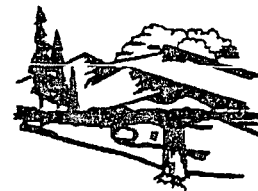


# Department of Environmental Quality



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

June 7, 2010

Mr. Jon Winters  
Uranium One Americas, Inc.  
139 West Second Street, Suite 1C  
Casper, WY 82601

**RE: Moore Ranch Uranium In Situ Recovery Mining Permit Application,  
TFN 4 2/304**

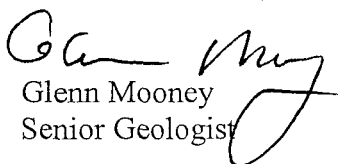
Dear Mr. Winters:

Enclosed is a consolidated review memo containing comments from the Land Quality Division staff's reviews of the above application. As noted in the memo, these reviews found the application remains **Technically Incomplete** as per W. S. § 35-11-406(h). However, we are now down to only about a dozen comments for which timely responses are needed.

If you have any questions concerning any comment in this memo, please feel free to contact me or the author of the comment in question.

A digital copy of this memo will be emailed to you to aid in your reply.

Sincerely,

  
Glenn Mooney  
Senior Geologist

\gm

Enclosure

Cc: Cheyenne File w/enc.  
NRC-MD w/enc.

EnMetcrv4cvlet.10gm

NMS501

1866 SOUTH SHERIDAN AVENUE • SHERIDAN, WY 82801

AIR, LAND AND WATER DIVISIONS  
(307) 673-9337 • FAX (307) 672-2213

 LRB  
6-7-20

## MEMORANDUM

**TO:** File, Uranium One, Americas, Inc. (Energy Metals) Moore Ranch Uranium In Situ Recovery Mining Permit, TFN 4 2/304

**FROM:** Glenn Mooney, Permit Coordinator *GM*

**DATE:** June 7, 2010

**SUBJECT:** Fourth Consolidated Technical Reviews

### Introduction

On November 1, 2007, we received an application for an uranium in situ recovery from Energy Metals Corporation, US, now Uranium One America, Inc. The Moore Ranch area is located on Highway 387 about two miles southwest of Pine Tree Junction and about 16 miles southwest of Wright in Campbell County.

Initial comments were sent January 2, 2008 under cover of my letter of the same date. A response package was received March 18, 2008. Additional materials were received on March 25, 2008, and July 30, 2008, and November 12, 2009. Comments were sent under cover of my letter dated February 18, 2010. The most recent response package was received May 7, 2010, 2010, under cover of Jon Winter's letter of the same date.

Reviews of this most recent submittal were carried out by Larry Barbula, Glenn Mooney, Jon Sweet and Mark Taylor. Matt Kunze of the Cheyenne Land Quality Office also contributed some comments on hydrology. Their initials follow each of their comments.

Comment numbering follows the numbering sequence used in the January 2, 2008, memo. New comments resulting from this last review follow a different numbering format with the reviewer's last initial preceding the comment number. Comments not requiring responses have been omitted.

The application was declared **Complete** as defined by W.S. § 35-11-406(g) in my letter of July 10, 2008.

### Completeness Review Comments

As noted above, the application was declared complete on July 10, 2008. Comments No. 7 through No. 25 were originally made as completeness comments, but now are considered technical review comments.

*LEB  
12-7-20*

General Comments

7. Appendix E

A revised Map E-1, Site Features, was supplied which shows the locations of pipelines, powerlines, roads, highways etc. As requested, the map now shows these features out to one-half mile outside the proposed permit boundary.

This is acceptable; no response is necessary. (GM)

17. Section D6.2, Surface Water

- (a) The response is satisfactory.
- (b) The response is satisfactory.
- (c) The response is satisfactory. (LB)

**Appendix D-10, Wetlands**

25. Appendix D10, Wetland Survey Conclusions, Section D-10.3:

EM has not provided documentation from the Army Corps of Engineers (ACOE) addressing the ACOE review of the Moore Ranch wetlands inventory. A statement from the ACOE must be provided.

