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December 6, 2011

Mr. Robert Evans
U.S. Nuclear Regulatory Commission, Region IV
612 E. Lamar Blvd., Suite 400
Arlington, TX 76011-4125

Subject: Inspection Report 040-00299/11-001
RE: License SUA-648; Docket 040-0299

Dear Mr. Evans:

On September 20, 2011, the Nuclear Regulatory Commission (NRC) conducted an inspection of the Umetco Mineral Corporation's (Umetco) Gas Hills, Wyoming site. Details of the inspection were provided in NRC inspection report dated October 17, 2011. Several issues were discussed during and subsequent to the inspection. This letter is for information purposes and details Umetco's understanding of issues and the actions Umetco has and will take. Accordingly, the following *Condition Report* provides specific issue evaluations and proposed actions to address the issues identified in the inspection report.

The issues identified in the report are the following:

- Re-sampling of MW28,
 - Exceedance of target levels in model validation well MW28,
 - Detection limits,
 - Error in 2010 annual report - omission of a sampling event, and
 - Amend tables to update June target values through 2050.
- I. Paragraph 5 of Section 4 states that *“Three semiannual sample results exceeded the sulfate and chloride target levels for model validation Well MW28. The June 2010 and October 2010 sample results exceeded the chloride target level, while the June 2011 sample result exceeded the sulfate target level. The licensee does not consider these sample results to be a negative trend. The licensee plans to resample the well during November 2011, and these sample results will be used to help the licensee determine if an adverse trend is present or if the model assumptions will have to be reconsidered. Regardless, the inspectors concluded that these exceedances were not safety significant because the sample results remained below the state's water quality standard for livestock.*

Response: On further review of Appendix M to the Alternate Concentration Limits document, specifically Section 4.1 which states “Significant figures must be accounted for when comparing predicted values with measured values. The following general approach should be employed. For results less than 1,000 mg/L, comparisons between measured values and predicted values should be based on 2 significant figures. For results exceeding 1,000 mg/L, comparisons should be made on the basis of 3 significant figures.”

In light of the above, the chloride results from the groundwater sampling performed on June 8, 2010 (120 mg/L) were compared to the target value at two significant figures (110 mg/L) and Umetco determined that the result exceeded the June target value. The well was resampled on October 19, 2010 within three months of obtaining the results (analytical results were dated July 22, 2010). The result of the resampling was 106 mg/L and did not exceed the target level, 110 mg/L, when evaluated at two significant figures.

The sulfate result from the June 18, 2011 sampling was 2100 mg/L which exceeded the target value at the third significant figure. The result was received on August 2, 2011. Resampling occurred on October 17, 2011. The result of the resampling was 2000 mg/L and does not exceed the target value when evaluated at three significant figures.

Note that both these samples were resampled in the required 3 months of receipt of results. Neither of the resamples exceeded the target values at their specified significant figure. For specific values see table below.

Table 1 Comparison of Model Validation Well MW28 Chloride and Sulfate Target Value Concentrations versus Actual Concentrations

Date	Chloride Concentration (mg/L)		Sulfate Concentration (mg/L)	
	Target ⁽¹⁾ , Target Value at 2 Significant Figures ⁽²⁾	Actual	Target ⁽¹⁾ , Target Value at 2 Significant Figures ⁽²⁾	Actual
06-08-2010 ⁽³⁾	106, 110	120	2053, 2050	1900
10-19-2010	106, 110	110	2051, 2050	1970
06-18-2011 ⁽⁴⁾	106, 110	100	2053, 2050	2100
10-17-2011	106, 110	110	2053, 2050	2000

- (1) Target concentrations were derived from the simulation figures in *Groundwater Monitoring Plan, Appendix M*, dated March 2002, and revisions dated October 2002, January 2004 and June 2005.
- (2) Target value given in significant figures as provided for in Section 4.1 of Appendix M
- (3) Date of lab report July 22, 2010
- (4) Date of lab report August 2, 2011

