COLORADO OFFICE
OFFICE
10758 W. CENTENNIAL RD., STE. 200
LITTLETON, CO 80127
82609
TEL: (866) 981-4588
2373
FAX: (720)-981-5643
2801

WYOMING
5880 ENTERPRISE DR., STE. 200
CASPER, WY
TEL: (307) 265-
FAX: (307) 265-

lost creek isr, llc

February 7, 2013

Mr. John Saxton
U.S. Nuclear Regulatory Commission
Rockville, Maryland
Submitted via email

Re: Response to Action Items from June 27, 2012 Meeting; Mine Unit 1
License Number SUA-1598, Docket 40-9068

Dear Mr. Saxton,

Please find with this cover letter responses to action items from the June 27, 2012 meeting regarding the Mine Unit 1 submittal. Responses are specifically provided for action items 1(B through E). A response to action item 1(A) will be provided once baseline water quality data is collected and assessed. Responses to action items 2, 3 will be available during the preoperational inspection and a response to action item 4 will be provided after collection of sufficient operational data.

If you have any questions regarding this letter or require additional information please feel free to contact me at our Casper Office.

Sincerely,
Lost Creek ISR, LLC
By: Ur-Energy USA Inc., Manager

_____
John W. Cash, V.P. of Regulatory Affairs, Exploration and Geology

Cc: Mrs. Theresa Horne

Response to Unresolved Items from the June 27, 2012 Meeting on Mine Unit 1

Action Item 1(A)
Evaluation of baseline conditions in accordance with license conditions and after consultation with Wyoming DEQ staff.

Response:
Lost Creek ISR, LLC is postponing its response to this action item until baseline water quality data can be collected from new wells M-114A, M-115A and M-116A. An explanation for the need of these three wells is provided below. Once 4 rounds of data are collected, the results as well as the UCLs will be submitted to the NRC for review. The UCLs will be calculated using the criteria described in the Technical Report and License Condition 11.4.

Action Item 1(B):
Discussion of Procedures to detect changes in water quality at the trend wells in accordance with LCI's narrative in MU-1 Well field Package.

Response:
As stated in Section 5.2, UCL Calculations, WDEQ-LQD Mine Permit Application document, only "water levels will be collected from trend wells on the same frequency as the monitor ring wells". It is Ur-Energy's intent to use water level changes to infer impending water quality changes.

Sudden changes in water levels may indicate that the mine unit flow is out of balance. Any significant increase in the water level of greater than 10 feet will result in an immediate investigation to determine the cause. All identified significant increasing water level trends will be reported to the site Operations Manager who will work with his staff to understand the cause and reverse the affects. The magnitude of water level change that triggers corrective action is somewhat subjective. A change in water level will be viewed relative to on-going operational activities such as a header house start up or shut down or a pump test being performed in an adjacent mine unit. Basic to the evaluation is the baseline water level data and, more importantly, the recent water level trend. Irrespective of operational activities, the reviewer will look for significant changes in water level (approximately 10 feet or more).

It should also be pointed out that trend well TW1-2 will not be installed since additional ore was found in the vicinity of the well. A Safety and Environmental Review Panel (SERP) was convened to determine the proper monitoring scheme with the result that well TW1-2 will not be installed but monitor wells M-114, 115 and 116 on the ring will be re-drilled to ensure all production sub-horizons within the HJ Horizon are fully monitored.

Action Item 1(C):
Procedures for monitoring and evaluating water levels at the trend/monitoring wells and out-of-balance conditions for the production units.

Response:
Water level (WL) measurements have been taken at the monitor ring and trend wells since 2009. A minimum of four measurements have been collected at each well. The individual WL measurements constitute baseline conditions and all monitor well measurements collectively comprise the WL database. Future water level

measurements will be added to the WL database and compared against previous results to identify significant changes or developing trends.

After ISR start up, water level measurements will be taken at the same frequency as the ring monitor well sampling, which is at least twice per month and no less than ten days apart. Field technicians will record water level data during the work day and enter the data to Ur-Energy's database at the end of the shift. Subsequent WL analysis may be numerical, graphical or both.

In the case of ring monitor wells, individual water level measurements will be graphically displayed on "rose" or "radar" plot. The "Rose Diagram" provides a quick, visual method for identifying rapid WL changes over time, but also aids the reviewer in recognizing slowly developing regional trends.

In the case of overlying and underlying monitor wells, the water level data will be plotted on a standard line graph with the baseline water level overlain for reference. Any significant increase in the water level above baseline or an increase in water level of greater than 10 feet will result in an immediate investigation to determine the cause.

Sudden changes in production horizon water levels may indicate that the entire mine unit flow is out of balance or it may indicate an unbalanced pattern or group of patterns that may be the precursor to subsequent increases in water quality parameters. Increases in water levels in the overlying or underlying aquifers may indicate fluid migration from the production zone, thus indirectly inferring out of balance conditions.

Corrective action will be taken commensurate with the investigation findings, and is discussed in the following 1(D) response.

Action Item 1(D):
Corrective action procedures.

