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

January 7, 2016

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

SUBJECT: NRC INSPECTION REPORT 040-09068/15-002 AND INVESTIGATION REPORTS 4-2014-014 & 4-2014-027 AND NOTICE OF VIOLATION

Dear Mr. Cash:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) unannounced inspection conducted at your Lost Creek in-situ recovery facility in Sweetwater County, Wyoming, from December 1-3, 2015, and the NRC Office of Investigations reports dated June 16, 2015, and September 16, 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 December 10, 2015, and the investigation findings were discussed with you on December 29, 2015.

Based on the results of this inspection, the NRC has determined that two Severity Level IV violations of NRC requirements occurred. The violations involved the failure to perform daily pond inspections, as required by License Condition 10.8A, and the failure to store contaminated waste in accordance with license application commitments as authorized under License Condition 9.2. Additionally, two Severity Level IV violations were identified during an NRC inspection from December 3-6, 2013, and during two NRC investigations conducted from December 2013 through September 2015. The violations involved your failure to maintain an inward hydraulic gradient in accordance with License Condition 10.7 and your failure to maintain the minimum freeboard of 3 feet in the waste water storage ponds in accordance with License Condition 10.8A.

These violations were 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. In accordance with Section 2.3.2.b of the NRC Enforcement Policy, three violations are being cited in the enclosed Notice of Violation (Notice) because they were identified by the NRC during an inspection, and the third violation is being cited because you failed to take comprehensive actions to prevent recurrence. The circumstances surrounding the violations 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.

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

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

Sincerely,

/RA/ Rachel S. Browder, 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 040-09068/15-002
   w/attachment: Supplement Inspection Information

cc: S. Ramsay, Wyoming Office of Homeland Security
C. Anderson, 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:
M. Shaffer, D:DNMS
L. Howell, DD:DNMS
R. Kellar, C:RSFS
L. Gersey, RSFS
J. Saxton, NMSS/DUWP/URLB
B. VonTill, NMSS/DUWP/URLB
M. Herrera, Fee Coordinator

ADAMS ACCESSION NUMBER: ML16007A102

X SUNSI Review By: **LMG**		ADAMS **X** Yes ☐ No	**X** Publicly Available ☐ Non-Publicly Available		**X** Non-Sensitive ☐ Sensitive		Keyword:
OFFICE	DNMS:FCDB	NMSS	C:FCDB				
NAME	LMGersey	JSaxton	RLKellar				
SIGNATURE	***/RA/RDR***	***/RA/E-MAIL***	***/RA/, RSB, Acting for***				
DATE	1/6/16	1/6/16	1/7/16				

OFFICIAL RECORD COPY

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 December 1-3, 2015, two violations of NRC requirements were identified. In addition, two violations were identified during an NRC inspection from December 3-6, 2013, and during two NRC investigations conducted between December 2013 and September 2015. In accordance with the NRC Enforcement Policy, the violations are listed below:

A. License Condition 10.8A, of NRC License SUA-1598, Amendment No. 3, (ADAMS Accession No. ML14162A069), states, in part, that the licensee will perform daily inspections of the two lined storage ponds and will include visual inspections of the piping, berms, diversion diches, freeboard, and leak detection systems.

Contrary to the above, between January 2, 2015, and November 7, 2015, the licensee failed to perform daily inspections of the two lined storage ponds, including visual inspections of the piping, berms, diversion diches, freeboard, and leak detection systems, for a total of 13 times.

This is a Severity Level IV violation (Section 6.3.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, during an NRC inspection on December 1, 2015, the licensee failed to place equipment that was not decontaminated and process wastes in covered containers, while temporarily stored in restricted areas.

Specifically, the inspectors identified contaminated equipment that was being stored in open 55-gallon barrels and open boxes in the restricted area. Additionally, the licensee was storing contaminated process waste from a filter in an open super sack with no cover.

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

C. License Condition 10.7, of NRC License SUA-1568, Amendment No.1, dated April 22, 2013, (ADAMS Accession No. ML13038A465), states that the licensee shall maintain an inward hydraulic gradient in each individual production area, starting when lixiviant is first injected into the production zone and continuing until initiation of the stabilization period.

Contrary to the above, from October 4, 2013 through December 3, 2013, the licensee failed to demonstrate that they had maintained an inward hydraulic gradient in each individual production area, starting when lixiviant was first injected into the production zone and continuing until initiation of the stabilization period.

