UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

June 29, 2012

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

SUBJECT: NRC INSPECTION REPORT 040-00299/12-001

Dear Mr. Gieck:

This refers to the inspection conducted on June 5, 2012, at the Umetco Gas Hills facility in Natrona County, Wyoming. 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 inspection results were presented to you at the conclusion of the onsite inspection. The enclosed report presents the results of this inspection. No violations were identified, and no response to this letter is required.

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 you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Mr. Robert Evans at (817) 200-1234 or the undersigned at (817) 200-1191.

Sincerely,

/RA/

D. Blair Spitzberg, PhD, Chief
Repository and Spent Fuel Safety Branch

Docket: 040-00299
License: SUA-648

Enclosure:
NRC Inspection Report 040-00299/12-001

cc w/enclosure:
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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	040-00299
License:	SUA-648
Report:	040-00299/12-001
Licensee:	Umetco Minerals Corp.
Facility:	Gas Hills facility
Location:	Natrona County, Wyoming
Date:	June 5, 2012
Inspector:	Robert Evans, PE, CHP, Senior Health Physicist Repository and Spent Fuel Safety Branch
Accompanied By:	Dominick Orlando, Senior Project Manager Decommissioning and Uranium Recovery Licensing Directorate Division of Waste Management and Environmental Protection Office of Federal and State Materials and Environmental Management Programs
Approved By:	D. Blair Spitzberg, PhD, Chief Repository and Spent Fuel Safety Branch
Attachments:	Supplemental Inspection Information Photographs of Previous Site Construction Activities

Enclosure

EXECUTIVE SUMMARY

Umetco Minerals Corporation Gas Hills Facility
NRC Inspection Report 040-00299/12-001

This inspection included a review of construction and groundwater monitoring activities that were recently completed at the licensee's Gas Hills, Wyoming, facility. In summary, site activities had been conducted in accordance with license and regulatory requirements.

On-site Construction

- The licensee conducted the erosion protection enhancement construction activities during 2011 in accordance with the NRC-approved design plan (Section 1).

Environmental Protection

- The licensee implemented a groundwater monitoring program in accordance with license requirements. All sample results collected during 2011 for the point-of-compliance wells were below the respective alternate concentration limits. The NRC previously identified potentially negative trends with selected sample results, and the NRC staff will continue to monitor future sample results for trends (Section 2).

Report Details

Site Status

During 2010, the licensee identified deficiencies in the design and construction of the erosion protection cover at the Umetco site. On December 21, 2010, the licensee submitted the "Above Grade Tailings Impoundment and A-9 Repository Erosion Protection Enhancement Design Report" (ML103640265) to the NRC for review and approval. In this submittal, the licensee proposed to implement several repairs to the erosion cover. The NRC subsequently approved the licensee's proposal by License Amendment 64 dated August 22, 2011 (ML112060361).

After issuance of the license amendment in August 2011, the licensee conducted cover repairs in four areas—above-grade tailings impoundment (AGTI), A-9 repository, launch rock structure, and apron channel. The work included installation of a bedding layer in the AGTI and A-9 areas. The licensee subsequently submitted an addendum to the Final Construction Completion report to the NRC by letter dated January 13, 2012, for the work conducted (ML12024A153). The NRC reviewed the licensee's completion report and approved the report by License Amendment 67 dated May 11, 2012 (ML120790259).

In other areas, the licensee continues to implement the groundwater monitoring program as required by License Condition 35. Further, the licensee continues to prepare the site for future turnover to the U.S. Department of Energy for long-term surveillance under a general license (10 CFR 40.28). Site preparation activities include resolution of all associated legal restrictions. For example, the licensee still needed to resolve access rights for local roads.

1 On-site Construction (88001)

1.1 Inspection Scope

The inspector reviewed on-site construction activities to ensure that the work had been conducted during 2011 in accordance with license requirements.

1.2 Observations and Findings

During 2010, the licensee identified problems with the erosion protection layer in the covers for the AGTI and A-9 areas. In particular, sub-grade erosion resulted in isolated, shallow incisions of the underlying cover soils. Although this erosion had no impact on the tailings material or the radon barrier located between the tailings and the erosion cover, the licensee proposed placing a bedding layer under the AGTI and A-9 covers by one of two methods. The licensee also proposed several repairs of the launch rock structure and the apron channel. The NRC subsequently approved the licensee's proposals during August 2011, and the licensee commenced with the repair work immediately after NRC approval of the design report.