Response:
Excursion Criteria Defined
If during routine bi-monthly sampling, two of the three Upper Control Limit (UCL) values are exceeded in a monitor well, or if one UCL value is exceeded by 20 percent, then the well will be re-sampled within 24 hours of receipt of the analytical results and analyzed for the excursion indicators (i.e. chloride, specific conductance and alkalinity). If the second sample does not exceed the UCLs, a third sample will be taken within 24 hours of receipt of the second sample results. If neither the second or third sample results exceed the UCLs, the first sample will be considered in error. However, if the second or third sample confirms an UCL exceedance, then the WDEQ-LQD Project Manager will be notified, a causal investigation begun, and preliminary corrective action(s) initiated as discussed in the following section.

Corrective Action Procedures
If an excursion is confirmed, the following methods of corrective action will be instituted (not necessarily in the order given), depending upon the given circumstances.

- A preliminary investigation will be undertaken to determine the probable cause; including but not limited to:

  Isolation and shutdown of individual wells can be used to determine the well(s) causing the water level increases. Increases in water levels in the overlying or underlying aquifers may also be an indication of casing failure in a production, injection or monitor well. To identify a suspected failed well, Mechanical Integrity Tests (MITs) of production and injection wells in

the area of concern may be performed. Also included in the investigative process is the review of well completion records, area geology and well history to insure no issues exist with any of the well placements or completions.

- Production and/or injection rates in the vicinity of the monitor well may be adjusted as necessary to generate an effective net process bleed, thus forming a hydraulic gradient toward the production zone.
  A trial and error approach that involves modifying injection and bleed patterns may be used to determine the exact location of the problem (i.e. the injection wells near the mounding would be turned off one at a time and the effects on the water level noted until the appropriate well or combination of wells was found). The problematic wells and their associated patterns would then be re-balanced to properly establish balance in the monitor wells.
- Individual wells may be pumped/over-pumped to enhance ISR solution recovery.
- Injection into the pattern area adjacent to the monitor well may be suspended while continuing recovery operations, thus increasing the overall bleed rate and the recovery of the ISR solutions.

In addition to the above actions, the sampling frequency on the excursion identifying monitor well will be increased to weekly. If the excursion is not corrected within 30 days, a sample will be collected and analyzed for parameters in WDEQ-LQD Guideline 8, Appendix I, Sections IV and VA (1) parameters and the results compared to applicable EPA MCLs. Once parameters no longer exceed the UCLs, a final sampling and analysis of the Guideline 8 parameters will be performed. An excursion will be considered over when the concentrations of excursion indicators do not exceed the criteria defining an excursion for three consecutive one-week samples, and a summary report of the sampling results and corrective actions has been submitted to WDEQ-LQD.

Action Item 1(E):
Evaluation that the spacing between the fault and the first well north of the fault is adequate to detect an excursion

Response:
As discussed during the June 27, 2012 meeting with the NRC (via conference call), well M-114 originally was planned to be a monitor well on the south side of the Lost Creek Fault. Responses to pumping tests are not definitive; rather it appears that M-114 is within the fault zone, and in communication, to a limited degree, with the HJ Sand on both sides of the fault. For example, during the MU1 North test, 2.8 feet of drawdown was observed during pumping (approximately 25% of the total drawdown observed in the closest monitor well to the north [M-115; 10.2 feet of drawdown]). During the MU1 South test, 1.2 feet of drawdown was observed during pumping (approximately 25% of the total drawdown in the closest monitor well to the south [M-113; 4.8 feet of drawdown]). These data suggest that M-114 is located and completed such that the well will respond to drawdown (e.g., recovery operations) conducted on either the north or south side of the fault, and hence would also be suitable to detect an excursion on either side of the fault.

Further, the accepted design criteria for the MU1 perimeter monitor well ring is the placement of wells every 500 feet around the well field, staying within 500 feet of the nearest pattern. It is noted that well M-114 is located within 500 feet of the HJ Sand monitor wells to the north (M-115) and to the south (M-113). In this regard, the unique character of the M-114 completion is no different, from a regulatory perspective, than monitoring wells completed for a well field that has variable transmissivity. M-113 to the south is positioned less than 400 feet from the fault and within 500 feet from the nearest planned pattern (Figure (1) E). This spacing should be sufficient to detect any indicators of an imbalanced well field on the south side of the fault as increases in water level and

chemical constituents would progress towards the monitor well ring in a radial fashion. M-115, the adjacent monitor well to the north, is 500 feet from the fault and 500 feet from the nearest planned pattern and is similarly positioned to detect indications of local well field imbalance north of the fault. Furthermore, to minimize the risk of excursion, planned well field pattern wells (injection and production wells) that are adjacent to M-114 fall well under the 75 degree maximum angle between edge pattern wells and the nearest two perimeter monitor wells (Figure (1) E), which is advised by the NRC in Section 4.3.3.3 of NUREG-6733 (A Baseline Risk-Informed, Performance-Based Approach for In Situ Leach Uranium Extraction Licensees).