UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

September 18, 2006

Mr. Thomas E. Gieck
Remediation Leader
Umetco Minerals Corporation
P.O. Box 1029
Grand Junction, CO 81502

SUBJECT: NRC INSPECTION REPORT 040-00299/06-001

Dear Mr. Gieck:

This refers to the inspection conducted on August 31, 2006, at the Umetco-Gas Hills site in Natrona County, Wyoming. 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 examination of selected procedures and representative records, observations of activities, and interviews with personnel. Details of the inspection were presented to you at the exit briefing conducted on August 31, 2006.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The violation involved your failure to control and verify that radium-226 concentrations were less than the NRC-approved limit for soil used in construction of a frost protection barrier. This violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the Enforcement Policy. The NCV is described in the subject inspection report. The violation is not being cited, in part, because you identified the violation and because you took prompt corrective actions including submittal of a license amendment request to change the authorized radium-226 concentration in soil. The NRC's response to your February 7, 2006, license amendment request will be provided to you under separate correspondence at a later date.

If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with a copy to the Regional Administrator, Region IV, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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, 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 the undersigned at (817) 860-8191 or Mr. Robert J. Evans, Senior Health Physicist, at (817) 860-8234.

Sincerely,

/RA

D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle and Decommissioning Branch

Docket No.: 040-00299
License No.: SUA-648

Enclosure:
NRC Inspection Report
040-00299/06-001

cc w/enclosure:
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SUNSI Review Completed: RJE ADAMS: ■ Yes ☐ No Initials: RJE
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	040-00299
License No.:	SUA-648
Report No.:	040-00299/06-001
Licensee:	Umetco Minerals Corporation
Facility:	Former Gas Hills Mill
Location:	Natrona County, Wyoming
Dates:	August 31, 2006
Inspector:	Robert Evans, P.E., C.H.P., Senior Health Physicist Fuel Cycle & Decommissioning Branch
Accompanied by:	Linda M. Gersey, Health Physicist Nuclear Materials Inspection Branch
	Robert G. Lukes, Health Physicist Fuel Cycle Facilities Branch Division of Fuel Cycle Safety and Safeguards Office of Nuclear Material Safety and Safeguards
Approved by:	D. Blair Spitzberg, Ph.D., Chief Fuel Cycle & Decommissioning Branch
Attachment:	Supplemental Inspection Information

EXECUTIVE SUMMARY

Umetco Minerals - Gas Hills Facility
NRC Inspection Report 040-00299/06-001

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 described 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. Audit activities were being conducted in accordance with license requirements (Section 1).

Radiation Protection

- The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license. During calender year 2005, employee occupational exposures were below regulatory limits (Section 2).

Operator Training/Retraining

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

Maintenance and Surveillance Testing

- Instruments were being calibrated as required by the license. Survey meters in service appeared operable with up-to-date calibrations (Section 4).

Environmental Protection

- The licensee had not released licensed material into the environment in quantities exceeding regulatory limits for the periods reviewed. The routine groundwater and environmental monitoring program reports were submitted to the NRC as required by the license (Section 5).

Transportation of Radioactive Material and Radioactive Waste Management

- The licensee was conducting transportation, waste disposal, and construction operations in accordance with license requirements, with one exception. A Non-Cited Violation was identified involving the licensee's failure to control and verify the radium-226 concentrations were less than the licensed limit in the soil being used for construction of the Gas Hills Pond-2 frost protection barrier (Section 6).

Emergency Preparedness

- The licensee maintained its emergency preparedness program in a state of readiness (Section 7).

Report Details

Site Status

At the time of the inspection, site reclamation was essentially complete, with the exception of minor quality control work (construction verification) on Gas Hills Pond GHP-2 and radon flux testing of the C-18 pit area. These activities were expected to be completed in mid-September 2006. The licensee was conducting mine reclamation work, work that was not regulated by the NRC, in areas adjacent to the former tailings ponds.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

The purposes of this portion of the inspection were to ensure that the licensee had established an organization to administer the technical programs and programs to perform internal reviews, self-assessments, and audits.

