



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

November 25, 2008

Terry L. Fletcher
President
Rio Algom Mining LLC
P.O. Box 218
Grants, New Mexico 87020

SUBJECT: NRC INSPECTION REPORT 040-08905/08-001 AND NOTICE OF VIOLATION

Dear Mr. Fletcher:

This refers to the announced inspection conducted on October 6-9, 2008, at Rio Algom Mining's Ambrosia Lake facility located near Grants, New Mexico. 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 preliminary inspection findings were discussed with you at the exit briefing conducted at the conclusion of the onsite inspection, and the final inspection findings were presented to you by telephone on October 29, 2008. The enclosed report presents the results of this inspection.

Based on the results of this inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. The violation involves your failure to conduct groundwater confirmatory sampling in accordance with license requirements. The violation was evaluated in accordance with the NRC Enforcement Policy included on the NRC's web site at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violations are cited in the Notice because they were identified by the NRC.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration and convenience, an excerpt from NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," is enclosed. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements".

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

Should you have any questions concerning this inspection, please contact Linda Gersey, Health Physicist, at (817) 860-8299, or the undersigned at (817) 860-8197.

Sincerely,

/RA/

Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Docket: 040-08905

License: SUA-1473

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 040-08905/08-001
3. NRC Information Notice 96-28

cc w/Enclosures 1 and 2:

New Mexico Radiation Program Director

John Parker, Chief

New Mexico Environment Department

Field Operations Division

Radiation Control Bureau

1190 St. Francis Blvd.

Santa Fe, New Mexico 87502-6110

Art Kleinrath

Long Term Surveillance Project Manager

U.S. Department of Energy

Grand Junction Project Office

2597 B 3/4 Road

Grand Junction, Colorado 81503

cc w/enclosures 1 and 2 via e-mail:
 A. Howell
 C. Cain
 T. McLaughlin, FSME/DWMEP/DURLD
 R. Tadesse, FSME/DWMEP/DURLD
 B. VonTill, FSME/DWMEP/DURLD
 J. Whitten
 L. Gersey
 R. Evans
 M. Herrera, Fee Coordinator
 FEE Coordinator

SUNSI Review Completed: RJE ADAMS: Yes No Initials: RJE
 Publicly Available Non-Publicly Available Sensitive Non-Sensitive

ADAMS: **ML**

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LMGersey	RJEvans	JEWhitten	
/RA/	/RA/ BY EMAIL	/RA/	
11/03/08	11/18/08	11/25/08	

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NOTICE OF VIOLATION

Rio Algom Mining LLC
McKinley County, New Mexico

Docket 040-08905
License SUA-1473

During an NRC inspection conducted on October 6-9, 2008, one violation of NRC requirements was identified. In accordance with the Enforcement Policy, the violation is listed below:

License Condition 34.B requires, in part, that the licensee comply with the uranium alternate concentration limit of 1.6 milligrams per liter for Tres Hermanos B Compliance Well 31-02.

License Condition 34.B requires, in part, that the licensee comply with the sulfate alternate concentration limit of 6480 milligrams per liter for Dakota Sandstone Compliance Well 36-06.

License Condition 34.F requires, in part, that if laboratory results indicate that the concentration of any constituent exceeds its associated alternate concentration limits, the licensee shall collect a second sample within 7 calendar days of becoming aware of an aforementioned exceedance.

Contrary to the above, on three occasions, the licensee failed to collect second samples within 7 calendar days of becoming aware of an aforementioned exceedance. Specifically, the uranium concentration in samples collected during July 2007 and April 2008 from Tres Hermanos B Compliance Well 31-02 were found to be 1.72 and 1.67 milligrams per liter, respectively, values which exceeded the alternate concentration limit of 1.6 milligrams per liter. Also, the February 2008 sulfate sample result for Dakota Sandstone Compliance Well 36-06 was found to be 9000 milligrams per liter, a value which exceeded the alternate concentration limit of 6480 milligrams per liter. However, the licensee did not collect second samples from these wells within 7 calendar days of receiving the laboratory results demonstrating that the samples had exceeded the alternate concentration limits.

This is a Severity Level IV violation (Supplement IV).

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, with a copy to the Regional Administrator, Region IV, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

ENCLOSURE 1

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.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your 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 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you are required to post this Notice within 2 working days.

Dated this 25th day of November 2008

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 040-08905

License: SUA-1473

Report: 040-08905/08-001

Licensee: Rio Algom Mining Co.

