May 25, 2017.

   This is a Severity Level IV violation. (NRC Enforcement Policy Section 6.8.d)

B. License Condition 9.2, of NRC License SUA-1598, Amendment No. 3, (ADAMS Accession No. ML14162A069), states, in part, that the licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the license application dated March 31, 2008, ADAMS Accession No. ML081060509. License Application Section 4.3.2, states, in part, that equipment that cannot be decontaminated and process wastes will be placed in clearly labeled, covered containers and temporarily stored in restricted areas with clearly visible radioactive warning signs.

   Contrary to the above, on May 24, 2017, the licensee failed to place equipment that cannot be decontaminated and process wastes in clearly labeled , covered containers, while temporarily stored in restricted areas.

   Specifically, during an NRC inspection of header houses the inspectors identified contaminated equipment, used filter socks, being stored in open containers in four header house restricted areas.

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

The NRC has concluded that information regarding the reasons for the violations, the corrective actions taken and planned to correct the violation to prevent recurrence, and the date when full compliance will be achieved was discussed with the inspectors during the inspection and at the final exit with corrective actions in progress before the inspectors left site. However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation 040-08943/2017-001" and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

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, United States 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 in 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).

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

Dated this X day of August 2017

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	040-09068
License:	SUA-1598
Report:	04009068/2017-001
Licensee:	Lost Creek ISR, LLC
Location:	Lost Creek Project Sweetwater County, Wyoming
Dates:	May 23 – July 6, 2017
Lead Inspector:	Bernadette Baca, Health Physicist Fuel Cycle and Decommissioning Branch Division of Nuclear Materials Safety
Accompanied by:	Anthony Huffert, Senior Health Physicist Uranium Recovery Licensing Branch Division of Decommissioning, Uranium Recovery and Waste Program Office of Nuclear Materials Safety and Safeguards Don Lowman, Project Manager Uranium Recovery Licensing Branch Division of Decommissioning, Uranium Recovery and Waste Program Office of Nuclear Materials Safety and Safeguards John Saxton, Project Manager Uranium Recovery Licensing Branch Division of Decommissioning, Uranium Recovery and Waste Program Office of Nuclear Materials Safety and Safeguards
Approved by:	Ray L. Kellar, P.E., Chief Fuel Cycle and Decommissioning Branch Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Lost Creek ISR, Inc.
NRC Inspection Report 040-09068/17-001

The U.S. Nuclear Regulatory Commission (NRC) performed a routine health and safety inspection from May 23 – July 6, 2017, which included observations of site activities, independent surveys, review of records, and interviews with site personnel. In summary, the license was conducting operations in accordance with regulatory and license requirements described below.

Management Control and Organization

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 reviews were performed in accordance with the license requirements. The licensee conducted audits and inspections, and maintained financial surety as required by regulatory requirements. (Section 1.2)

In-Situ Leach Facilities

The licensee conducted in-situ recovery and operations in accordance with the license and regulatory requirements. Radiological controls including signs and postings were implemented in accordance with license and regulatory requirements. (Section 2.2)

Radiation Protection

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license. Occupational doses were less than established limits. (Section 3.2)

Effluent Control and Environmental Protection and Maintaining Effluents from Materials Facilities As Low As Reasonably Achievable

The licensee conducted environmental monitoring in accordance with license requirements. The licensee reported the results in semi-annual reports to the NRC. The annual dose to members of the public remained below regulatory limits. The licensee was documenting spills and conducting excursion sampling as specified in the license. (Section 4.2)

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

Transportation of yellowcake, waste water treatment, disposal of byproduct material and management and storage of 11e.(2) wastes were conducted in accordance with license and regulatory requirements with two exceptions:

> A violation of 49 CFR 172.203(d) was identified for a failure to include the name of each radionuclide on the associated shipping paper.
>
> A violation of License Application Section 4.3.2. was identified for a failure to ensure radioactive waste containers were covered. (Section 5.2)

Report Details

Site Status

Lost Creek ISR, LLC (Lost Creek) received NRC authorization to begin full operations on October 3, 2013 (ML13276A588). Lost Creek extracts uranium using the in-situ recovery process. The Central Processing Plant (CPP) was in service and supporting the operations of one mine unit (Mine Unit 1). Development of Mine Unit 2 is in progress with no production at the time of the inspection. Active uranium recovery, since the last inspection, averaged 2,625 gallons per minute (gpm) from 13 header houses (HH). Both dryers are available for operation but the licensee is using only one with the current production volumes. Lost Creek has two primary methods for waste water disposal: deep disposal wells and Class V wells.