Specifically, during an NRC inspection from December 3-6, 2013, the licensee stated that they had turned off the hydraulic bleed in Mine Unit 1, beginning October 4, 2013, due to limited waste disposal and storage issues. Without a hydraulic bleed, the licensee could not demonstrate it had maintained an inward hydraulic gradient in Mine Unit 1.

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

D. License Condition 10.8A, of NRC License SUA-1568, Amendment No.1, dated April 22, 2013, (ADAMS Accession No. ML13038A465), states, in part, that the licensee shall have a minimum freeboard of 3 feet in the two storage ponds.

Contrary to the above, from February 9, 2014 to March 26, 2014, the licensee failed to maintain the minimum freeboard of 3 feet in the two storage ponds.

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; and (4) the date when full compliance will be achieved. Your response may reference or include previously 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 requiring information 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.

Dated this 7th day of January 2016

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	040-09068
License:	SUA-1598
Report:	040-09068/15-002
Licensee:	Lost Creek ISR, LLC
Facility:	Lost Creek Project
Location:	Sweetwater County, Wyoming
Dates:	December 1-3, 2015
Inspectors:	Linda M. Gersey, Health Physicist Fuel Cycle and Decommissioning Branch Division of Nuclear Materials Safety Bernadette Baca, Health Physicist Fuel Cycle and Decommissioning 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
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 040-09068/15-002

This inspection included a review of site status, site tours, management organization and controls, site operations, radiation protection, excursion monitoring, and compliance with the decommissioning planning rule.

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)

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

- The licensee had appropriate financial surety in place. (Section 1.2d)

In-Situ Leach Facilities

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

- One violation was identified related to failure to demonstrate inward hydraulic gradient in MU-1. (Section 2.2a)

- The licensee reported a minor yellowcake release into the CPP. (Section 2.2b)

- Gamma exposure readings in the plant were as expected. (Section 2.2b)

Radiation Protection

- Occupational exposures for the first three quarters of 2015 were below regulatory limits. (Section 3.2a)

- One violation was closed related to the failure of a worker to use a Radiation Work Permit to unblock a dryer valve. (Section 3.2b)

- Gamma surveys were conducted in accordance with the license commitments. (Section 3.2a)

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 4.2b)

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)

- One violation was identified related to failure to store 11e.(2) contaminated waste in accordance with the License Application commitments. (Section 5.2b)

- One Unresolved Item was closed related to potential storage pond leakage. (Section 5.2c)

- One violation was identified related to failure to perform the daily storage pond inspections. (Section 5.2c)

- One violation was identified related to the failure to maintain a minimum of 3 feet of freeboard in the storage ponds. (Section 5.2c)

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

Implementation of the Decommissioning Planning Rule (TI 2600/017)

- The licensee established and implemented radiological monitoring and response programs for spills and releases. The licensee also maintains records of releases of radioactive materials, and the licensee maintained financial assurance as required by the license. In summary, the licensee was found to be in compliance with the requirements of the DPR. (Section 6.2)

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 (CPP) was in service and supporting operations in one mine unit, Mine Unit 1 (MU-1). Active uranium recovery was proceeding at 12 header houses (HH) (Header House 1-1 (HH1-1) through HH1-12) with the throughput of up to approximately 2500 gallons per minute and a 2015 yellowcake production of approximately 0.7 million pounds. Both dryers are available for operation at the time of the inspection; however, both dryers were scheduled to be inoperable for a short period of time due to maintenance on the associated baghouse due to corrosion issues. At the time of the inspection, three Deep Disposal Wells (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. There was no change in the number of employees at the site since the previous inspection. Contractors were used for drilling work and as needed. Since the previous inspection in January 2015, the previous Health Physics Technician (HPT) replaced the Radiation Safety Officer (RSO), who retired in May 2015. In April 2015, the licensee hired a new HPT. The inspectors reviewed the Safety and Environmental Review Panel (SERP) LC15-03, which the licensee used to evaluate the education, training, and experience of the HPT to ensure the requirements of Regulatory Guide (RG) 8.31, "Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be ALARA," were met. The inspectors agreed with the licensee's conclusion that the HPT met the criteria in RG 8.31. The licensee also had hired a new Safety Coordinator since the previous inspection.