Since ACOE review is currently several months behind, at a minimum provide documentation that wetlands information has been submitted to the ACOE. Once this documentation is submitted, a condition may be placed on permit approval requiring ACOE review documentation once it is received. (LB)

**Appendix D-5, Geology**

36. Appendix D-5, Section D-5.2.2, Drill Holes; Table D5-1, Moore Ranch Drill Holes; and Figure D5-13, Moore Ranch Project Drill Hole Map

Response is acceptable. Uranium One has presented satisfactory permit text which provides proactive measures to address conditions where historical drill holes allow communication between aquifers. (MT)

## Appendix D-6, Hydrology

### 38. Appendix D-6, Hydrology, Section D-6.3.2, Site Hydrogeology

- a) Uranium One provided permit discussion and a map describing and illustrating the "trend" configurations of the deeper 40 Sand, 50 Sand and 58 Sand; however, the proposed text has incorrectly referenced Figure D5-26 instead of Figure D5-1f. Please correct. (MT)
- b) The text provided in Uranium One response to LQD comment is acceptable; however, this "permit commitment" is more appropriately warehoused in Section 4, Restoration. Please relocate this text to Section 4. (MT)

### 39. Appendix D-6, Section D-6.3.2.3, Potentiometric Surface, Groundwater Flow Direction and Hydraulic Gradient

Uranium One provided potentiometric surface maps for the 60 Sand, 68 Sand, and 72 Sand for only portions of the permit area that may be affected by the mining processes at Wellfields 1 and 2 (i.e., area of review). Mining is projected to have off-permit drawdowns in the 70 Sand aquifer (Figure D6.1-3). Accordingly, Figure 4 (Addendum D6-B6) properly illustrates the premining potentiometric surface for the 70 Sand aquifer for entire regional/permit area. No potentiometric surface map was provided for the three 80 Sand aquifer since two of the three 80 Sand wells were dry. Response is acceptable. (MT)

### 41b. Appendix D6, Subsection D6.3.3.2, Site Baseline Water Quality

**Response is not acceptable.** LQD has identified several issues with the electronic file submitted and these have been separated into three parts:

#### Part 1

There are numerous discrepancies between what was submitted in "*Moore Ranch Surface Water Data (for state).xls*" and what is shown in Tables D6.2-5 through D6.2-16 in Appendix D-6 of the permit application. A majority of these discrepancies appear for the radionuclide data reported for the 2009 samples. The reason the discrepancies were found is because the electronic data did not differentiate between dissolved and suspended radionuclides or dissolved and total metals. The hard copy of the permit application was then checked and the discrepancies were then found. The discrepancies between the tables and Excel file include the following stations, parameters, and sample dates:

**Uranium One Americas, Inc.**  
**Moore Ranch Permit Application**  
**TFN 4 2/304**  
**June 7, 2010**  
**Page 4**

- MRSW-01: Dissolved Lead 210 (3/23/2007, 6/15/2007)  
Dissolved & Suspended Lead 210 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved & Suspended Polonium 210 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved & Suspended Radium 226 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved Radium 228 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved & Suspended Thorium 230 (3/11/2009, 4/22/2009, 7/27/2009)  
Suspended Uranium (3/11/2009)
- MRSW-02: Dissolved Lead 210 (4/22/2009, 7/27/2009)  
Dissolved & Suspended Lead 210 (3/11/2009)  
Dissolved & Total Manganese (10/25/2006)  
Dissolved Manganese (6/15/2007)  
Total Manganese (3/23/2007, 4/22/2009)  
Dissolved & Suspended Polonium 210 (3/11/2009, 7/27/2009)  
Suspended Polonium 210 (3/11/2009)  
Dissolved & Suspended Radium 226 (3/11/2009, 4/22/2009)  
Suspended Radium 226 (7/27/2009)  
Dissolved Radium 228 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved & Suspended Thorium 230 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved Uranium (3/23/2007, 6/15/2007, 7/27/2009)  
Suspended Uranium (3/11/2009)
- MRSW-03: Total Iron (6/13/2007)  
Dissolved & Suspended Lead 210 (3/11/2009, 4/22/2009, 7/27/2009)  
Total Manganese (6/13/2007)  
Dissolved & Suspended Polonium 210 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved & Suspended Radium 226 (3/11/2009, 4/22/2009)  
Suspended Radium 226 (7/27/2009)  
Dissolved Radium 228 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved & Suspended Thorium 230 (3/11/2009, 4/22/2009, 7/27/2009)
- MRSW-04: Dissolved Iron (3/22/2007, 6/13/2007)  
Dissolved & Suspended Lead 210 (3/11/2009, 7/27/2009)  
Dissolved Lead 210 (4/22/2009)  
Dissolved & Suspended Polonium 210 (4/22/2009, 7/27/2009)  
Suspended Polonium 210 (3/11/2009)  
Dissolved & Suspended Radium 226 (3/11/2009, 4/22/2009)  
Dissolved Radium 228 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved & Suspended Thorium 230 (3/11/2009, 4/22/2009, 7/27/2009)