1 Management Organization and Control (88005)

1.1 Inspection Scope

Ensure that the licensee has 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 inspectors reviewed the licensee's organizational structure for Lost Creek operations and found it was in agreement with the structure specified in the license application and as modified by Safety and Environmental Review Panels (SERP). The inspector reviewed the November 7, 2016, SERP changes to Section 5.1.5 of the Technical Report regarding the duties and responsibilities of the Radiation Safety Officer (RSO) and found the changes were reflective of the current duties and responsibilities of the RSO. These corrective actions were appropriate to close the violation for a failure to SERP organizational & RSO duty changes (040-09068/2016001-01, ML16356A671). A change to make the RSO position a corporate RSO position was approved in September 2015 and effective January 1, 2016.

Since the last inspection, the corporate RSO resigned effective March 3, 2017. A facility RSO was approved on February 23, 2017. In addition, the Health Physics Technician resigned effective May 19, 2017, just before the onsite inspection. At the time of the onsite inspection, the facility RSO was supported by the new corporate RSO (in training) and a technician performing various environmental sampling for the radiation protection program. While a SERP on April 27, 2017, reviewed and confirmed the corporate RSO's basic qualifications, the corporate RSO was not formally approved for RSO duties until the site specific training was completed and signed off by the current facility RSO as satisfactory. The facility RSO retained RSO functions for Lost Creek at the time of the inspection. The inspectors determined the licensee had sufficient staff to implement the radiation protection, groundwater monitoring and environmental programs at current operating levels.

At the time of the inspection, the licensee had approximately 35 full-time employees at Lost Creek. This is a decrease of 12 employees since the previous inspection. This

decrease is the result of a reduction in force due to uranium prices. The inspectors determined that the licensee had sufficient staff for the work in progress.

b. Safety and Environmental Review Panel (SERP)

License Condition 9.4 of the performance-based license requires, in part, the license establish a SERP to evaluate if the program changes, tests or experiments require an NRC license amendment prior to implementation. The inspectors reviewed 11 SERP evaluations completed since the last inspection. A list of SERPs are contained in the Supplement Information section of the report.

In accordance with License Condition 9.4, the licensee is expected to submit a description of each change, including a summary of each safety and environmental evaluation to the NRC in an annual report (ML17083A258). The inspectors concluded that the licensee correctly implemented the performance-based license, and the evaluations did not require prior NRC approval.

c. Audits and Inspections

The inspectors reviewed the audits and inspections being generated by the licensee in accordance with License Condition 9.7, which states, in part, that the licensee shall follow the guidance in NRC Regulatory Guide 8.31. The RSO, Health Physics Technician (HPT), or qualified designees were conducing and documenting a daily walk-thorough of all work and storage areas of all facilities to ensure good radiation practices were being followed. The RSO and Site Manager also performed a weekly walk-through of all plant areas to observe general radiation control practices. In addition, the RSO was generating a monthly report that summarized the results of the daily and weekly inspection, air monitoring, and radiation exposure data. The inspectors found that the audit and inspections met the requirement contained in the license.

d. Financial Surety

The inspectors verified that the operations conducted since the previous inspection were consistent with the approved annual update for the surety cost estimates. The inspectors verified that the licensee had submitted the annual update for 2017 in a timely manner, the update is currently being reviewed by staff at the NRC Headquarters.

e. Additional Protocols

The inspectors verified that the licensee had provided the NRC with appropriate 2016 documentation to comply with 10 CFR 75.11, which related 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 provided four of the necessary forms which provide contact information, the capacity of yellowcake production, the actual annual yellowcake production, and the quantity of yellowcake on hand. The inspectors concluded the reviewed reports were accurate, complete, and consistent for the calendar year 2016.

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 reviews were performed in accordance with the license requirements. The licensee conducted audits and inspections, and maintained financial surety as required by regulatory requirements.