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 SERP to evaluate if program changes, tests, or experiments require

an NRC license amendment prior to implementation. The inspectors reviewed the following four SERP evaluations performed by the licensee since the previous inspection.

1. SERP LC15-01, dated January 22, 2015, related to reconfiguring plant ventilation to improve air flow.

2. SERP LC15-02, dated February 29, 2015, related to moving the 11e.(2) waste storage bin from the pond area to a fenced, restricted area adjacent to the CPP.

3. SERP LC15-04, dated May 8, 2015, related to use of clay dispersant in well development.

4. SERP LC15-05, dated June 29, 2015, related to experimental perforation of well completions to enhance well efficiency.

The inspectors found that the licensee had implemented the SERP determinations for the above evaluations in accordance with the performance-based LCs. In addition, the inspectors noted that documentation for several SERP determinations contained follow-up reports that were extremely useful for closure of the SERPs.

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 RG 8.31. 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, the RSO was generating a monthly report that summarized the results of the daily and weekly inspections, and air monitoring and radiation exposure data. The inspectors found that the audits and inspections met the requirements contained in the license.

The licensee had hired a contractor to perform the annual audit of the radiation safety program as required by 10 CFR 20.1101(c). The inspectors reviewed the 2015 annual audit, dated December 3, 2015. 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 audit met the requirements of 10 CFR 20.1101(c).

d. Financial Surety

The inspectors verified that the operations conducted since the previous inspection are consistent with the established cost estimates for the financial surety instrument. One note of discrepancy was that the current surety instrument includes costs for reclamation of up to 11 HHs in MU-1 whereas the current production consists of 12 HHs. The licensee explained that the production of up to 11 header houses was for the period ending October 21, 2015, which is the anniversary date for the surety for Wyoming. Operations at HH1-12 were initiated on November 12, 2015, and included in the annual

surety update for this year being reviewed by both the State of Wyoming and NRC. The inspectors verified that the surety update under review includes costs for HH1-12.

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. The licensee was conducting audits and inspections as required by the regulatory requirements and the license. The licensee had appropriate financial surety in place.

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 January 2015, the licensee had brought online four additional header houses, HH1-9 through HH1-12. The daily production for the facility was between 1500 and 2500 gallons per minute, which is within the maximum average daily flow rate of 6000 gallons per minute, as required by LC 10.2. The measured daily bleed rate since the previous inspection was between 0.5 and 0.7 percent. The licensee self-reported that on August 12, the production bleed was discontinued for a short period of time (approximately 4 hours) due to equipment maintenance (ML15230A457). The licensee reported that daily bleed on that day (including the down time) was 0.5 percent of the production. The inspectors determined that the bleed rates were in compliance with LC 10.7.

The inspectors reviewed the mechanical integrity test records for wells since the previous inspection. The licensee reported that 133 wells were tested and that the failure rates were approximately 8 percent. This failure rate is higher than the previous two years (during 2013, 628 wells tested with 3 percent failure rate and during 2014, 382 wells tested with a 5 percent failure rate). The licensee acknowledged the increase and is striving to reduce the failure rate.

During an NRC inspection from December 3-6, 2013, and NRC investigation from December 2013 through September 2015, one violation (VIO 040-09068/1502-01) was identified related to failure of the licensee to show it had maintained an inward hydraulic gradient in MU-1, as required by LC 10.7. During the NRC investigation, the licensee stated that between October 4 and December 3, 2013, the hydraulic bleed had stopped due to limited waste disposal and storage issues. During the on-site inspection, the licensee could not produce water level data to prove inward hydraulic gradient had been maintained. The NRC concluded that without a hydraulic bleed, the licensee could not show it had maintained an inward hydraulic gradient in MU-1.

b. Site Tours

The inspectors conducted tours of all areas in the CPP, HH1-9 through HH1-12, MU-1, storage ponds, and the DDW header and pump houses. The inspectors noted that yellowcake contamination control has improved since the previous inspection.