The NRC-approved construction work included: (1) installation of an improved bedding layer underneath the AGTI and A-9 rock covers; (2) installation of multi-layer filter zones in the launch rock structure; (3) repair of erosion sink holes (rills) located under the ATGI and A-9 covers and upstream of the launch rock structure; and (4) repair of the erosion control apron located on the southeastern corner of the AGTI. During this inspection, the NRC staff performed visual observations of the completed construction work to determine if the licensee had repaired these areas in accordance with the approved

erosion protection design report. In summary, the licensee appears to have completed the erosion protection enhancements in accordance with the NRC-approved design report.

As allowed by the license, the licensee used two different methods to place a bedding layer on the surface of the frost protection layer of the tailings pile. The first method involved removing the erosion protection rock layer and manually placing the bedding layer on the surface of the frost protection layer. The licensee then replaced the rock layer on top of the bedding layer. The second method involved placing the smaller bedding layer material on the top of the erosion protection rock layer and mechanically vibrating the bedding material into and underneath the rock layer.

The licensee used three different types of rock during the repairs - Type A, Type C, and 30/70 blend. All material originated from a local rock quarry. Type A material had a mean diameter of 1 inch, while Type C material had a mean diameter of 6 inches. The 30/70 blend bedding material consisted of 30 percent quarry fines blended with 70 percent of 2-inch or less crushed rock. (Type B rock, used in the original construction of the erosion cover, had a mean diameter of 3 inches.)

According to the licensee's records, Type A bedding material was used in all four areas (AGTI, A-9, launch rock structure, apron structure). Type C material was used in the launch rock and apron structure repairs. Finally, the 30/70 blend was used in the launch rock, AGTI, and A-9 repairs. The quantities of material used were presented in the licensee's completion report dated January 13, 2012.

During the inspection, the NRC staff noted the following off-normal construction techniques:

- In certain areas on the AGTI where the first method was used, the licensee replaced the erosion protection rock layer using alternating lateral bands of Type C and Type B rock. Due to the different sizes of the rock types and different settling characteristics of the two types due to compaction, the Type C rock bands were about one-half to one foot higher than the Type B rock bands. This construction technique was not expected to adversely affect the erosion protection layer of the tailings pile as the bedding layer was present beneath the bands, and because the direction of the run-off flow is perpendicular to the bands.

- In areas where the first method was used, soil was observed to have been deposited in numerous discreet areas on the surface of the erosion protection layer. Licensee representatives explained that, when the rock was removed to allow emplacement of the bedding layer, some soil was also removed along with the rock. The licensee's representatives referred to these areas as "dirty rock." When the rock was replaced, this soil was placed on the surface of the tailings pile. This construction technique was not expected to impact the erosion protection layer as the soil is expected to wash down through the erosion protection layer during future rain events. In addition, the licensee conducted independent quality assurance/quality control checks at various locations to verify that the rock layers met the construction specifications. The licensee conducted approximately 4-5 quality assurance/quality control checks per acre.

- The NRC staff observed several equipment tracks/ruts on the northeastern portion of the AGTI. Licensee representatives explained that this area had been extensively reworked to emplace the bedding layer and that the tracks remaining were from the last construction vehicles to leave the site. This finding was not expected to affect the erosion protection layer or the bedding layer because the erosion protection and bedding layers' thicknesses were confirmed to be adequate during independent quality assurance/quality control checks.

The NRC inspectors discussed the above observations with the licensee's staff. None of the observations appeared to be safety significant. As noted above, these off-normal construction techniques should not affect the ability of the erosion protection cover to perform its intended functions.

The licensee stated that, during the erosion protection enhancement Quality Assurance/Quality Control activities such as in-place gradation and bedding depth measurements (see sheet 4/7 of Addendum 1 to the Final Construction Completion Report), pictures were taken at each measurement location. During the inspection, the licensee agreed to provide these pictures to NRC and U.S. Department of Energy staff.