**Uranium One Americas, Inc.**  
**Moore Ranch Permit Application**  
**TFN 4 2/304**  
**June 7, 2010**  
**Page 5**

- MRSW-05: Dissolved & Suspended Lead 210 (3/11/2009, 4/22/2009)  
Dissolved & Suspended Polonium 210 (4/22/2009)  
Dissolved Polonium 210 (3/11/2009)  
Dissolved & Suspended Radium 226 (3/11/2009)  
Dissolved Radium 228 (11/3/2006, 3/11/2009, 4/22/2009)  
Dissolved & Suspended Thorium 230 (3/11/2009, 4/22/2009)
- MRSW-06: Dissolved & Suspended Lead 210 (3/11/2009, 4/22/2009, 7/23/2009)  
Dissolved & Suspended Polonium 210 (3/11/2009, 4/22/2009)  
Dissolved Polonium 210 (7/23/2009)  
Dissolved Radium 226 (7/23/2009)  
Suspended Radium 226 (3/11/2009, 4/22/2009)  
Dissolved Radium 228 (3/11/2009, 4/22/2009, 7/23/2009)  
Dissolved & Suspended Thorium 230 (3/11/2009, 4/22/2009, 7/23/2009)
- MRSW-08: Dissolved Lead 210 (3/11/2009)  
Dissolved & Suspended Lead 210 (4/22/2009, 7/27/2009)  
Dissolved & Suspended Polonium 210 (3/11/2009, 4/22/2009)  
Dissolved Polonium 210 (7/27/2009)  
Suspended Radium 226 (3/11/2009, 4/22/2009)  
Dissolved Radium 228 (3/11/2009, 4/22/2009, 7/27/2009)  
Dissolved & Suspended Thorium 230 (3/11/2009, 4/22/2009)  
Suspended Uranium (4/22/2009)
- MRSW-09: Total Iron (6/13/2007)  
Total Manganese (6/13/2007)  
Dissolved & Suspended Lead 210 (3/11/2009, 4/22/2009)  
Dissolved & Suspended Polonium 210 (3/11/2009, 4/22/2009)  
Dissolved & Suspended Radium 226 (3/11/2009, 4/22/2009)  
Dissolved Radium 228 (3/11/2009, 4/22/2009)  
Dissolved & Suspended Thorium 230 (3/11/2009, 4/22/2009)
- MRSW-11: Dissolved & Suspended Lead 210 (3/11/2009, 4/22/2009, 7/23/2009)  
Dissolved & Suspended Polonium 210 (4/22/2009)  
Suspended Polonium (3/11/2009)  
Dissolved & Suspended Radium 226 (3/11/2009, 4/22/2009)  
Suspended Radium 226 (7/23/2009)  
Dissolved Radium 228 (3/11/2009, 4/22/2009)  
Dissolved & Suspended Thorium 230 (3/11/2009, 4/22/2009)  
Suspended Thorium 230 (7/23/2009)

MRSW-12: Suspended Lead 210 (7/23/2009)  
Dissolved & Suspended Lead 210 (7/8/2008, 10/23/2008, 2/9/2009, 4/22/2009)  
Dissolved & Suspended Polonium 210 (4/22/2009)  
Suspended Polonium (10/23/2008)  
Dissolved Radium 226 (2/9/2009, 4/22/2009, 7/23/2009)  
Suspended Radium 226 (10/23/2008)  
Dissolved Radium 228 (7/8/2008, 10/23/2008, 2/9/2009, 4/22/2009, 7/23/2009)  
Dissolved & Suspended Thorium 230 (2/9/2009, 4/22/2009, 7/23/2009)  
Dissolved Thorium 230 (7/8/2008)

### **Part 2**

In addition to the discrepancies above, the October 2009 sample data were not shown in the hard copy of the Appendix D-6 tables to verify if certain parameters were dissolved/total/suspended. Although it is not necessary to present these data in the hard copy of the application, the submitted electronic file should specify whether these parameters are dissolved/total/suspended. Please provide this information for the following sample stations, sample dates, and parameters:

MRSW-01 (10/27/2009): Lead 210, Polonium 210, Radium 226, Thorium 230, Uranium  
MRSW-02 (10/27/2009): Lead 210, Polonium 210, Manganese, Radium 226, Thorium 230, Uranium  
MRSW-04 (10/26/2009): Lead 210, Polonium 210, Manganese, Radium 226, Thorium 230, Uranium  
MRSW-11 (10/26/2009): Lead 210, Polonium 210, Manganese, Radium 226, Thorium 230, Uranium

### **Part 3**

The "MDC" and "Precision" values for the radionuclide data also need to be identified as dissolved or suspended. These values were not shown in the hard copy of the Appendix D-6 tables. These parameters include: Lead 210 MDC, Lead 210 Precision, Polonium 210 MDC, Polonium 210 Precision, Radium 226 MDC, Radium 226 Precision, Thorium 230 MDC, and Thorium 230 Precision.

Please: (1) correct Tables D6.2-5 through D6.2-16 and/or *Moore Ranch Surface Water Data (for state).xls* so the discrepancies in the data listed in Part 1 are removed, (2) update *Moore Ranch Surface Water Data (for state).xls* to provide the dissolved/total or

dissolved/suspended annotation for the October 2009 sample data listed in Part 2, and (3) update *Moore Ranch Surface Water Data (for state).xls* to provide the dissolved/suspended annotation for the parameters listed in Part 3.

41c. **Response is acceptable.** Thank you for providing the requested data in electronic format. (MK)

41d. **Response is not acceptable.** There are still discrepancies between what was submitted in the spreadsheet "*Uranium\_Well\_Details\_Updated.xls*" and what is shown in Table D6.3-1. The discrepancies include:

- (1) Different northing and easting values for wells MW-01, PW-01, MW-02, MW-3, MW-04, MW-05, MW-06, MW-07, MW-08, MW-10, OMW-01, OMW-02, OMW-03, OMW-04, UMW-01, UMW-02, UMW-03, UMW-04, 885, 1808, and 8-3.
- (2) Different measuring point elevations for wells 885, 1808, and 8-3.

There are also discrepancies when comparing *Uranium\_Well\_Details\_Updated.xls* to Table D6.3-11. Furthermore, the ground surface elevations in Table D6.3-11 appear to be erroneous, as they are higher than the TOC elevations. Also, the "Northing" and "Easting" column headings in Table D6.3-1 are switched.

Please: (1) make sure that the well completion information in presented in *Uranium\_Well\_Details\_Updated.xls*, Table D6.3-1, and Table D6.3-11 is consistent and supply the updated spreadsheet and Tables showing the corrected information, (2) correct Table D6.3-11 to show the correct ground surface elevations, and (3) correct Table D6.3-1 to show the correct headings for "Northing" and "Easting". (MK)

## Mine Plan

58. Operations Plan, Section 3.5.13:

An updated Figure 3-2 showing 2 culvert locations has been provided. The response is adequate. (LB)

65. Spills

While Energy Metals does not seem to have developed a spill SOP which covers spill handling in one place, the operations plans do discuss the handling of spills in numerous places throughout the document. Wellfield spills are discussed in Section 3.5.20.4 on



Pages 3-159 through 3-161. Other spill handling is discussed in Section 3.5.15.5 on Page 3-68. Chemical spills within and near the plant building are discussed in other areas.

This is acceptable; no response is necessary. (GM)

68. Surge Capacity

Energy Metals has provided designs of the lined process water ponds certified by the professional engineer who designed them. Larry Barbula has been requested to review these designs.

No response is needed to this comment. (GM)

69. Waste Water

The response to this comment stated that while waste water will be pumped to the surge ponds, leaks within the plant that end up in the plant sumps will be handled per standard operating procedures.

