



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

December 26, 2013

EA 13-192

Mr. Billy Ray, Site Manager
Rio Algom Mining LLC
P.O. Box 218
Grants, NM 87020

SUBJECT: NRC INSPECTION REPORT 040-08905/13-001 AND NOTICE OF VIOLATION

Dear Mr. Ray:

This refers to the inspection conducted on July 16-17, 2013, at your former Ambrosia Lake facility in McKinley County, New Mexico. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The preliminary inspection findings were discussed with you at the conclusion of the onsite inspection, and the final inspection results were presented to you by telephone on November 27, 2013. The enclosed report presents the results of this inspection.

Based on the results of this inspection, the NRC has determined that four violations of NRC requirements occurred. These 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>. The first violation involves your failure to assign a qualified individual to the position of radiation safety officer for several months in early 2013, as required by License Condition 11 of NRC Source Materials License SUA-147, Amendment No. 61. This failure led to three other violations involving two failures to submit required reports to the NRC and the failure to conduct routine site inspections. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. These violations have been categorized collectively as a Severity Level IV problem.

The violation for the failure to assign a qualified radiation safety officer is normally categorized at a Severity Level III, and considered for escalated enforcement action and proposed imposition of a civil penalty. However, based on the specific circumstances of this case, the NRC has categorized this violation at a Severity Level IV. Specifically, this action is based on the following: the low radiological hazards at your site; no indications of a programmatic failure were observed; reclamation activities were provided by a contractor; reclamation activities were overseen by the contractor's radiation safety; and no willfulness was associated with the violation.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration and convenience, an excerpt from NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is enclosed. 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. You have not submitted any long-term corrective actions to the NRC. Therefore, you are requested to specifically address long-term corrective actions in your response. In particular, you are requested to provide your corrective actions for assigning a responsible, qualified individual to the radiation safety officer position, not just for 2014, but for any situation in which the position of radiation safety officer becomes vacant.

In addition, the NRC staff identified two Unresolved Items involving your calculation of public doses and inability to meet all lower limits of detection for certain environmental monitoring samples. An Unresolved Item is an issue of concern about which more information is required to determine if a performance deficiency exists, if the performance deficiency is more than minor, or if the issue of concern constitutes a violation. When responding to the violations described above, you are also requested to provide a written response explaining how you will conduct the public dose assessment and how you comply with the license requirements for lower limits of detection. Details about these two Unresolved Items are provided in the enclosed inspection report.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access 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 inspection, please contact Mr. Robert Evans, Senior Health Physicist, at 817-200-1234 or the undersigned at 817-200-1191.

Sincerely,

/RA/

D. Blair Spitzberg, Ph.D., Chief
Repository and Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Docket: 040-08905

License: SUA-1473

Enclosures:

1. Notice of Violation
2. Inspection Report 040-08905/13-001
3. Excerpt from NRC Information Notice 96-28,
"Suggested Guidance Relating to Development
and Implementation of Corrective Action"

cc: Michael Ortiz, Chief
New Mexico Environment Department
Radiation Control Bureau
P.O. Box 5469
Santa Fe, NM 87502-5469

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cc: Michael Ortiz, Chief
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 P.O. Box 5469
 Santa Fe, NM 87502-5469

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NOTICE OF VIOLATION

Rio Algom Mining LLC
McKinley County, New Mexico

Docket No. 040-08905
License No. SUA-1473
EA 13-192

During an NRC inspection conducted on July 16-17, 2013, four violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

- A. Condition 11 of NRC License SUA-1473 states that the licensee shall designate a radiation safety officer (RSO) who will be responsible for the establishment and maintenance of a facility radiation protection program including personnel and environmental monitoring programs. The RSO shall possess the minimum qualifications as specified in Section 2.4.1 of Regulatory Guide 8.31, "Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As Low As Is Reasonably Achievable."

Contrary to the above, between early February 2013 and April 25, 2013, the licensee failed to designate a qualified RSO who was responsible for the establishment and maintenance of the facility radiation protection program. Specifically, when the previous RSO terminated his employment, the licensee assigned RSO duties to staff members who did not possess the minimum qualifications as described in the license.