Facility: Former Ambrosia Lake Mill

Location: McKinley County, New Mexico

Dates: October 6-9, 2008

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

Robert Evans, PE, CHP, Senior Health Physicist
Nuclear Materials Safety Branch B

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

Attachments: Supplemental Inspection Information
Ambient Gamma Radiation Survey Results

EXECUTIVE SUMMARY

Rio Algom Mining Company's Former Uranium Mill NRC Inspection Report 040-08905/08-001

This inspection included a review of site status, management organization and controls, radiation protection, operator training, maintenance and surveillance testing, environmental protection, transportation and radwaste activities, and emergency preparedness. In summary, the licensee was conducting activities safely and in accordance with regulatory and license requirements, with one exception listed below.

Management Organization and Controls

- The organizational structure and staffing levels were sufficient for the work in progress. Site procedures were established and were being maintained up-to-date (Section 1).

Radiation Protection

- The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license (Section 2).

Operator Training/Retraining

- Radiation protection training was provided to site workers as required by regulations and the license (Section 3).

Maintenance and Surveillance Testing

- Radiation survey instruments and air samplers were being calibrated as required by site procedures (Section 4).
- The inspectors concluded that annual radon flux measurements taken on Pond 3 were performed using appropriate testing methods (Section 4).

Effluent Control and Environmental Protection

- The licensee had implemented the environmental monitoring program as required by the license and regulations (Section 5.2a).
- Two compliance wells were in exceedance of the alternate concentration levels and were being sampled monthly (Section 5.2b).
- One violation was identified related to the licensee's failure to conduct confirmatory sampling in accordance with License Condition 34.F (Section 5.2b).

Inspection of Transportation Activities

- The licensee was conducting transportation and waste disposal operations in accordance with license requirements (Section 6).

Emergency Preparedness

- The licensee had adequate procedures, equipment, and training needed to respond to emergencies (Section 7).

Report Details

Site Status

Rio Algom Mining's Ambrosia Lake facility when operational was one of the nation's largest uranium ore processing facilities. The conventional mill ceased operations in 1985. The mill was demolished between November 2003 and February 2004. Remaining onsite structures included the machine shop, water treatment facility, ion exchange building, and site offices.

Two tailings ponds were used to dispose of tailings generated during uranium ore processing operations. Pond 1 contains about 30 million tons of mill tailings covering 260 acres; Pond 2 contains 3 million tons of tailings covering 90 acres. Both mill tailings ponds were covered with final radon barriers in 1995 and 1996, respectively, excluding a portion of Pond 2 which was still being used for byproduct material disposal. Tailings Pond 2 does not have a rock cover and final radon barrier on the northern end of the pond because the licensee plans to continue to dispose of material collected from the lined pond projects into this portion of Pond 2.

Since the previous inspection, the licensee conducted reclamation of Pond 9 and Ponds 11-21 as required by License Condition (LC) 42. The licensee also continued to construct a diversion channel and other erosion protections systems as required by LC 43.

At the time of the inspection, the licensee was actively reclaiming Pond 3 in accordance with license requirements. Pond 3 was used by the licensee for disposal of contaminated wind-blow soils and tailings material. At the time of the inspection, the licensee was installing cover material on the slopes of the pond. The licensee indicated they plan to install at least 1 foot of cover material on this pond. During the inspection, the inspectors observed the radon flux test in progress. At a later date when the pond is decommissioned and cover material is installed, the licensee plans to install a rock erosion cover on this pond.

The licensee continues to maintain an 11e.(2) disposal cell for site wastes. At some later date during the decommissioning process, the licensee plans to demolish all remaining structures, collect all remaining contaminated surface soils, and place this material into this disposal cell. Eventually, this disposal cell will be incorporated into the Pond 2 erosion barriers.

Ponds 4-6 have been reclaimed using alternate criteria (dose modeling). The licensee has installed a cover over these former ponds; however, the licensee still needs to radiologically survey and to remove, as necessary, the 'halo' material around the ponds. The licensee plans to install a rock cover over these ponds at a later date. Ponds 7, 8, and 10 have also been reclaimed using alternate criteria (dose modeling). Cover material has been installed on these ponds, but a rock cover still has to be installed on certain slopes of the individual ponds.

