40-0299

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

E-Mail followed by U.S. Mail

January 10, 2006

Mr. Paul Michalak
U.S. Nuclear Regulatory Commission
Mail Stop - T8F42
Washington, D.C. 20555-0001

Re: Proposal to Raise the Alternate Concentration Limit (ACL) for Lead-210 in Well GW-7
Umetco Minerals Corporation (Umetco)
TFN 3 1/258, Permit 349C

Dear Mr. Michalak:

The Land Quality Division (LQD) of the Wyoming Department of Environmental Quality (WDEQ) has reviewed the proposal by Umetco to raise the ACL for Lead-210 in Well GW-7. In addition, the LQD has also reviewed the draft Environmental Assessments (EAs)of November 29, 2005 and December 13, 2005 prepared by the Nuclear Regulatory Commission (NRC). While the LQD does not consider an adjustment of the ACL an inappropriate action, in this instance, the LQD does not consider an increase necessary because the ACL for Lead-210 was only exceeded in two sampling events. Alternately, the LQD considers a smaller increase in the ACL to be more prudent than the proposed increase. The reasons for this approach are outlined below. In addition, during the course of this review, the LQD found concerns with increased Radium-226+228 concentrations in Well GW-7 and increased Sulfate concentrations in another well near Well GW-7 in the Southwest Flow Regime. These concerns are also outlined below. Some editorial notes on various documents reviewed in preparation of this letter are also noted.

This letter contains several citations to two earlier LQD documents on the Umetco tailings site. For easier reference, those two documents are: LQD's comments on Umetco's ACL Application (letter and attachment of April 2000 from R. Chancellor to C. Sealy (Umetco) and E. Brummet (NRC)); and LQD's comments on NRC's Draft EA for establishing all the ACLs (letter of March 8, 2002 from R. Hoy (LQD) to M. Leach (NRC)). Another frequently referenced document is

Umetco's 2004-2005 Annual Report (letter and attachment of September 30, 2005 from T. Gieck (Umetco) to R. Weller (NRC)). Other references are included with the appropriate text..

Lead-210, Radium-226+228, & Sulfate

LQD has four primary concerns with the proposal to raise the ACL for Lead-210. The first is the magnitude of the proposed increase, and the second is setting a precedent for future ACL increases when an alternate approach might be more informative (especially considering the ACL for Radium-226+228 was also exceeded in Well GW-7 in May 2005). The third concern relates to the increased Sulfate concentration in Well GW-8, which is near Well GW-7, and the fourth relates to the proposed in situ uranium mining between the Point of Compliance (POC) and the Point of Exposure (POE).

Magnitude of the Proposed Increase. In reviews to date of the ground water conditions at the nine uranium mill tailings sites regulated under Title II of the Uranium Mill Tailings Radiation Control Act (UMTRCA, 42 USC §7901 et seq.), WDEQ has tried to emphasize the importance of monitoring programs that allow detection of potential problems as soon as possible given the difficulties of correcting any problems that are encountered. WDEQ considers this particularly important because most of the projections of contaminant movement are based on complex ground water models and associated assumptions and simplifications. In addition, the ground water conditions at the site are still changing in response to factors such as the reductions in ground water mounds below the tailings disposal sites and the shutdown of remediation systems, and may change in response to future activities on or off-site.

Even though Umetco's contaminant transport model indicates that a higher Lead-210 concentration at the POC does not change the ultimate outcome at the POE, the LQD is concerned that allowing more leeway in the ACL may not alert data reviewers to potential problems. The rate and type of change in contaminant concentrations, such as a rapid increase or abrupt fluctuations, can provide more information than simply knowing that the ACL has been exceeded. However, if no action is taken until the ACL is exceeded, then time that would be valuable for detecting and correcting incipient problems may be lost.

Setting a Precedent. From a regulatory perspective, a potential precedent for raising an ACL that could result in an 'automatic response' every time an ACL is exceeded is problematic. This is of particularly concern given that the ACL for Radium 226+228 was exceeded in Well GW-7 in May 2005. In addition, ACLs may have been exceeded at another Title II site in Wyoming (letter of October 20, 2005 from T. Pauling (DOE) to G. Janosko (NRC) on ground water sampling results at the Petrotomics site).
If an ACL is exceeded, the LQD considers it critical to evaluate the impact of that exceedance on the POE. However, if the ACL is not exceeded over several sampling events, then raising the

ACL should not be necessary. For example, in subsequent samples for Lead-210 and Radium 225+228 in Well GW-7, the respective ACLs for these parameters were not exceeded (Figures 15 and 17 in the 2004-2005 Umetco Annual Report). Therefore, it is not clear that the ACL needs to be raised. particularly if these apparently sporadic concentration 'spikes' can provide valuable information on unanticipated contaminant transport conditions, as noted in the discussion of the magnitude of the proposed ACL increase.