In accordance with LC 10.18, in email dated July 28, and written report dated August 6, 2015, (ML16005A418), the licensee reported that a small amount of yellowcake was released into the CPP from the drying room. On July 18, 2015, after completing drumming of yellowcake from Dryer 1, the dryer operator noticed that a vertical column of fine particulate yellowcake was rising from the packing around the shaft of the dryer. The dryer operators tightened the packing and resumed drying. On July 20, 2015, the RSO found visible yellowcake on the filter of the radon daughter continuous air monitor in the CPP indicating a presence of airborne yellowcake, although the air monitor had not alarmed. The licensee's subsequent investigations identified several small holes in the wall connecting the dryer room and the area where the resin transfer water tanks are stored, which the licensee sealed. The licensee believes that fine uranium particulates exited the dryer room into the CPP through these holes due to the dryer vacuum being turned off during drumming of yellowcake and the inadequate tightening of the dryer packing. To prevent yellowcake particulates from exiting the dryer room, the licensee ensured that all openings in the dryer room walls were tightly sealed. Additionally, the drumming procedure was updated to ensure the packing on the dryer is tightened prior to drumming and the dryer vacuum is to remain on during drumming. The licensee did not identify any positive bioassays, significant uranium intakes, or contamination related to this event.

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 015546, calibration due date of 08/12/2016). 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 4000 μR/hr was measured near the waste 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 failure to demonstrate inward hydraulic gradient in MU-1. The licensee reported a minor yellowcake release into the CPP. Gamma exposure readings in the plant were as expected.

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 the first 3 quarters of 2015. Approximately 83 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 the first 3 quarters of 2015 was a Dryer Operator that received 136 millirem (1.36 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 the year-to-date (YTD). The highest derived airborne concentration in hours (DAC-hrs) for radon daughters for an employee for YTD was a Dryer Operator that received 105 DAC-hrs. The highest employee airborne uranium exposure during YTD was 21 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, 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 YTD, was received by a Dryer Operator and was calculated to be 7.6 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 YTD, was a Dryer Operator that received 569 millirem (5.69 milliSievert). This is below the annual regulatory limit of 5000 millirem (50 milliSievert).

b. Radiation Work Permits

During the previous inspection, a notice of violation (NOV) (VIO 040-09068/1501-01) of LC 9.7 was identified by the inspectors, related to failure to use a Radiation Work Permit (RWP) while attempting to unblock the knife valve of the dryer. The licensee responded to the NOV in letter dated October 20, 2105, (ML15301A259), and described corrective actions to prevent recurrence. The corrective actions included training all supervisors and staff on occurrences when an RWP is required and updating the yellowcake drumming procedure to require an RWP whenever the dryer is accessed. The inspectors interviewed management and staff and determined that each was aware of when RWPs are required. The inspectors also review the updated yellowcake drumming procedure. The inspectors found the corrective actions to be complete. Use of RWPs will be evaluated during future inspections. This violation is considered closed.

c. Radiation Protection Surveys

License Condition 9.2 requires, in part, that the licensee conduct operations in accordance with Section 5.7.2.2, revised April 2010, (ML102100263, ML102420249) of the license application. This specifically requires 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.

3.3 Conclusions

Occupational exposures for the first three quarters of 2015 were below regulatory limits. One violation was closed related to the failure of a worker to use a Radiation Work Permit to unblock a dryer valve. Gamma 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/Doses to Members of the Public

At the time of the inspection, final revisions to the licensee's upgraded effluent and environmental monitoring programs are being evaluated by NRC staff. The approved interim programs are being implemented by the licensee, the results of which are included in staff's evaluation for the upgraded programs. In is anticipated that the programs will be finalized by the next inspection and the results included in future inspection reports.

b. 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. Two monitoring wells (MU-109 and MU-104) were on excursion status since the previous inspection. Both wells that were on excursion status were located south of the Lost Creek Fault and screened in the underlying aquifer.

Monitoring well MU-109 went on excursion status on May 26, 2015, with the termination of its excursion status on October 26, 2015. This well is located in HH1-6, operations at which were initiated on July 16, 2014, (ML15041A551). The licensee notified the NRC

as required by LC 11.5, and because the well is located in the underlying aquifer, ceased production in the area in accordance with LC 10.10. The licensee determined that the cause of the excursion was due to the imbalance of water, i.e., the injection exceeded the production, resulting in a local over-pressurization of the aquifer. The licensee claims that no open drill holes exist in the area and that the over-pressurization affected the hydraulic properties of the confining shale. The production was subsequently balanced resulting in termination of the excursion status.