- B. Condition 10 of NRC License SUA-1473 states, in part, that the licensee shall maintain a health physics and environmental monitoring program. This program is described in the licensee's Health Physics and Environmental Program Manual, dated May 2013. Rio Algom Mining LLC, Health Physics and Environmental Program Manual, Section 2.4.8, specifies, in part, that the RSO is responsible for performing weekly site inspections.

Contrary to the above, between early February 2013 and mid-June 2013, the licensee failed to perform weekly site inspections.

- C. Condition 19 of NRC License SUA-1473 requires, in part, that the results of all effluent and environmental monitoring required by the license shall be reported semi-annually to the NRC in accordance with 10 CFR 40.65. 10 CFR 40.65 states, in part, that each report shall be submitted within 60 days after January 1st and July 1st of each calendar year.

Contrary to the above, as of July 16, 2013, the results of all effluent and environmental monitoring required by the license had not been reported semi-annually to the NRC. Specifically, the licensee failed to submit the semi-annual effluent and environmental monitoring report for the second half of 2012 to the NRC within 60 days after January 1, 2013.

- D. Condition 34.F of NRC License SUA-1473 requires, in part, that the licensee submit to NRC staff quarterly reports documenting groundwater protection standard or alternate concentration level exceedances.

Contrary to the above, as of July 16, 2013, the licensee failed to submit to NRC staff all quarterly reports documenting groundwater protection standard or alternate concentration level exceedances. Specifically, the licensee had not submitted to the NRC staff the report for the fourth quarter of 2012 for Well 36-06.

This is a Severity Level IV problem (Sections 6.3 and 6.9)

Pursuant to the provisions of 10 CFR 2.201, Rio Algom Mining 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 previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access 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. 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 2 working days of receipt.

Dated this 26th day of December 2013

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 040-08905

License: SUA-1473

Report: 040-08905/13-001

Licensee: Rio Algom Mining LLC

Location: McKinley County, New Mexico

Date: July 16-17, 2013

Inspector: Robert Evans, Ph.D., P.E., C.H.P., Senior Health Physicist
Repository and Spent Fuel Safety Branch

Approved by: D. Blair Spitzberg, Ph.D., Chief
Repository and Spent Fuel Safety Branch

Attachment: Supplemental Inspection Information

EXECUTIVE SUMMARY

Rio Algom Mining LLC
NRC Inspection Report 040-08905/13-001

This inspection was a routine, announced inspection of decommissioning activities being conducted at the former Rio Algom Mining mill in McKinley County, New Mexico. In summary, the licensee was conducting reclamation activities in accordance with license requirements with several exceptions. Four violations were identified related to the licensee's failure to assign an individual to the position of radiation safety officer for several months.

Management Organization and Controls

- At the time of the inspection, the licensee had sufficient staff for the reclamation activities in progress. (Section 1.2)
- One violation was identified involving the licensee's failure to designate a qualified individual to the position of radiation safety officer between early February and late April 2013. The failure to have a qualified radiation safety officer resulted in several late inspections, reviews, and reports. (Section 1.2)
- The licensee failed to conduct license-required weekly inspections for approximately four and a half months, a violation of the license. (Section 1.2)
- The licensee failed to submit the effluent and environmental monitoring report for the second half of 2012 to the NRC in a timely manner, a violation of the license. (Section 1.2)

Radiation Protection/Operator Training

- The licensee and its contractor implemented their radiation protection programs in compliance with license and regulatory requirements. Occupational exposures were small fractions of the annual limits. Equipment calibrations and training were up to date, and no contamination problems were identified. (Section 2.2)

Radioactive Waste Management

- The licensee managed radioactive wastes in accordance with license requirements. The licensee still has to obtain NRC approval of cleanup criteria for restricted area soils before it can complete the reclamation of the mill yard and mill pond areas. (Section 3.2)

Effluent Control and Environmental Protection

- All environmental monitoring samples were collected, and no sample result exceeded the respective action levels except for samples collected from one monitoring well. The licensee collected all supplemental samples as required from this one well. (Section 4.2)
- One Unresolved Item was identified related to the licensee's public dose assessment. The inspector noted that the conclusions of the licensee's assessment were not consistent with the results of effluent and environmental monitoring program. (Section 4.2)