Ponds 9 and 11-21 have been reclaimed; however, the licensee still needs to remove any residual material that exceeded the final status survey acceptance criteria. Following removal of all residual material that exceeds the final status survey acceptance criteria, the licensee will be able to finish the final status survey on these ponds. The licensee eventually plans to disk (grade) and seed the soil for long-term erosion control.

In the near future, the licensee plans to clear and breach the mill reservoir, as stipulated by LC 37.G. Any waste material removed from the reservoir will be disposed of in the 11e.(2) disposal cell. In addition to removing material from the mill reservoir, the licensee has to decide on how they plan to dispose of the remaining ion exchange resin. The two basic options under

consideration are to transfer the material to a different licensee or to dispose of the material in the disposal cell. Finally, all remaining structures remaining at the end of the reclamation process are scheduled to be demolished and disposed of in the 11e.(2) disposal cell.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

Ensure that the licensee had established an organization to administer the technical programs and established programs to perform internal reviews, self-assessments, and audits.

1.2 Observations and Findings

During the inspection, 29 Rio Algom Mining employees were assigned to the project. The highest ranking employee was the company president. The Environmental Supervisor was the Radiation Safety Officer (RSO) who was responsible for implementation of the radiation protection program. The RSO began his duties on August 15, 2007, after the previous RSO left the company. The inspectors verified that the new RSO's education, training, and experience were commensurate with the recommendations of Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As Low As Reasonably Achievable." Other employees included eight individuals in the reclamation group, three individuals in maintenance, four individuals in the environmental/radiation group, and two administration personnel. The licensee used contractors to conduct reclamation work as needed. Other contractors included four security staff who maintained constant surveillance. The inspectors concluded that the licensee's staffing and organization were appropriate for the work in progress.

License Conditions 14 and 16, require in part, that written procedures be established and reviewed by the RSO at least annually. The inspectors reviewed several written procedures maintained by the licensee and determined that they were adequate. The RSO had performed the annual procedure review during the month of February of each year since 2006.

1.3 Conclusions

The organizational structure and staffing levels were sufficient for the work in progress. Site procedures were established and were being maintained up-to-date.

2 Radiation Protection (83822)

2.1 Inspection Scope

Determine if the licensee's radiation protection program was in compliance with license and 10 CFR Part 20 requirements.

2.2 Observations and Findings

a. Radiation Protection Program Review

The licensee's personnel monitoring program included the use of dosimeters to monitor external exposures. The inspectors reviewed the licensee's exposure records for 2006 to the date of this inspection in 2008. The highest deep dose equivalent (DDE) exposure for 2006 was 49 millirems, while the highest DDE exposure for 2007 was 119 millirems. For the first two quarters of 2008, the highest DDE exposure was 204 millirems; however, at the time of this inspection the accuracy of this exposure was under review by the RSO. This reported dose was under review because the dosimeter results appeared to the RSO as not being reflective of the work actually conducted during the monitoring period. At the conclusion of the onsite inspection, the licensee had not decided if it would assign the reported dose to the individual.

In addition to external exposure monitoring, the licensee conducted internal monitoring that included the use of lapel air samplers. Lapel air samplers were assigned to selected workers who were conducting work activities in the lined evaporation ponds. The licensee then tabulated the results of lapel air sampling maintained for each individual monitored on a monthly basis. Follow tabulation of the results of lapel air samples, the tabulated doses were assigned as internal doses to site workers as appropriate.

License Conditions 16 and 17 specify, in part, the licensee's bioassay sampling requirements. Bioassay sampling was conducted quarterly for licensee employees and monthly for workers assigned to the project involving the reclamation of the lined ponds. The inspectors reviewed the sample results collected for 2006-2007, and the results available up to the date of this inspection in 2008. All bioassay sample results reviewed by the inspectors were less than the lower limit of detection of 5 micrograms of uranium per liter of urine.

The licensee calculated total effective dose equivalent (TEDE) exposures based on the results of external and internal monitoring. The highest TEDE exposure for 2006 was 543 millirems, while the highest exposure for 2007 was 477 millirems. The regulatory limit for occupational exposures is 5,000 millirems. Therefore, radiation exposures received by occupationally exposed individuals remained below the regulatory limit.

Airborne uranium sampling was conducted by the licensee quarterly at a minimum of six locations. The inspectors reviewed the airborne uranium sample results the licensee had maintained for 2007 up to the date of this inspection in 2008. The uranium activity in air was measured by the licensee to be at background levels and was determined to be less than 2 percent of the derived air concentration limit for natural uranium.