Monitoring well MU-104 went on excursion status twice; the first time on July 14, 2015, with the termination of its excursion status on August 4, 2015; the second time on August 26, 2015, with the termination of its excursion status on October 26, 2015. This well is located in HH1-10, the operations at which were initiated on June 18, 2015. The water quality during the excursion at this well differed from the observed responses at well MU-109, in that a more rapid response to the water quality occurred during corrective actions. The quicker response would suggest a possible conduit to the lower aquifer. The licensee claims that no open drill holes exist in the area, that successful MIT's were performed at wells in the area, and that the excursion status is likely attributed to a "bad cement job" for well MU-104. Based on testing, the licensee determined that the water levels in MU-104 are affected by one production well, 1I347. The licensee changed well 1I347 from an injection well to a production well. As a result, water is being withdrawn from MU-104 and thus eliminated the excursion.

The inspectors agree that the licensee performed comprehensive investigations into the likely causes for both excursions; however, though the corrective actions by the licensee eliminated the excursion status, the inspectors expressed apprehension that the solutions by the licensee's engineered control would eliminate future excursions in the area. For example, the excursion at MU-109 demonstrates that over-pressurization along the fault may result in unintended effects on the hydraulic properties of the confining strata. Similar over-pressurization may have contributed to fluid migration through an abandoned drill hole in header house HH1-4 (see ML14091A461). In the case of the excursion at MU-104, the engineering control did not remove the conduit. Both areas will be under continued scrutiny during future inspections.

License Condition 11.6 states, in part, that the licensee shall maintain documentation of unplanned releases of source or byproduct materials and process chemicals, including soil sample results (if taken), and provides requirements for reporting any production area excursions and spills. Five spills were reported since the last inspection (on January 13, March 6, March 1, April 8 and October 17, 2015). The licensee reported the unplanned releases in accordance with LC 11.6 and performed appropriate soil sampling. In the prior inspection report, the inspectors noted that soil sampling was not performed in the area of a September 14, 2014, spill and that the licensee was to follow-up on that sampling. For this inspection, the inspectors were informed by the licensee that soil sampling was performed but apparently the sample was not submitted to the laboratory for analysis. The licensee indicated that they would obtain another soil sample from the area of the spill and analyze it prior to the next inspection.

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 in compliance with regulatory requirements.

5.2 Observations and Findings

a. Inspection of Transportation Activities

The licensee ships yellowcake product to the Honeywell facility for processing. Since January 1, 2015, the licensee made 19 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 (DOT) and NRC regulations. On December 2, 2015, the inspectors observed an outgoing shipment of yellowcake drums, which included the survey and loading of the shipment and the shipping records. The shipment was conducted in accordance with licensee procedures and DOT and NRC regulations.

The licensee also ships 11e.(2) byproduct waste to Pathfinder Shirley Basin, a licensed 11e.(2) waste disposal facility. Since January 1, 2015, the licensee made three 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 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 inspectors identified a violation (VIO 040-08964/1502-02), involving failure of the licensee to store 11e.(2) contaminated waste in accordance with LC 9.2, License Application dated March 31, 2008, (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. The inspectors found that 11e.(2) waste was being stored in open 55-gallon drums and unclosed boxes. Although the storage area was cordoned off and posted in the restricted area, the open containers caused a potential for loose contamination to spread or become airborne. Additionally, the licensee was storing 11e.(2) waste from a filter in the CPP in a hanging super-sack that was not labelled nor covered. This configuration had the potential for dried contaminated process waste to become airborne.

c. Review of Wastewater Treatment Activities

At the time of the inspection, the daily injection rate to DDW-1, DDW-3 and DDW-4 was approximately 2, 8, and 13 gallons per minute, respectively. The licensee did not report any issues with disposal of the wastewater during the inspection period.

The inspectors reviewed the licensee's actions to close an unresolved item from the previous inspection (URI 040-09068/1501-03). The unresolved item was related to a delay in the evaluation of potential leaks in the ponds and subsequent corrective actions if leakage was verified. During the previous inspection, the ponds and associated standpipes were frozen and the inspectors agreed that the licensee could postpone evaluation of the potential pond leakage and corrective actions, as necessary, until the ponds thawed. During early March 2015, the licensee had a contractor inspect the liners in the ponds and equipment. They determined that both ponds were leaking due to an improperly installed seal around the inlet piping and primary liner. Therefore, the seal for the South Pond was repaired in March 2015 and North Pond in May 2015 (for details, see ML15139A044 and ML15218A014, respectively). This unresolved item is closed and no violations were identified by the inspectors related to the pond leakage.