- A second Unresolved Item was identified related to the licensee's lower limits of detection for soil, sediment, and vegetation samples. The licensee was unable to explain why certain sample results had lower limits of detection above the respective limits and how the licensee planned to correct these discrepancies. (Section 4.2)
- A violation was identified involving the licensee's failure to submit a license-required groundwater exceedance report to the NRC in a timely manner. (Section 4.2)

Emergency Preparedness

- The licensee established a written emergency preparedness program for response to events involving radioactive materials as required by the license. (Section 5.2)

Report Details

Summary of Plant Status

The Ambrosia Lake mill processed approximately 33 million tons of uranium ore from 1958-1985. Reclamation of the tailings cells commenced in 1989, and the mill was demolished in 2003-2004. At the time of this inspection, site reclamation activities were in progress. The work in progress included remediation of contaminated soils, construction of surface water diversion channels, and installation of erosion protection covers. The licensee continued to use soil from two nearby borrow pits as radon barrier material. This soil was being used as cover material over various disposal cells.

Remaining site structures included the machine shop, water treatment facility, ion exchange building, security building, and site offices. In the near future, the licensee plans to demolish up to five structures of various sizes. These structures include the ion exchange building, water tower, block house, scale house, pump house, as well as the decontamination wash pad. The material will be disposed in either the Tailings Pond 2 disposal cell or Disposal Area 2. The ion exchange material will either be transferred to another licensee or disposed onsite. In addition, the licensee plans to remediate mill yard soils and backfill the mill yard later in 2013.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

The inspector reviewed the licensee's oversight and control of licensed activities.

1.2 Observations and Findings

At the time of the inspection, site staffing consisted of a combination of licensee staff and contractors. The site manager was the highest ranking individual, but this individual was not present at the site on a daily basis. Instead, the deputy site manager was responsible for providing oversight of the day-to-day activities. Other licensee staff assigned to the site included two radiation protection technicians, reclamation engineer, and maintenance technician.

During the inspection, 18 contractors were onsite. The site superintendent and construction engineer provided oversight of the contractor work force. The positions of radiation safety officer (RSO) and alternate RSO were being filled by contractors. In addition, a contractor security force was present at all times. At the time of the inspection, the licensee had sufficient staff for the work in progress.

License Condition 11 specifies that the licensee shall designate an RSO who will be responsible for the establishment and maintenance of a facility radiation protection program including the personnel monitoring and environmental monitoring programs. The RSO is also required to possess minimum qualifications as specified in Section 2.4.1 of Regulatory Guide 8.31, "Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As Low As Is Reasonably Achievable." The previous RSO left the company in early February 2013. The licensee did not fill the position until April 25, 2013, in part, because the search for a replacement RSO took longer than the licensee had anticipated. In the interim, the licensee did not designate an RSO and the duties of the RSO were reassigned to various staff including

the radiation protection technicians. The licensee's failure to designate an RSO between early February 2013 and April 25, 2013, was a violation of License Condition 11 (040-08905/1301-01). The licensee's failure to designate an individual as RSO was significant because a number of license requirements were not fulfilled during the time frame that the RSO position was unfilled. As described below, these failures included late reports and missed inspections.

License Condition 10 specifies the health physics and environmental monitoring program requirements. These requirements are described in the licensee's Health Physics and Environmental Program Manual dated May 2013. The Manual includes the requirement for an annual review of the radiation protection program. Also, the RSO is required to develop a report summarizing the radiation protection program for the previous calendar year. Although not specifically required by the license, the licensee typically submitted this report to the NRC on an annual basis. At the time of this inspection, the licensee had not completed this review and associated report for calendar year 2012. Although the license does not specify a deadline for the report, the licensee informed the inspector that it planned to complete this report in the near future.

License Condition 10 also specifies that the licensee's staff shall conduct daily site inspections, weekly inspections, and monthly reports. According to the Health Physics and Environmental Protection Manual, the daily inspections are performed by any member of the radiation protection staff, and the daily inspections are typically conducted by a health physics technician. The Manual specifies that the RSO is responsible for performance of the weekly site inspections and monthly reports. The licensee's records indicate that the weekly site inspections were not conducted between early February 2013 and mid-June 2013. The weekly inspections were not completed, in part, because the RSO position was unfilled during much of this time frame. The failure to conduct weekly site inspections between early February 2013 and mid-June 2013 was a violation of License Condition 10 (040-08905/1301-02). The failure to conduct the weekly inspection was significant, in part, because one of the RSO's responsibilities during the weekly inspection is to follow up on any required corrective actions identified during the daily inspections. Finally, the licensee's records indicate that a health physics technician completed the monthly reports on behalf of the RSO while the position was vacant.