Sulfate. In previous reviews, the LQD has used Sulfate as an 'indicator parameter' because transport of this contaminant of concern is generally less affected by subsurface conditions than other contaminants of concern. For this review, the LQD extended the previous graphs of Sulfate concentration versus time to evaluate the overall conditions at the Umetco site. In the Western Flow Regime, the recent changes in the Sulfate concentrations in the monitored wells seems to be in line with predicted changes. However, in the Southwest Flow Regime, in which Well GW-7 is located, the Sulfate concentrations in Well GW-8 have increased sharply in the last two sampling events (Figure 1 attached), with the latest concentration in excess of 3,000 milligrams per liter (mg/l). Although the difference in Sulfate concentrations between Wells GW-7 and GW-8 supports Umetco's belief that the changes in the ground water conditions are isolated (3rd ¶, Section 3.0, letter of February 14, 2005 from T. Gieck (Umetco) to R. Weller (NRC)), the changes in three of the parameters of concern (Lead-210, Radium 226+228, and Sulfate) at approximately the same time is of concern to LQD.

The LQD is also concerned that the proposed Lead-210 ACL is based on the historic high concentration in a sample from Well GW-3. The samples from this well also consistently had some of the highest Sulfate concentrations ever noted at the site (Figure 8a in the April 2000 LQD comments), apparently due to the well's proximity to the A-9 Pit. In addition, given the recent increase in the Sulfate concentrations in Well GW-8, the LQD considers no change or a more conservative change in the ACL advisable until the reason(s) for the unanticipated changes in the concentrations in the Southwest Flow Regime are better understood.

The LQD has previously emphasized the importance of reviewing the complete record of water level and water quality data over time, particularly considering the number and magnitude of the changes that have occurred during the various on-site activities. Although Umetco did review all the Lead-210 concentrations from the early 1980s to present in proposing an alternate ACL (Figure 1 in letter and attachment of June 17, 2005 from T. Gieck (Umetco) to R. Weller (NRC)), only more recent Sulfate data (from January 2000 to present) was presented in Umetco's 2004-2005 Annual Report. As a result, the overall magnitude of the increase in the Sulfate concentrations in Well GW-8 is not as apparent.

In Situ Mining between the POC and POE. As discussed in previous correspondence, the LQD has several concerns with the overlap of the Long-Term Care Boundary with Power

Resources, Inc.'s (PRI's) Gas Hills In Situ Uranium Mine, and it is not clear that these issues have been resolved. Because the POE is on the downgradient side of PRI's proposed Mine Unit 5 in the Gas Hills Mine, increasing the ACL may further complicate these issues.

Suggested Approach. Rather than raising the ACL for Lead-210 by a factor of 4 (from 46.7 picoCuries per liter (pCi/l) to 189 pCi/l), the LQD does not consider any increase in the ACL appropriate at this time. The ACL for Lead-210 was exceeded in two concurrent sampling events, although the second exceedance was less. The Lead-210 concentration in the next sample was below the current ACL. At about the same time, the Radium-226+228 ACL was exceeded in a single sampling event, although the concentration in the next sample was below the ACL. Also at about the sample time, the Sulfate concentration in an adjacent well increased substantially. Therefore, until the reason(s) for these changes are better understood, the LQD does not consider an increased Lead-210 ACL appropriate, especially since the recent Lead-210 and Radium 226+228 concentrations have declined below the ACL. Alternately, the ACL for Lead-210 the ACL could be raised by 20%. This allows some additional 'working room', without increasing the ACL so much that future unanticipated increases in the Lead-210 concentrations would not generate additional review of the contaminant transport conditions.

Editorial Notes

In the course of this review, the following concerns were noted on the proposed EA:

Section 4.1 The last sentence in Section 4.1 of the November and December 2005 Draft EAs is the same as the last sentence in Section 5.2 of the March 2002 Draft EA. WDEQ previously expressed concern about this aquifer characterization that is not in context, i.e., this characterization does not reflect the importance of the aquifer for supporting springs relied on by wildlife and livestock and the lack of alternatives.

Table 4 seems to be missing from the 'pdf' version of the June 17, 2005 correspondence from T. Gieck (Umetco) to R. Weller (NRC) posted on the NRC website.

Some apparent typographic errors were also noted in previous documents submitted to the LQD and/or the NRC:

Well GW-1. The reported Sulfate concentration for August 18, 1999 should probably be 2730 mg/l rather than 273 mg/l.

Well HW-4 In the August 27, 1999 and July 26, 2000 sampling events, the reported Sulfate concentration is greater than the reported concentration of Total Dissolved Solids.