2 In-Situ Leach (ISL) Facilities (89001)

2.1 Inspection Scope

Determine if in-situ recovery activities were conducted in accordance with regulatory requirements and the license.

2.2 Observation and Findings

a. Uranium Recovery

The daily production for the facility since the previous inspection ranged between 2,050 gpm and 3,200 gpm, which is less than the average daily flow rate of 6,000 gpm and the maximum instantaneous flow rate of 6,300 gpm as stipulated in License Condition 10.2. In accordance with License Condition 10.1, the lixiviant consisted of native groundwater, carbon dioxide, sodium bicarbonate and oxygen.

In Section 5.7.8.2 of the approved License Application (referenced in License Condition 9.2), the licensee committed to maintaining a production bleed between 0.5 and 1.5 percent of the production rate. Since the previous inspection, the daily bleed varied between 0.52 and 0.90 percent of the daily production rate. During the scheduled short-duration power outage on May 23, 2017, no production or bleed was performed; however, the duration of the outage was sufficiently short to not affect the long-term bleed. The long-term bleed was approximately 0.55 percent of the daily production rate.

License Condition 10.7 requires that an inward gradient be maintained for each production area. The licensee is operating in one area (Mine Unit 1) and, by maintaining a bleed in excess of 0.5 percent, has satisfied that requirement. The licensee was issued a violation for failure to maintain an inward gradient (bleed) during a previous inspection (VIO 040-09068/2015002-01, ML16007A102). The license has maintained a bleed since the violation in accordance with commitments for corrective actions in a letter dated February 4, 2016 (ML16053A142). This violation is considered closed with the actions taken by the licensee and reviewed by the inspectors (VIO 040-09068/2015002-01, ML16007A102).

The inspectors reviewed the records for daily pressures on the injection and recovery manifolds for each header house since the previous inspection. The maximum daily pressure for HH-7 was 134 pounds per square inch. This pressure is less than the maximum of 90 percent of the fracture pressure in accordance with commitment in Section 3.2.7.1 of the approved License Application.

b. Site Tours

The inspectors conducted a site tour to observe in-situ operations at the CPP, selected header houses (HH), Class V disposal wells, deep disposal wells (DDW), and evaporation ponds. The inspectors determined operators were conducting operations in accordance with the site procedures.

The inspectors observed startup of operations in Header House 9 (HH-9) after a power outage. In addition, the licensee began installing header house filter banks on May 2016 and finished in November 2016. The inspectors toured four of the thirteen header houses (HH-4, HH-5, HH-6, HH-9). The inspectors found that all entrance areas to the facility and wellfields were posted with the words, “Any Area Within This Facility May Contain Radioactive Material”, as required by License Condition 9.8.

The inspectors conducted independent radiological surveys of the gamma exposure rates present in the CPP, office buildings, header houses, and DDW-4. The surveys were conducted using a Ludlum Model 19 microRoentgen (µR) survey meter (NRC Serial #015544 calibration due July 13, 2017). Gamma exposure rates measured by the inspectors were as expected.

The inspectors observed surveys performed by staff in the Control Room, Changing Room, and Ion Exchange Column 8 tank. The inspectors had compatible readings with the licensee’s instrumentation. The inspectors did not identify any areas in the CPP, header houses, or other areas that had not already been identified and posted as radiation areas by the licensee.

2.3 Conclusion

The licensee conducted in-situ recovery and operations in accordance with the license and regulatory requirements. Radiological controls including signs and postings were implemented in accordance with license and regulatory requirements.

3 Radiation Protection (83822)

3.1 Inspection Scope

Determine whether the licensee’s radiation protection program was 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 occupational exposure records since the last inspection for calendar year 2016. Approximately 26 employees and contractors were monitored in the third quarter of 2016; 30 employees and contractors were monitored in the fourth quarter of 2016, and 33 employees in the first quarter of 2017 for external exposure using optically stimulated luminescence dosimeters exchanged on a quarterly basis. Occupational monitored employees included plant and wellfield operators, health physics staff and maintenance workers. The highest deep dose equivalent for calendar year 2016 was 39 mrem assigned to a plant operator.

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 results for calendar year 2016. The highest employee derived airborne concentration in hours (DAC-hrs) was 152 DAC-hrs for radon daughters, and 19 DAC-hrs for airborne uranium, both in the third quarter of 2016. All DAC-hr results were below the regulatory limit of 2,000 DAC-hrs per year. The highest exposure to radon was 374 mrem assigned to a wellfield construction and maintenance individual.