Airborne radon progeny sampling was conducted monthly in the contractor trailers and quarterly at 12 plant locations. The results available for 2007 up to the date of this inspection in 2008 were reviewed. The highest radon progeny sample, 0.1 working levels, was determined by the licensee to be below the derived air concentration limit of 0.33 working levels. Most radon progeny sample results were reported by the licensee to be at background levels.

Ambient gamma radiation exposure rate measurements were collected semiannually at a minimum of 13 locations. The results since the last inspection were reviewed by the inspectors. The highest measurements observed by the licensee were consistently obtained in the ion exchange plant and water treatment building. Both buildings are located within the radiologically restricted area of the site.

The licensee monitored for contamination through radiological surveys of equipment, surfaces, and personnel. In addition to routine radiological surveys, the licensee monitored for personnel contamination through random surveys of employees. The random surveys were conducted on a quarterly frequency. Surface contamination surveys were required to be conducted at least monthly and at a minimum of 10 locations. The contamination surveys consisted of taking swipe samples for removable alpha particulate contamination. The records reviewed by the inspectors of samples collected since the last inspection indicated that no individual or location had exceeded the licensee's respective action levels.

Equipment release surveys were conducted by the licensee prior to releasing components for unrestricted use. The licensee had maintained extensive records of equipment that had been released for unrestricted use. The most common releases noted were vehicles and reclamation support equipment. The inspectors reviewed a random sample of the equipment release records maintained by the licensee for 2007-2008. Based on the licensee's records that were reviewed by the inspectors, no equipment was identified as having been improperly released for unrestricted use.

The licensee has not issued a respirator for use with radioactive materials since 2004, although the licensee continues to maintain a fully functional respiratory protection program. The licensee in this effort has maintained respirators for immediate use, maintained site procedures, and provided annual medical and fit testing for its employees. The inspectors observed the stored respirators during the inspection, and the respirators appeared to be functional.

b. Site Tours

The inspectors conducted extensive site tours with the company president and RSO, including areas where reclamation activities were in progress. The inspectors determined that licensed material was secure within the site property as required by 10 CFR 20.1801 and 20.1802, and fences were posted with radioactive material signs as required by LC 28. Fences and gates were observed to be in good condition. In addition, the inspectors observed that the licensee had maintained routine security coverage at the site.

License Condition 13 allows the licensee to operate a mine water uranium recovery treatment facility. The mine water treatment facility when operational consisted of 10 ion exchange columns. The treatment facility was not in service during the inspection as the use of the ion exchange columns had been discontinued in 2006.

During the site tour, the inspectors measured the ambient gamma radiation exposure rates using a microRoentgen survey meter. The ambient gamma exposure rates are included in Attachment 2 to this inspection report. The highest measurements were identified in the area of the ion exchange resin columns located in the ion exchange building. The highest radiation measurement observed by the inspectors was

1,000 microReontgens per hour ($\mu\text{R/hr}$). This measurement was below the 5,000 $\mu\text{R/hr}$ threshold exposure rate for posting a location as a radiation area. Radiation measurements taken by the inspectors were consistent with the exposure rates recorded by the licensee during its semiannual surveys.

2.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license.

3 Operator Training/Retraining (88010)

3.1 Inspection Scope

Determine whether the licensee was complying with regulations and license requirements related to the training of employees.

3.2 Observations and Findings

The inspectors reviewed the licensee's training program to determine compliance with 10 CFR 19.12, which requires, in part, that occupational exposed workers be provided radiation safety training. Initial training for new employees and refresher training for all employees were provided by the licensee during 2006-2008. The inspectors reviewed the training records of several new employees and the training documents maintained for the May 2008 annual radiation safety refresher training. The inspectors noted that training records provided by the licensee included written radiation safety tests and appeared to be adequate. Since 2004, U.S. Department of Transportation hazardous material training has not been conducted, nor is the training required, since there have been no radioactive material shipments made by the licensee offsite on public roads since that time.

3.3 Conclusions

Radiation protection training was provided to site workers as required by regulations and the license.

4 Maintenance and Surveillance Testing (88025)

4.1 Inspection Scope

Determine whether surveillance tests and calibrations were being conducted in accordance with license requirements and site procedures.