License Condition 19 specifies that the results of all effluent and environmental monitoring required by the license shall be reported semi-annually to the NRC in accordance with 10 CFR 40.65. This regulation states that each report shall be submitted within 60 days after January 1st and July 1st of each calendar year. At the time of the inspection, the licensee still had not submitted the semi-annual effluent and environmental monitoring report for the second half of 2012 to the NRC. This report was due March 1, 2013. The licensee's failure to submit this license-required report to the NRC in a timely manner was a violation of License Condition 19 (040-08905/1301-03).

The inspector noted that the licensee submitted the most recent semi-annual groundwater report to the NRC in a timely manner. The licensee is required to submit this report to the NRC to comply with License Condition 34 requirements. The licensee submitted the second half of 2012 groundwater report to the NRC by letter dated January 30, 2013, just prior to the former RSO leaving the facility.

1.3 Conclusions

At the time of the inspection, the licensee had sufficient staff for the reclamation activities in progress. One violation was identified involving the licensee's failure to designate a qualified individual to the position of radiation safety officer between early February and late April 2013. The failure to have a qualified radiation safety officer resulted in several late inspections, reviews, and reports. The licensee failed to conduct license-required weekly inspections for approximately four and a half months, a violation of the license. The licensee failed to submit the effluent and environmental monitoring report to the NRC for the second half of 2012 in a timely manner, a violation of the license.

2 Radiation Protection/Operator Training (83822/88010)

2.1 Inspection Scope

The inspector reviewed the licensee's implementation of its radiation protection program to verify compliance with 10 CFR Part 20 and license requirements.

2.2 Observations and Findings

The inspector reviewed the licensee's occupational exposure records for 2011 and 2012. To monitor for worker exposures to radioactive material, the licensee conducted external exposure monitoring, internal exposure monitoring, and bioassay sampling. The licensee's records indicate that occupational exposures were small percentages of the annual limits.

To monitor for external exposures, the licensee issued dosimeters to occupational workers. The inspector reviewed the dosimeter records for 2011 and 2012. The highest external dose during this time frame was 0.014 rem with a regulatory limit of 5 rem.

The licensee conducted semi-annual gamma radiation surveys to measure the exposure rates in various areas of the site. The highest ambient gamma radiation measurements were recorded in the ion exchange building, an area that is rarely occupied. The measurements in the ion exchange building ranged between 0.265 to 4 millirem per hour, measurements that were less than the 5 millirem per hour limit for posting of the area as a radiation area. During site tours, the NRC inspector measured the exposure rates in the building using a Ludlum Model 2401-S survey meter (NRC number 079765, calibration due date of 10/18/13). The inspector's survey results were similar to the licensee's survey results, indicating that no area required posting as a radiation area.

To monitor for internal exposures, the licensee sampled certain areas for radon progeny and uranium dust concentrations on a quarterly frequency. The radon progeny concentrations were measured in the ion exchange building, office, maintenance shop, change rooms, and laboratory. Elevated measurements were identified in the ion exchange building, an area of the facility that was rarely occupied. The licensee measured the uranium dust concentrations in the office, maintenance shop, ion exchange building, and laboratory. The licensee's sample results indicate that the uranium dust concentrations were less than 1-percent of the licensed limit.

The licensee collected bioassay samples from site workers on a quarterly basis. The licensee analyzed 26 samples in 2011, 24 samples in 2012, and 14 samples in 2013. None of the sample results exceeded the lowest action level.

Site staff conducted and documented personnel surveys when leaving the restricted areas. The personnel surveys included quarterly radiation protection technician surveys of staff leaving the restricted areas. No documented survey result exceeded the action limit. In addition, the licensee conducted weekly surface contamination surveys. The areas surveyed included the office, lunchroom, change rooms, laboratory, and vehicles. All sample results were less than the action levels. These various survey results indicate that the site did not have contamination problems.

License Condition 14 states that written standard operating procedures shall be established, and the procedures shall be reviewed annually. The licensee's records indicate that site procedures had been established and were being updated annually. In addition, the licensee maintained radiation detecting instrumentation for use during routine surveys and scans. The licensee established and maintained a program to ensure that instruments were being calibration checked as required by the license.