The licensee monitored for soluble uranium intake in compliance with 10 CFR 20.1201(e). The highest weekly intake of soluble uranium was 3.46 mg from a breathing zone sample and 5.54 mg from a bioassay. This was below the regulatory limit of 10 milligrams soluble uranium intake per week. There were no bioassay result above the action level for investigation.

The inspectors confirmed internal exposures were below the limits established in 10 CFR 20. The inspectors confirmed that the licensee had conducted air sampling at the required intervals. The appropriate exposures were calculated and recorded for each employee.

The highest total effective dose equivalent exposure for the calendar year 2016 was 469 millirem (4.69 milliSievert) assigned to a plant operator. Occupational doses were below the limits established in 10 CFR 20.1201.

b. Radiation Work Permits

Since the previous inspection, twenty-seven radiation work permits were issued and involved various ion exchange circuit and component maintenance, filter press, dyer and dyer room maintenance, deep disposal well testing, and 11e.(2) waste reduction activities. The inspectors reviewed the permits and found they included the necessary direct surveys, air sampling, and protective equipment requirements for the work being performed. A previous violation for a failure to obtain a RWP was closed based on the actions the licensee took a the time of the violation (personnel action) and prevention of recurrence (VIO 040-09068/2016001-03, ML16356A671).

c. Radiation Safety Instrumentation

The inspectors reviewed the licensee's operability, calibration and maintenance records for survey instruments in accordance with License Condition 10.4. Instruments reviewed were found to be in calibration. The inspectors observed survey meters used by licensee personnel when exiting restricted areas. The survey meters examined by the inspectors were found to be in calibration and were used appropriately by licensee's staff.

d. Contamination Control

The inspectors reviewed the licensee's procedure for contamination control and observed personnel surveying out from restricted areas, such as the CPP and the wellfield. The observations were in accordance with the licensee's procedures. In addition, the inspectors observed radiological surveys for contamination control in the control room and changing room of the CPP. The surveys were conducted in

accordance with licensee procedures. The inspectors were unable to review the licensee's corrective actions and other records to close VIO 040-09068/2016001-04 (ML16356A671) regarding inadequate free release surveys. This item will be reviewed in a future inspection.

e. Respiratory Protection

The inspectors examined the respiratory protection equipment and reviewed the licensee's respiratory protection procedures and fit testing results. All respirators used at the facility were National Institute for Occupational Safety and Health certified and those examined by the inspectors appeared in like-new condition. The inspectors found the licensee's respiratory protection program to meet the license application and regulatory requirements.

3.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license. Occupational doses were less than established limits.

4 Maintaining Effluents from Material Facilities As Low As is Reasonably Achievable (ALARA) and Effluent Control and Environmental Protection (87102 and 88045)

4.1 Inspection Scope

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

4.2 Observations and Findings

a. Environmental Monitoring

The semi-annual reports were submitted timely by the licensee in accordance with the requirements of 10 CFR 40.65. Submissions were initially reviewed and evaluated by NRC headquarters staff. The NRC's review of these documents will be provided to the licensee under separate correspondence.

The inspectors reviewed the July to December 2016 semiannual reports and compared the reported data to the licensee's records, procedures, and daily operations. The data was consistent with the inspectors' observations.

b. Dose to Members of the Public

The licensee conducted annual assessments of public doses as required by 10 CFR Part 20. The maximum public dose for calendar year 2016 was 30.8 millirem total effective dose equivalent for a delivery driver at a monitored location, which is also the closest resident. The dose was calculated using data from optically stimulated luminescence dosimeters, radon track etch detectors, and particulate air samples. The assigned doses were primarily from radon-222 and its progeny. The maximum dose for calendar year 2016 was less than the annual limit (100 millirem per year) specified in

10 CFR 20.1301(a)(1). The licensee submitted the public dose evaluation in their second semiannual effluent and environmental monitoring report for 2016 (ML17102B084).

c. Wellfield and Excursion Monitoring

The inspectors reviewed the mechanical integrity test (MIT) records for wells tested since the previous inspection. Of 45 wells tested, only two wells failed the MIT, as noted below. Those wells that failed were injection wells being investigated as part of the corrective actions following the excursion at well MO-108.