During liner repairs, the height of fluid in the leak detections systems was generally below the reporting criteria of 6 inches; however, on approximately three days the height exceeded the 6 inch reporting criteria without notifying the NRC. The inspectors discussed this with the licensee and determined that the exceedance did not need to be reported because it was induced by the pond repairs and was not indicating a leakage of the ponds.

A violation was identified (VIO 040-08964/1502-03), related to the licensee's failure to perform daily inspections of the two storage ponds, as required by LC 10.8A. Between January 2, 2015, and November 7, 2015, the licensee failed to perform daily inspections of the two Storage ponds including visual inspections of the piping, berms, diversion diches, freeboard, and leak detection systems, a total of 13 times. The inspectors reviewed the licensee's internal memo dated March 6, 2015, in which the licensee identified that between January and March 2015, daily pond inspections were not conducted during four days, although no corrective actions were taken. A second internal memo dated June 19, 2015, identified five days during May and June 2015, where the daily pond inspections had not been performed. Corrective actions did not prevent recurrence, as identified in the licensee's internal memo dated November 12, 2015, where daily pond inspections were not conducted for four additional days. Although the licensee identified that daily storage pond inspections were not conducted on numerous occasions, the corrective actions were not sufficient to prevent recurrence. Failure to conduct daily storage pond inspections could lead to over-filling of the ponds which will impact the licensee's ability to dispose of waste water.

During an NRC inspection from December 3-6, 2013, and NRC investigation from December 2013 through September 2015, one violation (VIO 040-09068/1502-04) was identified related to failure to maintain the minimum freeboard of 3 feet in the two storage ponds, as required by LC 10.8A. From February 9, 2014 to March 26, 2014, the licensee had allowed the freeboard for the two storage ponds exceed the 3 feet minimum.

During the previous 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 while performing the hydraulic draw-down testing of DDW-4, although the licensee had used an RWP during the hydraulic draw-down testing on DDW-1 the week prior. The licensee responded to the violation in letter dated October 20, 2105, (ML15301A259), and described corrective actions to prevent recurrence. The licensee stated in the response that staff thought the second DDW was included in the RWP for the first DDW work. The corrective actions included discussions with all staff on when an RSP is required and the importance of knowing the scope of each RWP. The inspectors found the corrective actions to be complete. RWP use will be evaluated during future inspections. This violation is considered closed.

5.3 Conclusions

The licensee was conducting transportation activities in accordance with DOT and NRC requirements. One violation was identified related to failure to store 11e.(2) contaminated waste in accordance with the License Application commitments. One Unresolved Item was closed related to potential storage pond leakage. One violation was identified related to failure to perform the daily storage pond inspections. One violation was identified related to the failure to maintain a minimum of 3 feet of freeboard in the storage ponds. A second example of a previous violation related to failure to use a Radiation Work Permit was closed.

6 Implementation of the Decommissioning Planning Rule (TI 2600/017)

6.1 Inspection Scope

The inspectors conducted a review of the licensee's implementation of the Decommissioning Planning Rule (DPR).

6.2 Observations and Findings

The NRC issued the DPR on June 17, 2011 (76 *FR* 35512) with an effective date of December 17, 2012. The DPR requires certain licensees to establish programs to: (1) minimize the introduction of radiological contamination into the site environment; (2) ensure that releases of radioactivity to the environment are promptly identified and characterized; (3) document radiological survey data which identifies the location and concentrations or quantities of contamination that may require remediation at the time of license termination; and (4) report updated financial assurance information as required by the DPR.

The inspectors reviewed the licensee's implementation of the DPR requirements. To begin with, licensees are required to minimize the introduction of radiological contamination into site environment. The most likely sources of radiological contamination into the site environment would be spills and leaks. To counter the potential for spills and leaks, the licensee has installed wellfield leak detection systems, pond leak detection systems, differential flow alarms, high/low tank level alarms, tank level indicators, as well as sumps, berms, and containments within structures. The licensee has established procedures for responding to leaks and documenting leaks. To avoid the potential for build-up of long-term gaseous effluent releases to the environment, the licensee established and implemented an NRC-approved environmental monitoring program.