This is acceptable; no response is necessary. (GM)

**Restoration and Reclamation Plan**

74. Reclamation Performance Bond

An acceptable bonding instrument must be submitted prior to permit approval. (DH)

**Comments - March 25, 2008, Response Package**

**Appendix D-5, Geology and Seismology**

82. Appendix D-5, Geology and Seismology, Figure D5-2, Cross Section Index Map

Response is acceptable. The "affected lands" from the legend has been removed for this revised figure as requested. (MT)

**Appendix D-6, Hydrology**

88. Appendix D-6, Hydrology

Response is acceptable. The text in Section D-6.2 (Surface Water) on page D6-6 has been revised as requested by providing a brief discussion of the alluvium situated along

Nine Mile Creek, Simmons Draw and Pine Tree Draw. (MT)

93. Appendix D-6, Hydrology, Section D-6.1.3, Operational Water Use, pg D6-4

Response is acceptable. Text has been added on page 3-23 of Section 3.5 (Wellfield Method of Operations) to provide a reference the Appendix D-6, Section D-6.1.3. (MT)

96. Figure D6.2-4

This is a duplicate of Comment 41a. Please see response to Comment 41a. (MK)

108. Appendix D-6, Hydrology, Section D-6.3.3.2, Groundwater Monitoring Network and Parameters, pg. D6-65

Uranium One added the 60 Sand wells to the in Section D-6.3.3.3 (page D6-42) and revised Table D6.3-16 to include both 60 Sand and 80 Sand wells. Response is acceptable. (MT)

109. Appendix D-6, Hydrology, Section D-6.3.3.2, Groundwater Monitoring Network and Parameters, pg. D6-65, paragraph 1

Response is acceptable. (MT)

- 147-151. These were duplicates of Comment 41b-f above. Please see above comments. (MK)

153. Appendix D-6, Hydrology, Addendum D6-B, 2007 Pump Tests, Executive Summary, Page 1, paragraph 1

The proposed cement grout consisting of Type I-II cement + 2% bentonite mixed at 13.1 #/gal. is unacceptable as this cement grout does not conform to requirements of LQD's NCRR, Chapter 11, Section 6(c)(iv) and SEO's Part III, Chapter 3, Section 1(h).

I understand Uranium One's desire to use an economical, light weight, low fluid-loss cement grout. I encourage Uranium One to continue working with cementing specialists to develop a suite of cement grouts which meets Uranium One's criteria, API standards and conform to LQD and SEO requirements. This suite of cement grouts mixtures (including their lab tested properties) should be formally included as a component of the Mine Plan. Also, newly revised (February 2010) SEO's Part III, Chapter 3, Section 1(c)(ii) states "All wells shall be constructed with at least a 2-inch annular space surrounding the outermost casing..." accordingly please revise Section 3.5.2, Figure 3-4 and Addendum 3-D. (MT)

**Appendix D-7, Soils**

182. Soils Mapping, Figure D7-1

I find the application acceptable with respect to soils baseline and handling practices. I have no additional comments. (JS)

**Mine Plan**

189. Mine Plan, Section 3.5.1, Wellfield Design, Pg. 3.6, Paragraph 2

Uranium One provided a commitment to conduct mechanical integrity tests on all injection, recovery, and monitoring wells after initial construction. However, this permit commitment should be expanded to provide a commitment to conduct another MIT test on any monitor well prior to using it as a recovery/injection well, given Uranium One may opt to use a monitor well as a recovery/injection well during an excursion containment event. Uranium One appropriately revised Section 3.5.1 to provide text and an illustration for an alternative single line. (MT)

Uranium One must be aware that conversions of monitor wells to injection or recovery wells are subject to the requirements of Land Quality Division NonCoal Rules and Regulations, Chapter 11, Sections 1(c), 8(d) and 11(a)(ii). (GM)

191. Section 3.5.2.1, Well Materials of Construction, Page 3-8

A new table of proposed casing and bit sizes was provided that show that Chapter 11 requirements for well annuli will be met.

This is acceptable; no response is necessary. (GM)

194. Mine Plan, Section 3.5.2.2, Well Construction Methods, pg. 3-8

Uranium One has properly added Addendum 3-D which provides detailed well construction and completion details. Normally all pages in a permit addendum are uniquely paginated and footed/header as component of the permit application; at a minimum please paginate and footer/header the first six pages presented in Addendum 3-D. In addition, please see comment 153. (MT)

196. Mine Plan, Figure 3-4, Typical Well Completion

As requested, Uranium One provided photographs of the typical well assembly and centralizer in Addendum 3-D. Response is acceptable. (MT)

198. Mine Plan, Section 3.5.4, Wellfield Methods of Operation, pg. 3-11

Uranium One provided the requested text revisions to Section 3.5.4 (pages 3-17 and 3-18). Response is acceptable. (MT)