License Condition 10 provides the training requirements. The licensee conducted various types of training including visitor orientation, initial site training, on-the-job training, and annual refresher training. The inspector noted that the site manager's annual refresher training had expired, although the inspector concluded that this finding was not safety significant.

During the inspection, the licensee's contractor was conducting work using its own radiation protection program and related procedures. These procedures had been reviewed by the licensee's staff. The inspector reviewed the contractor's radiation protection program and discussed the program results with the acting RSO. The contractor conducted initial radiation protection training at the end of February 2013, and the contractor started work in early March 2013. The contractor conducted exposure monitoring, bioassay sampling, breathing zone air sampling, high-volume general area air sampling, vehicle and equipment surveys, personnel surveys, and area surveys to support the work in progress. The contractor also issued radiation work permits for special work activities. According to the contractor representatives, none of the various radiological sample results were indicative of radiological problems. The inspector will review the results of the contractor's occupational exposure monitoring during a future inspection. Finally, the licensee's contractor conducted daily safety meetings to ensure that site workers were made aware of the safety hazards that could be encountered during construction work activities.

2.3 Conclusions

The licensee and its contractor implemented their radiation protection programs in compliance with license and regulatory requirements. Occupational exposures were small fractions of the annual limits. Equipment calibrations and training were up to date, and no contamination problems were identified.

3 Radioactive Waste Management (88035)

3.1 Inspection Scope

The inspector interviewed licensee representatives, toured the site, and reviewed applicable records to determine if the licensee had established and maintained an effective program for managing radioactive wastes.

3.2 Observations and Findings

License Condition 32 states that the licensee is authorized to dispose of and bury contaminated waste materials resulting from past operations into designated disposal areas. The inspector reviewed the licensee's control of radioactive wastes.

In 2009, the licensee submitted a license amendment request to abandon proposed Disposal Area 1 and relocate the disposal cell to an alternate area. The original disposal cell had to be abandoned because diversion and discharge channels had to be constructed in the same area north of the Pond 1 Disposal Cell. The NRC subsequently revised License Condition 32 which authorized the construction and use of the Alternate Disposal Cell. During this inspection, the licensee had filled the Alternate Disposal Cell with waste material, and the licensee planned to install a final cover over the cell in the near future. After the cover has been installed, the licensee plans to conduct a radon emanation test at this location, to ensure that radon releases do not exceed the limit specified in 10 CFR Part 40, Appendix A, Criterion 6.

At the time of the inspection, Disposal Cell 2 remained open. This cell will be used for remaining structural debris and contaminated soils. Tailings Pond 2, part of Disposal Cell 2, also remained open for disposal of contaminated soil.

License Condition 42 allows the licensee to consolidate and transport Section 4 evaporation pond sediments, while License Condition 37 allows the licensee to dispose of the pond sediments in Tailings Cell 2. Section 4 is the area where the licensee previously constructed and operated 11 evaporation ponds. The NRC conducted a confirmatory survey of this area during September 2009. The results of the confirmatory survey were submitted to the licensee by report dated February 12, 2010 (ML100560099). The 2009 survey results suggest that additional remediation was necessary before the area could be free-released for unrestricted use. Several areas located within Section 4 contained contamination that exceeded the release limits for thorium-230.

The licensee informed the inspector that the Section 4 area was recently radiologically surveyed, and the data was being reviewed by licensee representatives. The licensee developed preliminary estimates of the volume of soil to be removed from Section 4. The licensee plans to excavate this additional Section 4 material and dispose of this material in the Tailings Pond 2 disposal cell during 2014. After remediation, the NRC will consider the need for a confirmatory survey of the area because the licensee intends to release the Section 4 area for unrestricted use.

The inspector discussed the licensee's plans for remediating restricted area soils. These restricted area soils include the former mill yard and mill pond areas. The licensee's Soil Decommissioning Plan, submitted to the NRC by letter dated January 19,

2005, as revised, did not include areas yet to be characterized at that time. The areas not addressed by the original Soil Decommissioning Plan included the mill area and Pond 9. By letter dated June 15, 2005, the licensee committed to submit separate characterization and closure reports for areas that were not characterized in 2005. In summary, the inspector noted that the mill yard and mill pond areas did not have NRC-approved soil cleanup criteria at the time of the inspection. The licensee is aware that it will have to develop these criteria, and obtain NRC approval of the criteria, before it completes final remediation of the restricted area soils.