Section 4.1.2 of the application (referenced in LC 9.2) provides the NRC-approved spill contingency plans, while application Section 7.4 provides the requirements for responding to accidental wellfield leaks and spills. To ensure that releases are promptly identified and characterized, the licensee established emergency response procedures for plant solution spills and wellfield spills. Operators are trained to respond to alarms, including identification and termination of spill events. Depending on the circumstances of the spill, the licensee's response may include gamma radiation surveys, soil sampling, solution sampling, spill containment, and recovery of spilled fluids. The licensee maintains records for spills, including contingency actions taken in response to spills.

License Condition 11.5 provides the spill, leak, excursion, and incident/event reporting requirements. The licensee established and implemented a program for recording radiological survey data. Based on the circumstances of each spill, the licensee may choose to clean the spill up at that time, or delay cleanup until a later date. The licensee must maintain records important to decommissioning in accordance with the requirements of 10 CFR 40.36(f). The inspectors commonly review the licensee's spill records as part of the inspection program.

Finally, the licensee is required by the DPR to update financial assurance for spills that have not been cleaned up. The licensee's representatives stated that spills that are remediated are not added to the surety estimates, but the remainder are added to the surety estimates. License Condition 9.5 provides the requirements for maintaining financial assurance. This condition specifically includes cost of decommissioning, decontamination, and offsite disposal costs. The licensee is required to update the financial assurance at least annually.

Operating uranium recovery sites are required to meet the survey and recordkeeping requirements of 10 CFR 20.1501(a-b). Surveys, including subsurface surveys, which are reasonable under the circumstances must be performed if there is a potential radiological hazard at a given site. The licensee will conduct subsurface surveys as necessary in response to spills and leaks, but the licensee did not plan to implement a routine subsurface radiological survey program without indications of a leak or spill. For example, the licensee does not plan to conduct subsurface surveys under the processing plant unless there are indications of a spill or leak within or adjacent to the plant. At the time of the inspection, the only known subsurface contamination was due to pond leaks, but these reclamation costs have been included in the most recent surety estimate.

6.3 Conclusions

The licensee established and implemented radiological monitoring and response programs for spills and releases. The licensee also maintains records of releases of radioactive materials, and the licensee maintained financial assurance as required by the license. In summary, the licensee was found to be in compliance with the requirements of the DPR.

7 Exit Meeting Summary

The NRC inspectors presented the inspection results to the licensee's representatives at the conclusion of the onsite inspection on December 3, 2015, and telephonically on

December 10, and 29, 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 Gaither, Manager of Environmental Health and Safety and Regulatory Affairs
Chris Pederson, 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 Processing, Handling Storage, and Transportation
TI 2600/017	Implementation of the Decommissioning Planning Rule

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

040-09068/1502-01	VIO	Failure to demonstrate inward hydraulic gradient
040-09068/1502-02	VIO	Failure store 11e.(2) contaminated waste in accordance with License Application
040-08964/1502-03	VIO	Failure to perform daily storage pond inspections
040-08964/1502-04	VIO	Failure to maintain a minimum of 3 feet of freeboard in the storage ponds

Closed

040-08964/1501-01	VIO	Failure to perform work under a Radiation Work Permit
040-08964/1501-03	URI	Potential storage pond Leakage

Discussed

None

LIST OF ACRONYMS

ADAMS	NRC's Agencywide Documents Access and Management System
ALARA	as low as reasonably achievable
CFR	Code of Federal Regulations
CPP	Central Processing Plant
DAC-hrs	derived airborne concentration in hours
DDW	Deep Disposal Well
DOT	U.S. Department of Transportation
DPR	Decommissioning Planning Rule
HH	Header House
HPT	Health Physics Technician
IP	NRC Inspection Procedures
LC	License Condition
NOV	Notice of Violation
MU	mine unit
NRC	U.S. Nuclear Regulatory Commission
RG	Regulatory Guide
FR	Federal Register
RSO	Radiation Safety Officer
RWP	Radiation Work Permit
SERP	Safety and Environmental Review Panel
µR/hr	microRoentgen per hour
URI	Unresolved item
VIO	violation
YTD	year to date