2. Paragraph 6 of Section 4 states that “*The NRC-approved groundwater monitoring program states that, if a target level is exceeded for one of the model validation well samples, the licensee will collect a confirmation sample. The target level is not a safety target, but rather an estimated value used by the licensee to demonstrate that the site hydrogeology is behaving as predicted in the Groundwater Monitoring Plan. The inspectors noted that the licensee failed to collect a confirmation sample within 3 months*

of the October 2010 sampling event for monitoring Well MW28. The inspectors, in consultation with the NRC project manager, determined that this failure was not safety significant because the license does not specify that any particular corrective action be taken, except for re-sampling a well, if a target level is exceeded. The inspectors noted that the groundwater monitoring program further states that exceedance of a target level was expected to have a negligible impact on the potential risks at the groundwater point of exposure. In response to this NRC finding, the licensee stated that it would closely review the trend for Well MW28 and would take future actions as necessary, including reassessment of the model simulations and assumptions for Well MW28. The licensee also stated that it planned to issue a condition report/problem report to ensure that effective corrective actions are taken.”

Response: As noted in the response to item 1, no resampling time periods were missed. However, Umetco will notify the NRC and request postponement of any required resampling event if it cannot be performed within three months of receipt of an exceedance for either ACL or target value.

3. Paragraph 7 of the report states that *“The inspectors reviewed the lower limits of detection for water quality analyses, as specified in License Condition 35D. The inspectors noted that the licensee’s laboratory did not always meet the license-specified detection limit for some chemical constituents. For example, the license-required detection limit for sulfate was 1.0, but the actual detection limit was 100 for point-of-compliance Well MW21A. The licensee stated that the license-specified detection limit was considered to be the optimum calibration range of the laboratory equipment for samples with lower quantities of chemical constituents. That is, low detection limits tend to be effective primarily for samples with low concentrations of chemical constituents. For samples with higher quantities of chemical constituents, the laboratory has to dilute the sample, an action which causes the detection limit to increase significantly. In response to the inspectors’ finding, the licensee will reconsider this license condition and will most likely propose a revision to the license to resolve this detection limit discrepancy.”*

Response: Umetco proposes submitting a license amendment request to revise License Condition 35 D. The NRC’s previous positions on the interpretation of LLDs for other media (HPPOS-221) and other analytes (NUREG 4.14) are also applicable to inorganic groundwater measurement systems. The license condition will be requested to read in its entirety:

D. Laboratory reported lower limits of detection need only be sufficiently low to ensure that the ACL limits are not exceeded as stated in NUREG 4.14.

4. Paragraph 8 of the report states that *“The inspectors identified an error in the September 2010 annual report regarding the licensee’s comparison of the sample results to the target levels for the four model validation wells. In the report, the licensee stated that the sulfate and chloride target levels had not been exceeded in any of the model verification (validation) wells. However, the inspectors noted that the chloride target level was exceeded for Well MW28 during June 2010. This error in the licensee’s analysis was referred to the licensee for further review. As noted earlier, the licensee stated that it would reassess the sample results for this monitoring well, after receipt of the November*

2011 sample results, to determine if additional actions, such as reconsideration of the model assumptions, will be necessary.”

Response: Umetco acknowledges that the September 2010 annual report was incorrect and that the June 2010 result for chloride in MW28 exceeded the target level at two significant figures. As noted in the response to item 1 all required resampling of MW28 occurred within 3 months and did not exceed the target value at the proper significant figure therefore no additional actions will be necessary.

5. Paragraph 9 of the report states that *“In addition, the inspectors noted that the target levels were unclear for samples collected during 2011. The licensee's original groundwater modeling analysis, submitted to the NRC on January 5, 2004, provides target levels for calendar years 2002-2010. The inspectors noted that the licensee would either have to use the 2010 target levels for 2011 and beyond or would have to recalculate new target levels based on updated modeling. The licensee has not decided which option to use, pending review of the sample results from the November 2011 sampling event and further review of the previous sampling results for Well MW28.”*

Response: Umetco will request a license amendment to revise Attachment M-1 of Appendix M. This revision will specifically update Tables 2 through 5 to cover the 2012 to 2050 time period by year and are derived from the curves that have already been submitted. The text and figures of the Attachment will also be revised to make them current. The revised Attachment M-1 will be provided with the amendment request.

If you, or the staff, have any questions, please contact me at 970-256-8889 or by e-mail at gieckte@dow.com.

Regards,



Thomas E. Gieck
Remediation Leader

cc: Dominic Orlando, NRC
Mark Moxley, WDEQ