Also during the inspection, the NRC inspector measured the ambient gamma radiation levels at various locations for comparison to background levels. The inspector conducted the survey using a Ludlum Model 19 survey meter (NRC Number 016337, calibration due date of 01/10/13, calibrated to cesium-137). The inspector collected background measurements about a half-mile from the site. Background ranged from 25-30 microRoentgen per hour (μR/hr). The A-9 area measured about 10-12 μR/hr, while the AGTI area measured about 7-10 μR/hr. Other onsite areas, away from the tailings cover, ranged from 35-40 μR/hr due to the presence of naturally occurring radioactive material in the soil. The reduced exposure rates on the cover material were expected due to the thickness of the cover over the tailings. In summary, the survey measurements suggest that the cover material continued to provide a radiological barrier between the tailings material and the environment.

1.3 Conclusions

The licensee conducted the erosion protection enhancement construction activities during 2011 in accordance with the NRC-approved design plan.

2 Environmental Protection (88045)

2.1 Inspection Scope

The inspector reviewed the licensee's implementation of its environmental protection program to ensure compliance with license requirements.

2.2 Observations and Findings

License Condition 35 provides the groundwater monitoring program requirements. At the time of the inspection, the licensee was required to sample four point-of-compliance wells, eight other wells, and one local spring. The licensee was required to sample the wells annually and to report the sample results to the NRC on an annual basis.

During the September 2011 inspection, documented in NRC Inspection Report 040-00299/11-001, dated October 17, 2011 (ML11290A292), the NRC staff identified a number of potential problems with the licensee's sampling program. The licensee responded to these concerns, in part, by submitting an amendment to the groundwater sampling program. The NRC approved these proposed changes by License Amendments 66 and 67, dated November 22, 2011 (ML112840085), and May 11, 2012 (ML120790259), respectively.

The licensee submitted its most recent annual report to the NRC by letter dated September 30, 2011 (ML11273A168). Most importantly, the sample results for the point-of-compliance wells were less than the alternate concentrations limits specified in the license. The NRC staff reviewed this report and responded with comments to the licensee by letter dated January 10, 2012 (ML120050437). For example, the NRC staff noted potentially negative trends in some sample results, although none of the results exceeded licensed limits. The licensee is required to submit the results for the 2012 sampling event to the NRC by the end of September 2012. The NRC staff will continue to review the licensee's groundwater sampling results for potential trends.

Also during the September 2011 inspection, the NRC staff discussed groundwater modeling with the licensee. The licensee responded with updated information about its modeling by letter dated December 8, 2011 (ML11343A647), which the NRC subsequently incorporated into the license via Amendment 67. During the current inspection, the NRC continued to discuss the groundwater validation model evaluation with the licensee's representatives. The licensee and the NRC staff agreed that the licensee would use the evaluation to develop conclusions about the validation model and submit it to NRC in the near future.

2.3 Conclusions

The licensee implemented a groundwater monitoring program in accordance with license requirements. All sample results collected during 2011 for the point-of-compliance wells were below the respective alternate concentration limits. The NRC previously identified potentially negative trends with selected sample results, and the NRC staff will continue to monitor future sample results for trends.

3 Exit Meeting Summary

The inspector presented the inspection results to the licensee's representatives at the conclusion of the onsite inspection. Representatives of the licensee acknowledged the findings as presented. During the inspection, the licensee did not identify any information reviewed by the inspector as proprietary.

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Geick, Remediation Leader
J. Heck, Design Engineer, URS
R. Quinn, Quality Assurance/Quality Control, URS
J. Smith, Environmental Compliance, URS

Department of Energy

S. Surovchak, Site Manager, Office of Legacy Management

INSPECTION PROCEDURES USED

88001	On-Site Construction
88045	Environmental Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

AGTI	Above-Grade Tailings Impoundment
µR/hr	microRoentgen per hour

PHOTOGRAPHS OF PREVIOUS SITE CONSTRUCTION ACTIVITIES

Monument for the Umetco Minerals site

AGTI erosion protection cover – Type C rock on left side, Type B rock on right side

Apron channel located southeast of the AGTI area

Launch rock structure located due east of the AGTI area

Area A-9 erosion cover, after repairs have been completed

Layered bands of rock (rippled rock) layers due to compaction of different sized rocks

Soil on surface of erosion rock (“dirty rock”)

Wheel ruts from heavy equipment on the AGTI erosion rock cover