The inspectors reviewed data collected under the licensee's excursion monitoring program conducted in accordance with License Condition 11.5. Since the previous inspection, the licensee implemented the excursion monitoring program in accordance with LC 11.5. At the time of the inspection, no wells were on excursion status. During the reporting period, one well, MO-108, had been on excursion status.

Although well MO-108, which is a well in the overlying aquifer, has terminated its excursion status, the licensee is currently conducting corrective actions for impacts to the overlying aquifer. The licensee had performed MIT on the production wells in the vicinity of well MO-108 and found two injection wells that failed the MIT. Those wells have been converted to wells screened in the overlying aquifer and being monitored/pumped as part of the corrective actions. The inspectors noted that the corrective actions being pursued by the licensee were appropriate and obtained commitments from the licensee that a status update of the corrective action would submitted to NRC. This action will be verified during the next inspection.

Three reportable spills had occurred during the reporting period. The licensee had properly documented the locations of the spills and notified NRC in accordance with LC 11.6. Confirmation soil samples within the sampling area had not been obtained because the ground was frozen at the time of the spill. The licensee committed to the inspectors of obtaining soil sample results prior to the next inspection.

The inspectors examined the reportable and non-reportable spill reports since the last inspection pursuant to the requirements of License Condition 12.1. According to licensee records, four spills occurred resulting in a total of 546 gallons, with 120 gallons of production fluid were recovered. Of the unrecovered fluids, 226 gallons of production fluid were released.

License Condition 11.5 requires, in part, that the licensee monitor groundwater at the designated excursion monitoring wells at least twice a month. The inspectors reviewed logs indicating groundwater monitoring was occurring. No excursions occurred since the previous inspection. The inspectors did not review recent MIT documentation to determine whether test results were appropriately reported and to ensure that tests were performed in accordance with License Conditions 10.2 during this inspection. These items will be reviewed in a future inspection.

4.3 Conclusions

The licensee conducted environmental monitoring in accordance with license requirements. The licensee reported the results in semi-annual reports to the NRC. The

annual dose to members of the public remained below regulatory limits. The licensee was documenting spills and conducting excursion sampling as specified in the license.

5 Inspection of Transportation Activities and Radioactive Waste Processing, Handling and Storage (86740 and 88035)

5.1 Inspection Scope

Determine if storage and disposal activities were conducted in compliance with regulatory and license requirements.

5.2 Observations and Findings

a. Inspection of Transportation Activities

The inspectors reviewed transportation activities from the December 2016 through May 2017 timeframe. During this time period, the licensee made yellowcake shipments and 11e.(2) byproduct waste shipments. The inspectors reviewed the licensee's procedures associated with these shipments and the shipping documentation. The inspectors identified the licensee did not include the name of each radionuclide on 11e.(2) shipments' shipping paperwork from March 3, 2016, through May 25, 2017.

Title 10 CFR 71.5(a) requires, in part, that each licensee who transports licensed material outside the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the Department of Transportation regulations in 49 CFR Parts 171 through 180, appropriate to the mode of transport.
Title 49 CFR 172.203(d)(1-2) requires, in part, that the description for a shipment of Class 7 (radioactive) material must include the name of each radionuclide in the Class 7 (radioactive) material that is listed in 49 CFR 173.435 on the associated shipping paper.

Contrary to the above, from March 3, 2016, to May 25, 2017, the licensee failed to ensure the description for a shipment of Class 7 (radioactive) material included the name of each radionuclide in the Class 7 (radioactive) material that is listed in 49 CFR 173.435 on the associated shipping paper (VIO 040-09068/2017001-01).

The licensee identified the root cause as a change to the shipping paper template on March 3, 2016. The licensee promptly corrected the shipping paper template to include the radionuclides for the 11e.(2) material shipments. Based on the licensee taking prompt action to identify the cause of the violation and implement corrective actions to restore compliance while the inspectors were site this violation is considered closed (VIO 040-09068/2017-001).

b. Inspection of Byproduct Waste Storage

The inspectors observed the CPP's 11e.(2) byproduct material waste storage areas were appropriately located and labelled. The CPP's outside 11e.(2) byproduct material waste storage bins were within a fences and locked restricted area. The inspectors verified the lock for this storage area as secure; thereby closing a violation for failure to secure 11.e(2) waste in storage (VIO 040-09068/2016001-02, ML16356A671). The

inspectors performed an ambient gamma radiation survey of the containers to confirm that the areas were appropriately posted and controlled in accordance with 10 CFR 20 regulations.