Finally, License Condition 13 allows the licensee to operate mine water uranium recovery treatment facilities as part of the groundwater corrective action program. The license requires the licensee to submit an annual report of the ion exchange units in operation. The most recent report was submitted to the NRC by letter dated December 5, 2012. In this annual report, the licensee notified the NRC that no columns were being used for mine water treatment. The inspector confirmed that the licensee had not conducted mine water treatment using the ion exchange columns since the last inspection. As noted above, the licensee plans to demolish the ion exchange building in the near future as part of site reclamation.

The licensee has not transported any radioactive material over public highways since the last inspection; therefore, this program area was not reviewed. Also, License Condition 41 allows the licensee to dispose of waste material from other sites, but the licensee stated that it had not received wastes from other licensees since the last inspection.

3.3 Conclusions

The licensee managed radioactive wastes in accordance with license requirements. The licensee still has to obtain NRC approval of cleanup criteria for restricted area soils before it can complete the reclamation of the mill yard and mill pond areas.

4 Effluent Control and Environmental Protection (88045)

4.1 Inspection Scope

The inspector reviewed the licensee's effluent and environmental protection programs to ensure compliance with license and regulatory requirements.

4.2 Observations and Findings

a. Effluent and Environmental Monitoring

The effluent and environmental protection program requirements are specified in License Condition 10. Section 5.0 of the Health Physics and Environmental Program Manual provides detailed instructions for implementing the program. The program consists of air, water, soil, and vegetation sampling as well as ambient gamma radiation measurements. The sample results are presented to the NRC in semi-annual reports. The inspector reviewed the sample results for 2011 and 2012 during the inspection. The inspector also interviewed some of the individuals who collected the various samples.

The licensee collected air particulate samples at seven locations. The air samplers operated continuously, and the filters were exchanged weekly. The filters were composited and analyzed quarterly for natural uranium, thorium-230, radium-226, and lead-210 concentrations. All sample results were less than 4-percent of the respective effluent concentration limit, and most sample results were less than 1-percent of the limits. The inspector confirmed that the licensee routinely calibrated the air samplers as stipulated by License Conditions 10 and 16.

Radon concentrations were sampled at the seven sample stations using track etch canisters. The canisters were exchanged quarterly. The sample results varied over time, but all sample results averaged less than 3 picocuries per liter per quarter. The licensee estimated that these exposure rates contributed no more than 2 millirem per year of dose to the public with an annual limit of 100 millirem.

Ambient gamma radiation was monitored at the seven sample stations. The highest measurements were consistently obtained at Section 30W-VH6, a sample station near a former mine shaft ventilation hole. The records for 2011 indicate that the ambient gamma radiation was 43.5 millirems for the year above the control dose. The environmental gamma radiation measurements for the second half of 2012 were not available during the inspection and will be reviewed at a later date.

Soil samples were collected annually at the sample stations. Sediment samples are collected at four creek locations once per year. Further, vegetation samples are collected three times a year in the vicinity of the air sample stations. The various samples were submitted to an offsite laboratory for analysis of natural uranium, thorium-230, radium-226, and lead-210 concentrations. No specific action levels are established in the license for these samples. The licensee uses the data for trend analysis to ensure that radioactivity is not building up in the soil, sediment, and vegetation over time.

The licensee's environmental sampling program includes a requirement for sampling of surface water, in particular, water discharge from the ion exchange plant. Because the licensee did not operate the ion exchange plant during 2011-2012, no water samples were collected. As noted earlier, the licensee plans to demolish the ion exchange plant later this calendar year.

The licensee conducted public dose assessments and documented the results of this assessment in the annual As Low As Reasonably Achievable (ALARA) report. The licensee concluded that the dose to the nearest resident was no more than 13 millirem for calendar year 2011 and 11 millirem for 2012. These estimated doses were below the 100-millirem per year limit specified in 10 CFR 20.1301(a). However, the licensee's radiation protection staff could not explain these calculations because the reported values did not appear to be based on the environmental monitoring program sample results. The inspector concluded that this finding was an Unresolved Item (URI 040-08905/1301-04) because the licensee's staff could not clearly explain how it previously calculated the public dose assessments. For this reason, the inspector could not confirm that the site met the public dose limits pursuant to 10 CFR 20.1301(a).