1.2 Observations and Findings

License Condition 10.B provides the organizational requirements. The license also specifies that the licensee's organizational chart is to be submitted annually to the NRC. The inspectors compared the current organizational structure to the structure provided in the annual report. At the time of the inspection, site staffing consisted of about 35 individuals, including one full-time employee and about 34 contractors. The full-time employee was the site manager who reported to the remediation leader located at the main office. Most contractors were involved in mine reclamation activities. Contractors conducting NRC-licensed activities, on a part-time basis, included the radiation safety officer, radiation technician, and the utility technician who occasionally collected water samples. The inspectors concluded that the licensee had sufficient staff to conduct the work in progress and to ensure compliance with license conditions and regulatory requirements.

License Condition 15 states that the radiation safety officer shall perform an annual documented review of site procedures. The inspectors noted that this review was conducted during 2005.

License Condition 16 states that the licensee shall conduct an annual As Low As Reasonably Achievable (ALARA) audit. In addition, the licensee shall review the environmental monitoring program at least annually. The last audit was conducted during September 2005. The audit included personnel exposures and environmental monitoring data. The auditor identified a problem with laboratory lower limits of detection that was corrected by the licensee.

License Condition 32 requires the licensee to conduct an annual survey of land use in the area within 5 miles of any portion of the restricted area. The most recent land use survey was included in the annual report dated September 30, 2006. The annual land use survey was conducted and submitted to the NRC in accordance with License

Condition 32. The nearest resident is located 5 miles from the permit boundary. Accordingly, Umetco activities had little or no impact on members of the public.

Finally, License Condition 10.C requires the licensee to conduct semi-annual, documented, visual inspections of Gas Hills Pond GHP-2. The licensee discontinued these inspections during June 2004 because the pond had been removed from service for reclamation.

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. Audit activities were being conducted in accordance with license requirements.

2 Radiation Protection (83822)

2.1 Inspection Scope

The purpose of this portion of the inspection was to determine if the licensee's radiation protection program was in compliance with license and 10 CFR Part 20 requirements.

2.2 Observations and Findings

Occupational exposure monitoring consisted of a combination of external and internal dose monitoring. The licensee issued optically-stimulated dosimeters to site workers during 2005. The highest deep dose equivalent exposure was 120 millirems; the second highest was 97 millirems. Both workers operated an NRC-licensed moisture density gauge; therefore, their doses were a combination of doses from both the 10 CFR Part 30 (byproduct material) and Part 40 (source material) licenses. Since exposures were less than 10-percent of the regulatory limit specified in 10 CFR 20.1201(a) and since the tailings material had been permanently covered, the licensee elected to permanently discontinue external monitoring during 2006 as allowed by 10 CFR 20.1502(a).

The licensee collected breathing zone air samples during reclamation activities conducted in 2005. The licensee collected a total of 58 samples that varied from 0.1 to 7.3-percent of the applicable derived air concentration value. As allowed by 10 CFR 20.1502(b), the licensee did not assign internal doses to site workers because the results were less than 10-percent of the applicable limits. In addition, based on the work being conducted and the status of the site, the licensee did not collect bioassay samples during 2005-2006.

License Condition 10.A states that radiation work permits are required for non-routine work which may result in significant exposures to radioactive material. The licensee stated that no radiation work permits were issued during 2005-2006 because the work was conducted using site procedures and the NRC-approved reclamation plan instead of radiation work permits.

Although not required by the license, the licensee conducted contamination surveys of the office and lunch room areas. Several locations slightly exceeded the action levels, and the areas were decontaminated and resurveyed. The licensee discontinued routine contamination sampling during March 2006, in part, because reclamation was nearly complete and because all tailings material had been permanently covered.

License Condition 22 specifies the release requirements for equipment or packages being free-released from the restricted area. The equipment release records for 2005-2006 were reviewed. Based on the licensee's records, all equipment was properly released.

During the site tour, the inspectors conducted radiation surveys using a Ludlum Model 2401-P survey meter (NRC Number 016297G, calibration due date of June 9, 2007). The background ambient gamma exposure rate, measured in the office, was 30 microRoentgens per hour. Ambient gamma exposure rates averaged 35-45 microRoentgens per hour in areas around the former tailings ponds. These exposure rates were comparable to background exposure rates for the Gas Hills area.