The interim well field header house containers for byproduct waste material were identified as not appropriately covered at the time of the inspection. During a tour of four header houses, the inspector identified the waste containers as not appropriately covered to prevent the spread of licensed material and meet the conditions in the license application.

License Condition 9.2 states, in part, that the licensee shall conduct operations in accordance with the commitments, representations, and statements contained in the license application. License Application Section 4.3.2, states, in part, that equipment that cannot be decontaminated and process wastes will be placed in clearly labeled, covered containers and temporarily stored in restricted areas with clearly visible radioactive warning signs.

Contrary to the above, during a tour of four header houses (HH-4, HH-5, HH-6, HH-9) on May 24, 2017, the licensee failed to place equipment and process wastes in covered containers while temporarily stored in restricted areas. Specifically, the inspectors identified contaminated equipment, used filter socks, being stored in open containers in four header house restricted areas (VIO 04009068/17001-02).

The licensee acknowledged the noncompliant containers and identified a lack of consideration by staff to maintain waste containers covered as the filter banks were being installed from May 2016 to November 2016 and the associated waste containers placed for collecting the used filter socks. The licensee's corrective actions were to promptly begin closing and covering all header house radioactive material waste containers during the remainder of the inspection and reinforced to all operators and staff accessing the areas the waste containers must be maintained closed. Based on the licensee taking prompt action to identify the cause of the violation and implement corrective actions to restore compliance while the inspectors were site this violation is considered closed (VIO 040-09068/2017-001).

c. Wastewater Treatment Activities

The licensee has three Class I deep disposal wells (DDWs), DDW-1, DDW-3 and DDW-4, for the disposal of brine and two Class V shallow disposal wells for treated permeate. The average disposal rate to the DDWs was approximately 17.5 gpm during the reporting period. This discharge rate was sufficient for the waste disposal generated by the current production rates but less than the design rate of 50 gpm for each well. The discharge rate was limited by pressure buildup.

By Amendment 5 to the license, the licensee began injecting treated permeate to the Class V injection facilities since the previous inspection (start date of January 12, 2017). The injections are at the maximum permitted limit of 200 gpm. The disposal rate for the Class V well (only one well was in operation during the reporting period) was 200 gpm, but, by design, only operated part of the time as a batch process. During the reporting period, the well was in operation 5 to 15 percent of the time.

The inspectors review the operations of the two ponds used for wastewater storage. During the reporting period, the ponds had been properly maintained, and inspected daily, weekly, quarterly and annually in accordance with LC 10.8.

5.3 Conclusions

Transportation of yellowcake, waste water treatment, disposal of byproduct material and management and storage of 11e.(2) wastes were conducted in accordance with license and regulatory requirements with two exceptions:

- A violation of 49 CFR 172.203(d) was identified for a failure to include the name of each radionuclide on the associated shipping paper.
- A violation of License Application Section 4.3.2. was identified for a failure to ensure radioactive waste containers were covered.

6 Exit Meeting Summary

The NRC inspectors presented the preliminary inspection findings to the licensee's representatives at the conclusion of the onsite inspection on May 25, 2017. The inspectors performed additional reviews of the licensee's radiation survey instrumentation and a proposed wash down station. On July 6, 2017, the lead inspector conducted a final telephonic exit with licensee representatives. During the inspection, the licensee did not identify any information reviewed by the NRC as proprietary that was included in this report.

SUPPLEMENTAL INSPECTION INFORMATION

Partial List Of Persons Contacted

Licensee Personnel

K. Amunson, Radiation Safety Officer
K. Brown, Mine Manager
A. Buehrle, Corporate Radiation Safety Officer
J. Cash, Vice President, Regulatory Affairs
M. Gaither, Manager, Environment, Health, and Safety/Regulatory Affairs
S. Hatten, Vice President, Operations
A. Hunt, Process Engineer/Plant Manager

Items Opened, Closed and Discussed

Opened

040-09068/2017001-01	VIO	Failure to include the name of each radionuclide on associated shipping papers.
040-09068/2017001-02	VIO	Failure to ensure radioactive waste containers were covered.