By letter dated August 30, 1990, the licensee committed to implement lower limits of detection for environmental samples equal to those recommended in Section 5 of NRC Regulator Guide 4.14, "Radiological Effluent and Environmental Monitoring at Uranium Mills." This letter was incorporated by reference into License Condition 10. The

inspector noted that the licensee's vegetation, sediment, and soil sample results for 2011-2012 did not always meet the lower limits of detection specified in Regulatory Guide 4.14. The licensee could not explain these discrepancies without discussing the possible reasons for the discrepancies with the laboratory. In addition, the inspector was not sure if the licensee correctly calculated the lower limits of detection for uranium samples because the laboratory conducted chemical analyses and not radioactivity analyses. The inspector concluded that these findings were an Unresolved Item (URI 040-08905/1301-05) until the licensee determines whether it has complied with the lower limits of detection as specified in the license. Alternatively, the licensee may have to consider alternate lower limits of detection based on the capabilities of the laboratory.

b. Groundwater Monitoring

The groundwater compliance monitoring program requirements are provided in License Condition 34. The program includes routine sampling of 22 wells. The license requires semi-annual sampling, but the licensee voluntarily sampled the wells quarterly. The license also requires the licensee to submit semi-annual groundwater monitoring reports to the NRC. The inspector reviewed the reports for 2011-2012 and discussed the results of the sampling program with licensee staff.

The inspector concluded that the licensee has collected all required samples. The licensee has sampled the wells on a quarterly frequency since 2006. In recent months, samples from two wells (36-06 and 31-02) have exceeded certain limits specified in the license. These wells were sampled monthly in accordance with License Condition 34.F. Three wells are commonly dry and cannot be sampled.

The sample results for Well 36-06 indicate that the beryllium, cadmium, and gross alpha concentrations have exceeded the groundwater protection standards specified in the license since 2007. The licensee suspects that the exceedances are the result of surface reclamation, and the exceedances may be trending down over time. Samples collected in 2011 for Well 31-02 exceeded the uranium limit, and these elevated sample results appear to be directly related to decreasing subsurface water levels. All uranium sample results for 2012 were less than the groundwater protection standards, but the licensee continues to conservatively conduct monthly sampling of Well 31-02.

At the request of the New Mexico Environment Department, the licensee conducted a review of the monitoring wells. This review concluded that certain wells needed replacement due to either incorrect depth or integrity issues. Fourteen wells were identified for replacement including seven NRC-licensed wells and seven State-permitted wells. The replacement work commenced in October 2012 and was completed in February 2013.

License Condition 34.F requires quarterly reporting of exceedances. At the time of the onsite inspection, the last quarterly report was dated December 5, 2012, documenting the third quarter 2012 sample results. The results of the second half of 2012 are presented in the licensee's semiannual groundwater report dated January 30, 2013. The sample results indicate that gross alpha, cadmium, and beryllium concentrations in Well 36-06 continue to fluctuate above the groundwater protection standards specified in the license. (Cadmium appears to have fluctuated below the standard during late-2012, but the May 2013 sample result indicates that the cadmium concentration in this well exceeded the standard.) Accordingly, the licensee is required to continue to provide

quarterly reports to the NRC for exceedances in Well 36-06. However, the licensee had not submitted any quarterly reports to the NRC since December 2012. The licensee's failure to submit the quarterly report for the fourth quarter of 2012 to the NRC was identified as a violation of License Condition 34.F (VIO 040-08905/1301-06).

c. Annual Land Use Survey

License Condition 39 requires annual land use surveys. The license also requires the licensee to submit the results of the land use survey to the NRC once per year. The most recent land use survey was submitted to the NRC by letter dated June 28, 2013. The licensee concludes that no changes in land use have occurred since the last survey. Land use within 2 miles of the mill site was limited to grazing of livestock and maintenance of utilities. The nearest resident is located approximately 3 miles from the site. Possible doses to the nearest resident are considered in the licensee's effluent and environmental monitoring programs. In summary, the licensee conducted and documented the annual land use survey in accordance with license requirements.