206. Mine Plan, Section 3.5.4, Wellfield Methods of Operation, pg. 3-20

Uranium One provided the requested text revisions to Section 3.5.4 (page 3-20). Response is acceptable. (MT)

221. Mine Plan, Section 3.5-14

I find the application acceptable with respect to soils baseline and handling practices. I have no additional comments. (JS)

223. Mine Plan, Section 3.5.14, Wellfield Delineation and Construction, pg. 3-39

Response is acceptable. (MT)

226. Mine Plan, Section 3.5.14, Wellfield Delineation and Construction, pg. 3-41, paragraph 1

Response is acceptable. (MT)

233. Section 3.5.16.8, Environmental Monitoring Program

As requested, the monitoring program sections of the Operations Plan has been broken out into subsections which are listed in the Table of Contents so they can be easily located.

This is acceptable; no response is necessary. (GM)

234. Section 3.5.16.8, Environmental Monitoring Program, Page 3-90

As requested, the monitoring program sections of the Operations Plan has been broken out into subsections which are listed in the Table of Contents so they can be easily located.

This is acceptable; no response is necessary. (GM)

235. Plant Construction and Operational Areas

A new map was submitted which shows the bare outlines of the plant and pond area on an

11"x17 inch map. This map is not acceptable.

Please provide a map of the entire permit area with the plant, ponds, roads, parking areas, storage areas, wellfield areas, topsoil stockpiles, pipelines, ancillary areas, on a large map with a topographic base of about 36" by 36" in size. (GM)

236. Driller's Yard and Ancillary Areas

A revised map was submitted at a size of 11" by 17" which shows little more than the original 8 1/2" by 11" map. It contained no topography which is essential in a map purporting to show site drainage. This map is also unacceptable.

Please resubmit with more detail, showing the entire permit area on a topographic base and approximately a 36" by 36" size. (GM)

**Reclamation Plan**

248. Topsoil Replacement

As requested, this section was modified to state that areas which have undergone considerable compaction such as roads, parking areas and storage yards will be ripped by a dozer equipped with rippers to depths of at least two feet.

This is acceptable; no response is required. (GM)

**Comments – February 2010 Review**

**Appendix D-5, Geology**

T-1. Section D-5.1, Regional Geology:

Uranium One provided the requested bedrock geology (i.e.D5-1a) and surficial geology maps. Response is acceptable. (MT)

T-2. Section D-5.2, Site Geology:

Uranium One provided the requested detailed discussions as to the origin, geochemistry, and transport of the uranium ore deposits within the proposed permit area. Response is acceptable. (MT)

T-3. Section D-5.2, Site Geology:

Uranium One provided the requested diagrammatic cross-section (i.e., Figure D5-1d) of a

multiple or stacked roll front which is bounded by overlying and underlying shales/mudstones. Response is acceptable. (MT)

T-4. Section D-5.2, Site Geology, pg. D5-3, para. 1

Response is acceptable. (MT)

T-5. Section D-5.2, Site Geology:

Response is acceptable. (MT)

T-6. Section D-5.2, Site Geology:

This figure was modified as requested. Response is acceptable. (MT)

T-7. Figures D5-6 (C-C') and D5-12 (J-J'):

Response is acceptable. However, in the future please ensure that all geologic cross-section are certified by and PE or PG. (MT)

T-8. Figures D5-6 (D-D') and D5-10 (H-H'):

Response is acceptable. (MT)

T-9. Figures D5-10 (H-H') and D5-3 (A-A'):

Response is acceptable. (MT)

T-10. Figures D5-9 (G-G') and D5-6 (D-D'):

Response is acceptable. (MT)

T-11. Figures D5-9 (G-G'), D5-3 (A-A'), D5-8 (F-F'), and D5-7 (E-E'):

Response is acceptable. (MT)

T-12. Figures D5-6 (D-D') and D5-7 (E-E'):

Response is acceptable. (MT)

**Appendix D-6, Hydrology**

- T-13. Figure D6.2-3a, Moore Ranch Uranium Project Coal Bed Methane Wells & Outfall Locations

Uranium One removed the "Wellfield 3" label from this exhibit as requested. Response is acceptable. (MT)

- T-14. Table D6.1-2, Estimated Water Use in Campbell County, Wyoming:

Uranium One opines that CBM groundwater use is included with the industrial groundwater totals for the year 2000. The table shows that industrial groundwater use is significantly less than mining groundwater use. However, it seems intuitive that CBM groundwater use would be greater than mining groundwater use. The Wyoming Oil and Gas Commission website (<http://wogcc.state.wy.us/Cntyprod.cfm>) indicates that the year 2000 average monthly water production for Campbell County was approximately 37 million barrels per month or approximately 52 MGD. Please re-evaluate the numbers presented in this table to ensure that the CBM water production has not been included in the Mining GW totals. (MT)

- T-15. Section D-6.3.2-5, Groundwater Modeling of Site Hydrologic Conditions & Figures D6.1-2, D6.1-3a, D6.1-3b, D6.1-3c & Tables D6.1.3 and D6.1.4:

Uranium One opted to keep this information in Appendix D-6 and revise text in Section 3.5.4 to reference Appendix D-6.1.3. Response is acceptable. (MT)

- T-16. Section D-6.1.2, Permit Area Groundwater Use

Response is acceptable. (MT)

- T-17. Well PW-1

Well PW-1 was properly added to Figures D6.3-5a through D6.3-5h and Table D6.3-2. Response is acceptable. (MT)

- T-18. Table D6.3-1

Uranium One appropriately modified Table D6.3-1 to include all wells listed on Table D6.3-7a. Response is acceptable. (MT)

T-19. Table D6.3-2

Response is acceptable. (MT)

T-20. Addendum D6-B2

As requested, Uranium One provided the well completion details for all wells used in the 5-spot hydrological tests. Response is acceptable. (MT)

### Section 3.0 Operations Plan

T-21. Groundwater Monitoring

The primary purpose of the groundwater monitoring plan is to assure the ISL operation facilities do not impact any water resources outside of the exempted production zone. Generally, if water quality within the production zone is restored to the pre-operational baseline water quality and quantity, then protection of water resources outside the exempted zone is assured. Hence, the wellfield's production zone perimeter ring monitoring wells, the wellfield's overlying aquifer monitoring wells, and the wellfield's underlying aquifer monitoring wells should: 1) demonstrate non-degradation of groundwater uses outside of the permit area; 2) validate that all groundwaters outside of the aquifer exemption area are protected to their pre-mining baseline water quality and applicable MCLs; 3) verify the groundwater models. Response is acceptable. (MT)

T-22. Groundwater Monitoring:

The monitoring of well OMW-3 (72 Sand) located proximate to the proposed plant area will likely be able to demonstrate groundwater non-degradation beneath the plant area. Response is acceptable. (MT)

T-23. Groundwater Monitoring:

The following text was added to Section D-6.3.3.2 "If mining for this permit is delayed for 5 years the application will collect 1 year of water quality prior to initiating mining activities." Response is acceptable. (MT)

### Mine Plan

M-1. Section 3.5.14.1, Wellfield Delineation and Construction, Page 3-58

The reference to a Drilling Notification was removed from this section as requested.



This is acceptable; no response is required. (GM)

M-2. Completion of New Wells

The certification/acceptance of new Class III well process procedures are being tested at this time. Energy Metals/Uranium One will be provided with addition information as it becomes available. No response is needed at this time. (GM)

**Restoration and Reclamation Plans**

M-3. Section 4.1.1, Groundwater Restoration Criteria, Page 4-2

The unacceptable text was not removed as requested. No explanation was given.

Please remove the second paragraph on Page 4-2. (GM)

M-4. Reclamation Bond

Energy Metals/Uranium One states they will take my comments into consideration when they finalize the bond estimate later this year.

This is acceptable; no response is necessary at this time. (GM)

**Mine Plan**

B-1 Section 3.5.12.9.4:

More detailed designs for surge ponds in the waste disposal circuit have been provided.

- (a) Please provide details for conveyance inlets and outlets.
- (b) Please specify base material for the secondary liner.
- (c) Please specify liner thickness for both liners.

"Typical" industry standard specifications are adequate. (LB)

**Conclusions**

Responses to previous staff comments been received from Uranium One (Energy Metals Corporation). Reviews of the application have found that it remains **Technically Incomplete** as per W. S. § 35-11-406(h). Comments 38a, 38b, 41b, 41d, 153, 189, 194, 235, 236, T-14, M-3 and B-1 require timely responses.

/gm

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