2.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license. During calender year 2005, employee occupational exposures were below regulatory limits.

3 Operator Training/Retraining (88010)

3.1 Inspection Scope

The inspection objectives were to determine whether the licensee was complying with regulations and license requirements related to the training of employees.

3.2 Observations and Findings

Site worker training requirements are provided in License Condition 10.D which outlines the training for workers, visitors, and contractors that must be completed in accordance with 10 CFR 19.12. Initial and annual refresher training is required for site personnel. Visitors have to be trained unless escorted by trained personnel. Finally, contractors are given training commensurate with their duties. The inspectors confirmed that radiation safety and industrial safety training was presented by the site radiation safety officer at the frequencies specified in the license.

3.3 Conclusions

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

4 Maintenance and Surveillance Testing (88025)

4.1 Inspection Scope

The inspection objectives were to determine whether instrument calibrations were being conducted in accordance with license requirements and site procedures.

4.2 Observations and Findings

License Conditions 20 and 27 require annual calibrations of survey instruments. The licensee's records indicated that the instruments were being calibrated at the required frequency. The inspectors observed the survey instruments in use, including the licensee's gamma spectroscopy equipment used to analyze soil samples. The instruments appeared to be in good working order with up-to-date calibration stickers.

4.3 Conclusions

Instruments were being calibrated as required by the license. Survey meters in service appeared operable with up-to-date calibrations.

5 Environmental Protection (88045)

5.1 Inspection Scope

The environmental and effluent monitoring programs were reviewed to assess the effectiveness of the licensee to monitor the impacts of site activities on the local environment.

5.2 Observations and Findings

License Condition 34 provides the requirements for environmental air particulate, ambient gamma, and radon-222 monitoring. As allowed by the license, the licensee did not conduct air particulate monitoring since the last inspection because there was no potential for airborne radioactivity. However, the licensee conducted ambient gamma radiation and radon-222 monitoring at three stations; one downwind station, one background station and one nearest resident station. The inspectors reviewed the environmental monitoring sample results for the last half of 2005 and the first half of 2006 during the inspection.

Ambient gamma radiation monitoring was conducted using environmental optically-stimulated dosimeters at three locations. The dosimeters were exchanged quarterly. The sample results for the last four quarters were reviewed, and the sample results at the downwind and nearest resident sites met the 100 millirem annual dose limit for individual members of the public established in 10 CFR 20.1301(a).

Radon-222 air sampling was conducted using track-etch monitors that were replaced semi-annually. The radon-222 sample results at the nearest resident and downwind stations for the second half of 2005 and the first half of 2006 were noted to be comparable to background results.

In March 2006, the NRC approved alternate concentration limits for the licensee's groundwater compliance monitoring program, as reflected in revised License Condition 35. The inspectors reviewed the well sample results collected in May 2006 to ensure compliance with the new limits. The inspectors also reviewed well sampling data collected prior to March 2006 to ensure compliance with the Appendix M target values, the acceptance criteria in effect prior to NRC-approval of the alternate concentration limits. Both the 2005 and 2006 sample results were within the specified limits.

The inspectors also verified that the 2005 annual report was submitted in accordance with License Condition 39. The most recent report was submitted to the NRC on September 30, 2005.

In summary, the licensee had established and implemented an environmental monitoring program that was in compliance with license requirements. Recent sample results indicate licensee compliance with all regulatory limits. The inspectors also concluded that the 100-millirem dose limit to members of the pubic, as required in 10 CFR 20.1301(a), had not been exceeded.

5.3 Conclusions

The licensee had not released licensed material into the environment in quantities exceeding regulatory limits for the periods reviewed. The routine groundwater and environmental monitoring program reports were submitted to the NRC as required by the license.

6 Transportation of Radioactive Materials and Radioactive Waste Management (86740 and 88035)

6.1 Inspection Scope

The objectives of this portion of the inspection were to determine if transportation and waste disposal activities were being conducted in compliance with license requirements.

6.2 Observations and Findings

With regards to shipping and transportation activities, the licensee stated that it had not shipped any radioactive material or received a shipment during 2005-2006. Further, the licensee did not receive any wastes for disposal because there was no longer an open area for disposal of this type of material.