Well MW17. On Page 3-3 of 1999-2000 Annual Report, Well MW17 was reported as abandoned in July 1999, but samples were apparently collected from this well after July 1999.

Well MW-77. The reported Sulfate concentration on May 5, 2003 was 5990 mg/l, but it should probably be 590 or 599 mg/l.

Well MW70B. In 2000-2001, was Well MW70B, rather than Well MW70A, abandoned?

We appreciate the opportunity to comment on the draft EA. If you have any questions or need additional information, please call.

Sincerely,

Roberta Hoy
LQD Program Principal

Attachment (Figure 1)
cc: M. Moxley, LQD
K. Frederick, WDEQ Water Quality Division (WQD)
M. Thiesse, WQD
T. Gieck, Umetco

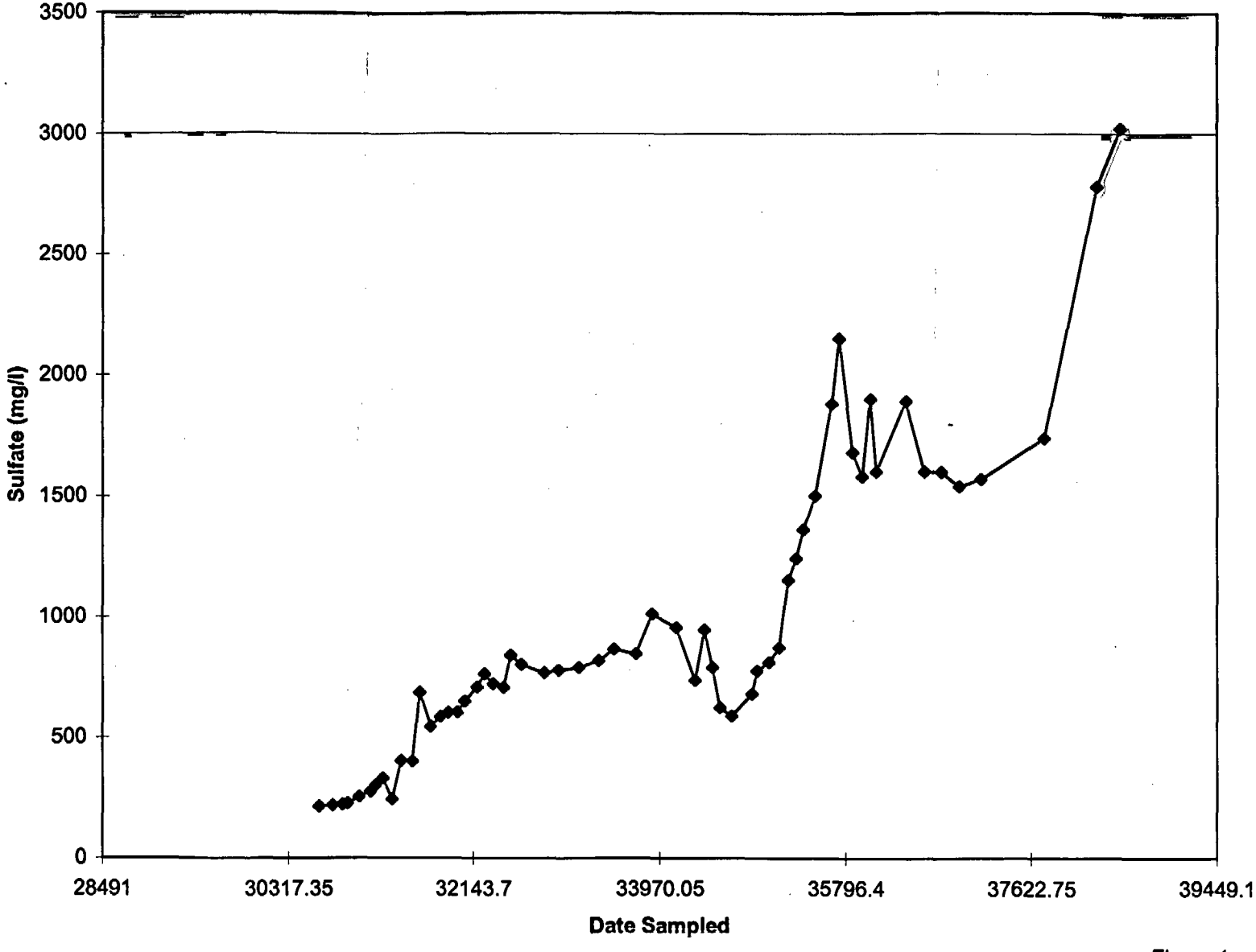

Figure 1
Well GW-8
SO4 Concentration vs. Time
Umetco - TFN 3 1/258
January 2006