4.2 Observations and Findings

License Condition 20 requires, in part, that calibration of equipment be documented. The inspectors reviewed the licensee's instrument calibration records created since the last inspection. Equipment being calibrated included an assortment of radiological survey instruments and air samplers. The licensee had maintained documentation demonstrating that the equipment had been properly calibrated at the respective intervals specified in the license application. As allowed by the license, some of the

equipment was calibration checked by the licensee, while other equipment was calibrated by offsite vendors. Equipment in use during the inspection appeared fully functional with up-to-date calibrations. In summary, the licensee maintained a sufficient number of calibrated instruments necessary to implement the requirements of the license.

Appendix A of 10 CFR Part 40, Criterion 6(A)(2), requires, in part, that a licensee conduct annual radon flux testing on any tailings impoundment that does not yet have a final radon barrier to ensure that releases of radon-222 do not exceed 20 picocuries per meter squared second. The inspectors reviewed the licensee's program for conducting the radon flux test of Pond 3. The inspectors observed the licensee preparing the sample collection system, placing the sampler on Pond 3 for radon collection, gathering the sampler after 24 hours, and analyzing the charcoal in which the radon was absorbed. The licensee followed their in-house procedure, which satisfied the requirements of the U.S. Environmental Protection Agency Method 115 for monitoring radon-222 emissions. The licensee submits the results of the radon flux test to the NRC on an annual basis. All radon flux test results from the observed tests were not available during the inspection; however, past radon flux test results have been below the regulatory limit.

4.3 Conclusions

Radiation survey instruments and air samplers were being calibrated as required by site procedures. The inspectors concluded that annual radon flux measurements taken on Pond 3 were performed using appropriate testing methods.

5 Effluent Control and Environmental Protection (88045)

5.1 Inspection Scope

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

5.2 Observations and Findings

a. Environmental Monitoring

License Condition 10 requires, in part, that the licensee maintain an environmental monitoring program and LC 19 requires, in part, that the licensee submit the results of the environmental monitoring to the NRC in semiannual reports. The licensee's environmental monitoring program is described in its Health Physics and Environmental Procedures Manual. The licensee's environmental monitoring program consisted of obtaining air particulate, radon, gamma radiation, soil, surface water, sediment, and vegetation samples.

The licensee has seven environmental monitoring sampling stations, which include two locations near the former Section 4 ponds. The Mill Diversion sampling station has been relocated by the licensee three times since 2007 due to the new diversion ditch being installed onsite. The inspectors noted that the licensee had received NRC approval prior to each relocation of the sampling station. The licensee also had received authorization

from the NRC to relocate the North Fence sampling station, although the licensee later determined that there was not a need to relocate this station.

Air particulates were sampled at the seven environmental sampling stations using high volume air samplers. The sample filters were exchanged weekly and analyzed quarterly for natural uranium, thorium-230, radium-226, and lead-210 concentrations. Most of the air sample results obtained by the licensee were determined to be less than one percent of the limit for each constituent, as each is specified in 10 CFR Part 20, Appendix B. During the fourth quarter of 2006 through the second quarter of 2007, the thorium-230 concentration at the Mill Diversion location was elevated due to the ongoing lined pond relocation project. The highest thorium-230 result was recorded as 23.8 percent of the Appendix B limit during the second quarter of 2007. The third and fourth quarters of 2007 showed the thorium-230 levels at the Mill Diversion location to be less than or equal to 1 percent of the Appendix B limit. This reduction in the effluent concentrations corresponded to the completion of the pond relocation project.

Radon-222 was monitored at the seven environmental sampling stations. The track-etch canisters were exchanged quarterly and processed by an outside vendor. Since 2006, the highest radon-222 reading was measured at the North Fence location during the fourth quarter of 2007 and resulted in an effluent concentration of 3.5 picocuries per liter. This sample result remained below the 10 CFR Part 20, Appendix B, effluent concentration limit of 10 picocuries per liter.

Gamma radiation was monitored at each of the seven environmental sampling stations. The dosimeters were exchanged quarterly and processed by an outside vendor. Since 2006, the highest gamma readings have been at the Mill Diversion sampling station. The highest quarterly rate was for the fourth quarter of 2007, with a measurement of 28 millirems. After completion of the pond relocation project in first quarter of 2008, the quarterly gamma reading at the Mill Diversion location decreased significantly to 2.6 millirems.