License Condition 27 requires all inspections to be documented. A daily survey was performed which verified that the office compound, soil labs, fencing, gates, and the overall site condition were satisfactory. The licensee maintained documentation of these daily surveys.

License Condition 10.C provides the site access control requirements. The inspectors concluded that the licensee was maintaining adequate control of the restricted area including use of fences, gates, and postings.

License Condition 61 states, in part, that the reclamation of Gas Hills Pond GHP-2 will be performed according to the plan submitted to the NRC by letter dated September 11, 2003. In this letter, the licensee provided the NRC with its final design and reclamation plan for GHP-2 and the mill area. Included was a limit for the amount of radium-226 allowed for soils being used in the construction of the frost protection barrier. In particular, the licensee was to use soils that contained radium-226 in concentrations less than 10 picocuries per gram (pCi/g) of soil. Further, the licensee will use field measurements during construction to control and verify that radium-226 concentrations were less than 10 pCi/g.

Contrary to this license requirement, the licensee did not implement a program that was effective in controlling and verifying the radium-226 concentrations. As a result, the actual radium-226 concentrations in the frost protection barrier exceeded the licensed limit. During construction verification activities, the licensee became aware that it had used soil with radium-226 concentrations in excess of the 10 pCi/g limit. By letter dated February 7, 2006, the licensee requested an amendment to License Condition 61. The license requested an increase in the radium-226 concentration limit from 10 to 15 pCi/g.

The licensee's failure to control and verify that radium-226 concentrations were less than 10 pCi/g was identified as a violation of License Condition 61 (040-00299/0601-01). However, this violation was subsequently determined to be a Non-Cited Violation (NCV), consistent with Section VI.A of the Enforcement Policy. The licensee self-identified the problem and took corrective actions that included submittal of a license amendment request. The licensee justified the proposed change, in part, by demonstrating through modeling that the increase in radium-226 concentrations from 10 to 15 pCi/g did not result in an exceedance of the radon flux rate limit specified in 10 CFR Part 40, Appendix A, Criterion 6.

At the end of the inspection period, the NRC was still reviewing the licensee's amendment request. The NRC's conclusions about the request will be provided to the licensee under separate correspondence at a later date.

6.3 Conclusions

The licensee was conducting transportation, waste disposal, and construction operations in accordance with license requirements with one exception. An NCV was identified involving the licensee's failure to control and verify the radium-226 concentrations were less than the licensed limit in the soil being used for construction of the GHP-2 frost protection barrier.

7 Emergency Preparedness (88050)

7.1 Inspection Scope

The objective of this portion of the inspection was to ensure that the licensee's emergency preparedness program was being maintained in a state of readiness.

7.2 Observations and Findings

The licensee maintained an emergency response program for fires and personnel accidents. The license maintained fire protection capability that included fire extinguishers. The licensee had the capability of handling contaminated personnel injuries, although the possibility of contaminated injuries was not significant since the tailings material was covered with an interim cover, and most surface reclamation activities were complete.

7.3 Conclusions

The licensee maintained its emergency preparedness program in a state of readiness.

8 Exit Meeting Summary

The inspectors presented the inspection results to the licensee's representatives at the conclusion of the onsite inspection on August 31, 2006. Representatives of the licensee acknowledged the findings as presented. During the inspection, the licensee did not identify any information reviewed by the inspectors as propriety.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Gieck, Remediation Leader
E. Ley, Site Manager
S. Schierman, Radiation Safety Officer

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

040-00299/0601-01	NCV	Licensee failed to control and verify that radium-226 concentrations were less than 10 pCi/g in the frost protection barrier of GHP-2, a violation of License Condition 61

Closed

040-00299/0601-01	NCV	Licensee failed to control and verify that radium-226 concentrations were less than 10 pCi/g in the frost protection barrier of GHP-2, a violation of License Condition 61

Discussed

None

INSPECTION PROCEDURES USED

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

LIST OF ACRONYMS USED

ALARA	As Low As Reasonably Achievable
IP	Inspection Procedure
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
pCi/g	picocuries per gram