4.3 Conclusions

All environmental monitoring samples were collected, and no sample result exceeded the respective action levels except for samples collected from one monitoring well. The licensee collected all supplemental samples as required from this one well. One Unresolved Item was identified related to the licensee's public dose assessment. The inspector noted that the conclusions of the licensee's assessment were not consistent with the results of effluent and environmental monitoring program. A second Unresolved Item was identified related to the licensee's lower limits of detection for soil, sediment, and vegetation samples. The licensee was unable to explain why certain sample results had lower limits of detection above the respective limits and how the licensee planned to correct these discrepancies. A violation was identified involving the licensee's failure to submit a license-required groundwater exceedance report to the NRC in a timely manner.

5 Emergency Preparedness (88050)

5.1 Inspection Scope

The inspector reviewed the licensee's implementation of its emergency preparedness programs to ensure that the licensee was prepared for emergency events.

5.2 Observations and Findings

License Condition 14 states that written standard operating procedures shall be established for all activities related to the closure of the facility involving radioactive materials. The licensee established procedures for emergency operations involving radioactive and non-radioactive hazardous materials.

The Fire Plan provides instructions for responding to fires. The Fire Plan allows licensee staff to fight fires that are non-structural and minor. The licensee also maintained a fire truck onsite that could be used to assist in fighting fires. The licensee disconnected the natural gas connections to the site in May 2013 which eliminated this potential source of fire. The Fire Plan also provides instructions for training and fire prevention. Training

was conducted during 2012, but the licensee had not conducted the required training for 2013 at the time of the inspection. The Fire Plan also provides instructions for an annual fire prevention inspection. The licensee had not conducted the required fire prevention inspection for 2013 at the time of this NRC inspection.

The Incident Management Plan provides instructions for industrial emergencies, natural disasters, medical emergencies, and accidental releases of hazardous materials. The Incident Management Plan provides instructions for annual site emergency response tests and associated refresher training. The licensee had not conducted the annual response test during 2013 at the time of the inspection.

Finally, the licensee maintains a Spill Control and Countermeasure Plan primarily for responses to petroleum and oil product spills. This Plan includes instructions for disposal of petroleum and radiologically contaminated soils.

In summary, the licensee maintains a written program for emergency preparedness, and the written program was being maintained up-to-date by the licensee. The licensee had not completed all required emergency response training and audits at the time of the inspection, but the licensee plans to complete all required training and audits by the end of the calendar year.

5.3 Conclusions

The licensee established a written emergency preparedness program for response to events involving radioactive materials as required by the license.

6 **Exit Meeting**

The inspector reviewed the preliminary inspection findings during an exit meeting conducted at the conclusion of the onsite inspection on July 17, 2013. The inspector provided the final inspection results to the licensee's representative by telephone on November 27, 2013. During the inspection, the licensee did not identify any information reviewed by the inspector as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Rio Algom Mining

G. Alexander, Health Physics Technician
L. Collins, Radiation Safety Officer (acting)
D. Murray, Deputy Site Manager
B. Ray, Site Manager
H. Slim, Health Physics Technician

INSPECTION PROCEDURES USED

IP 88005 Management Organization and Controls
IP 83822 Radiation Protection
IP 88010 Operator Training/Retraining
IP 88035 Radioactive Waste Management
IP 88045 Effluent Control and Environmental Protection
IP 88050 Emergency Preparedness

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

040-08905/1301-01 VIO Failure to assign qualified individual to position of RSO
040-08905/1301-02 VIO Failure to conduct weekly site inspections
040-08905/1301-03 VIO Failure to submit semi-annual report to NRC
040-08905/1301-04 URI Calculation of public dose assessment
040-08905/1301-05 URI Lower limits of detection for soil, sediment, vegetation samples
040-08905/1301-06 VIO Failure to submit quarterly groundwater report to NRC

Closed

None

Discussed

None

LIST OF ACRONYMS

| | |
|-------|---|
| ADAMS | Agencywide Documents Access and Management System |
| ALARA | As Low As Reasonably Achievable |
| CFR | Code of Federal Regulations |
| IP | Inspection Procedure |
| NRC | U.S. Nuclear Regulatory Commission |
| RSO | radiation safety officer |
| URI | Unresolved Item |
| VIO | Violation |