Vegetation samples are collected three times a year near the seven environmental sampling stations. The vegetation samples were analyzed for natural uranium, thorium-230, radium-226, and lead-210 concentrations. No acceptance criteria have been established for vegetation, and the environmental samples are collected for trending purposes only. The inspectors reviewed the sampling results from 2006 through the second quarter of 2008 and found no adverse trends.

Soil samples are collected annually at the seven environmental sampling stations. The soil samples are analyzed for natural uranium, thorium-230, radium-226, and lead-210 concentrations. No acceptance criteria have been established for soil, and the environmental samples are collected for trending purposes only. The inspectors reviewed the soil sampling results from 2007 to the date of this inspection in 2008 and found no adverse trends.

Four creek bed sediment samples were collected annually and analyzed for natural uranium, thorium-230, radium-226, and lead-210 concentrations. The environmental sampling is conducted for trending purposes only. The inspectors reviewed the sediment sampling results from 2007 and 2008 and found no adverse trends.

The Puertocito Creek is sampled quarterly at six locations where the treated mine discharge water enters the creek. The water is sampled for total uranium (soluble and insoluble) and radium-226 concentrations. Action levels are based on the licensee's National Pollutant Discharge Elimination System permit limits. Since the previous NRC inspection, no samples had been collected by the licensee due to the creek being dry.

License Condition 39 requires, in part, that the licensee conduct an annual land use survey in the area within 2 miles of the former mill and submit a report to the NRC by July 1st of each year. The inspectors reviewed the annual land survey reports submitted by the licensee for calendar years 2006-2008. Each report contained an adequate land use survey; although, the inspectors noted that the 2008 report was not submitted until September 2008. The licensee stated that the report was inadvertently late due to the turnover in RSOs. The inspectors determined that the late report was not a safety significant concern but was an administrative error that was identified and corrected by the licensee.

b. Groundwater Compliance Monitoring Program

License Condition 34 provides, in part, the requirements of the groundwater compliance monitoring program. In February 2006, the NRC approved the licensee's request for implementation of groundwater alternate concentration limits (ACLs) for several constituents. The inspectors reviewed the groundwater monitoring data from the second half of 2006 through the first half of 2008.

During November 2006, the licensee notified the NRC regarding the elevated beryllium concentrations observed in the Dakota Point of Compliance Well 36-06 samples. The licensee submitted a proposed corrective action plan to the NRC in January 2007 to address the elevated beryllium concentrations, a request that was subsequently approved by the NRC in April 2007. Discussions between the licensee and NRC staff concluded that the fluctuations in well water quality appear to be linked to surface reclamation work. Following the discovery of the elevated beryllium concentrations in the Dakota Point of Compliance Well 36-06, the licensee has taken monthly water samples at this well, and results have shown a slow decline in beryllium concentrations in the water.

In the July 31, 2008, semiannual groundwater monitoring report, the licensee noted the exceedance of the uranium concentration from Tres Hermanos B Compliance Well 31-02. Two samples taken by the licensee have exceeded the approved ACL since it was revised in 2006. The licensee has continued to note a slight upward trend in uranium concentration since 2006. A corrective action program has been implemented for Well 31-02, and the well is also being sampled on a monthly frequency.

License Condition 34.F, requires, in part, that if the laboratory results indicate that the concentration of any constituent exceeds its associated ground water protection standard or ACL, the licensee shall collect a second sample within 7 calendar days of becoming aware of any exceedance of the ACLs. The inspectors identified three instances where the constituents have exceeded the ACLs. Specifically, the uranium concentration in water well samples taken in July 2007 and April 2008 from Tres Hermanos B Compliance Well 31-02 were found to be 1.72 and 1.67 milligrams per liter, respectively, which exceeded the ACL of 1.6 milligrams per liter. Also, the February 2008 sulfate sample result for Dakota Sandstone Compliance Well 36-06 was found to

be 9000 milligrams per liter, which exceeded the ACL of 6480 milligrams per liter. The licensee did not collect second samples of the constituents in these wells after receiving the laboratory results that identified exceedances of the ACLs. This finding was identified as a violation of LC 34.F requirements (040-08905/0801-01).

5.3 Conclusions

The licensee had implemented the environmental monitoring program as required by the license and regulations. Two compliance wells were in exceedance of the ACLs and were being sampled monthly. One violation was identified related to the licensee's failure to conduct confirmatory sampling in accordance with LC 34.F.