Closed

040-09068/2015002-01	VIO	Failure to maintain gradient
040-09068/2016001-01	VIO	Failure to SERP Organizational & RSO duties changes
040-09068/2016001-02	VIO	Failure to secure 11.e(2) waste in storage
040-09068/2016001-03	VIO	Failure to obtain a RWP
040-09068/2017001-01	VIO	Failure to include the name of each radionuclide on associated shipping papers.
040-09068/2017001-02	VIO	Failure to ensure radioactive waste containers were covered.

Discussed

040-09068/2016001-04	VIO	Inadequate surveys for free release

Inspection Procedures

IP83822	Radiation Protection
IP86740	Inspection of Transportation Activities
IP87102	Maintaining Effluents from Materials Facilities ALARA
IP88005	Management Organization and Control
IP88035	Radioactive Waste Processing, Handling, Storage and Transportation
IP88045	Effluent Control and Environmental Protection
IP89001	In-situ Leach (ISL) Facilities

Safety And Environmental Review Panels

LC 16-07	Revise technical Report Section 5.1 and associated Figure 5.1-1 to be consistent with current Lost Creek Project organizational structure.
LC 16-08	Add ventilation form RO waste water tanks by connecting to the existing restoration column vent line to the roof
LC 16-09	Test to determine changes in Rn-22 concentration and associated decay products in the RO permeate destined for the Class V injection system due to injecting air into the
LC 16-10	Expand restricted area boundary to encompass vault and soda ash silo. (suspended)
LC 16-11	Isolate RE2 and IE2 vent line form the elution circuit manifold.
LC 17-01	Install Krista Amunson as RSO and Bill Kearney as the HPT and backup RSO.
LC 17-02	Update the organizational chart to reflect personnel changes.
LC 17-03	Terminate operational monitoring (air particulate, passive gamma and radon) at extraneous locations.
LC 17-04	Approve Brittany Austin as a Health Physics Technician
LC 17-05	Review and Approve Alex Buehrle as RSO for Lost Creek.
LC 17-06	Add a vehicle wash-down pad between the storage ponds for decontamination activities.

List of Acronyms

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As is Reasonably Achievable
CFR	Code of Federal Regulations
CPP	Central Processing Plant
DDW	Deep Disposal Well
gpm	Gallons Per Minute
HH	Header House
HPT	Health Physics Technician
IP	NRC Inspection Procedure
µR	microRoentgen
NRC	U.S. Nuclear Regulatory Commission
RSO	Radiation Safety Officer
SERP	Safety and Environmental Review Panel

LOST CREEK ISR - NRC INSPECTION REPORT 040-08943/2017-001 AND NOTICE OF VIOLATION – DATED AUGUST 4, 2017

DISTRIBUTION
Kriss.Kennedy@nrc.gov, Regional Administrator
Scott.Morris@nrc.gov, Deputy Regional Administrator
Mark.Shaffer@nrc.gov, DNMS Director
Linda.Howell@nrc.gov, DNMS Deputy Director
Ray.Kellar@nrc.gov, Branch Chief FCDB
Bernadette.Baca@nrc.gov, HP, FCDB
Bill.VonTill@nrc.gov, NMSS/DUWP/URLB
R4DNMS_FCDB
John.Saxton@nrc.gov, NMSS/DUWP/URLB
Anthony.Huffert@nrc.gov, NMSS/DUWP/URLB
Donald.Lowman@nrc.gov, NMSS/DUWP/URLB

ADAMS ACCESSION NUMBER: ML17215A944

■ SUNSI Review By: BDB	ADAMS ■ Yes ☐ No	■ Non-Sensitive ☐ Sensitive	■ Publicly Available ☐ Non-Publicly Available	Keyword: NRC-002
OFFICE	RIV:DNMS:FCDB	NMSS/DWP/URLB		BC:FCDB
NAME	B.Baca	D.Lowman		RLKellar
SIGNATURE	/RA/	/RA/		/RA/
DATE	8/3/17	8/1/17		8/4/17

OFFICIAL RECORD COPY