6 Inspection of Transportation Activities and Radioactive Waste Management (86740 and 88035)

6.1 Inspection Scope

Determine if transportation and disposal activities were being conducted in compliance with regulatory requirements.

6.2 Observations and Findings

License Condition 41 allows the licensee to dispose of 11e.(2) byproduct material. The licensee maintains an open area, adjacent to Pond 2, for disposal of these wastes. Since the last inspection, the licensee received and disposed of 11e.(2) byproduct material from the U.S. Department of Energy during December 2006. The material originated from the former Sohio L-Bar site. The material consisted of about 31 tons of 11e.(2) waste. The inspectors reviewed the shipping papers, and determined that the papers were in agreement with U.S. Department of Transportation requirements.

At the time of the inspection, the licensee was conducting reclamation work on Pond 3. The licensee stated that Pond 3 contained contaminated wind-blown tailings and soils and had not been used for the direct disposal of tailings material. The licensee was constructing and shaping the cover material on a small portion of the top of the pond and on the sides of the pond. The license requires at least 1 foot of cover material on the pond; however, the licensee stated that up to 3 feet of cover material was being installed on the pond. The inspectors observed the licensee conducting radon flux testing of Pond 3. Preliminary radon flux sample results taken by the licensee indicated that the radon emanation rate from Pond 3 was roughly 10 percent of the regulatory limit of 20 picocuries per meters squared second.

In the near future, the licensee plans to conduct final reclamation of Pond 9 and Section 4 Ponds 11-21. The contaminated material removed from these areas will be placed into an open area of Pond 2. The remainder of Pond 2 then will be reclaimed at a later date.

6.3 Conclusions

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

7 Emergency Preparedness (88050)

7.1 Inspection Scope

Determine if the licensee's emergency preparedness program was being maintained in a state of readiness.

7.2 Observations and Findings

The licensee has procedures in place for responding to emergencies. Site procedures included the Fire Plan and Tailings Contingency Plan Response Guide. Fire drills were conducted by the licensee in March 2007 and June 2008 to test emergency response capabilities. The March 2007 drill tested the use of hand-held fire extinguishers, while the June 2008 drill tested the operation of the site's fire truck. The licensee had made prearrangements for the use of a Lifelight helicopter to transport injured personnel in case of a significant medical emergency.

7.3 Conclusions

The licensee had adequate procedures, equipment, and training needed to respond to emergencies.

8 Exit Meeting Summary

The inspectors presented the preliminary inspection results to the licensee's representatives at the conclusion of the onsite inspection on October 9, 2008. The final inspection findings were presented to the company RSO by telephone on October 29, 2008. Representatives of the licensee acknowledged the findings as presented. During the inspection, the licensee did not identify any information reviewed by the inspectors as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Fletcher, President
D. Sweeney, Radiation safety Officer

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

040-08905/0801-01 VIO Failure to conduct confirmatory sampling in accordance with License Condition 34.F

Closed

None

Discussed

None

INSPECTION PROCEDURES USED

IP 83822	Radiation Protection
IP 86740	Inspection of Transportation Activities
IP 88005	Management Organization and Controls
IP 88010	Operator Training/Retraining
IP 88025	Maintenance and Surveillance Testing
IP 88035	Radioactive Waste Management
IP 88045	Effluent Control and Environmental Protection
IP 88050	Emergency Preparedness

LIST OF ACRONYMS USED

ACL	alternate concentration limit
IP	NRC Inspection Procedure
LC	License Condition
NRC	Nuclear Regulatory Commission
RSO	Radiation Safety Officer
TEDE	total effective dose equivalent
µR/hr	microReontgen per hour

AMBIENT GAMMA RADIATION SURVEY RESULTS

In units of microRoentgens per hour ($\mu\text{R/hr}$)

Location	Survey Measurement
Shop	25-30
Ion exchange building (inside)	300 (average) 1,100 (maximum)
Ion exchange building (outside)	200 (general area) 450 (soil near building)
Area between Ponds 1 & 2	25-27
Pond 2 (top)	40-42
Pond 2 (area with Section 4 material)	130
Pond 3 (top, north end)	16-18
Pond 3 (east side slope)	50
Pond 9 (top)	22
Section 4, Pond 11 (north end)	12
Section 4, Pond 21	14-16

Survey Meter: Ludlum Model 19 microR meter

NRC No. 015540, calibration due date of 02/14/09

Calibrated to radium-226