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LOST CREEK ISR, LLC

January 5, 2018

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington D.C. 20555-0001

Re: Clarification of November 2017 Public Meeting Items
Lost Creek ISR Project License SUA-1598: Docket 040-09068

To Whom It May Concern,

On November 16, 2017, Lost Creek ISR, LLC and NRC held a public meeting to discuss several remaining items regarding the LC East and KM Amendments. Please find behind this cover letter additional clarification on the items discussed during the public meeting.

The following three items need to be removed from the current application and replaced with the respective versions included with this submittal:

1. The KLM 5-spot Report CD, Volume 1 of the KM Amendment, Attachment 2.7-2
2. The MILDOS Report; Volume 3, Attachment D10-2 of the LC East Technical Rpt.
3. Table 6-3 L Horizon Drawdown; Volume 5, Section D6, LC East Hydrologic Pump Tests September-November 2016,

The following items need to be inserted into the application:

1. Tetra Tech Technical Memorandum entitled "Response to November 16, 2017 Public Meeting Conference Call" needs to be added to the end of Attachment D10-1 of Volume 3 of the LC East Technical Report.
2. Petrotek report entitled, "Numerical Modeling of Drawdown from In-situ Mining of the HJ and KM Horizons" Needs to be added to the Volume 3 of the LC East Technical Report as Attachment OP-2. This change also required updates to the Table of Contents and text which are also included for insertion.

Let me know if you have any questions regarding this submittal.

Sincerely,

John W. Cash

NMSS01

Vice President Regulatory Affairs
Ur-Energy USA, Inc.

Attachments: Clarification Replies as stated
Various Attachments to the Clarification Replies

Cc: Deputy Director, Division of Decommissioning
Uranium Recovery and Waste Programs
Office of Nuclear Material Safety and Safeguards
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John Saxton, U.S. NRC (email)
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Request for Clarification/Adequacy by NRC for Lost Creek's RAI Replies
Lost Creek KM Horizon and Lost Creek East Amendment Application
January 5, 2018

RAI-2 Conceptual Model for the Lower Confining Unit & Confinement

NRC Issue/Request

Lost Creek's response does not provide additional information or evaluation except to include a conditional commitment to increase the density of monitoring wells. Lost Creek's response continues the commitment for an evaluation in the future as part of a specific wellfield package.

Staff cannot approve an action based on some future analysis, especially for fundamental aspect to control the source and byproduct material, and especially because the current regulatory regime does not have staff approving any future wellfield package.

The primary issue is confinement. The regulatory monitoring programs are based on the existence of a confining unit. Lost Creek states that confinement could be achieved through operational and management controls without specificity.

An alternative conceptual model (MU3):

- *Faults are not barriers to flow in the KM Horizon and lower horizons*
- *Explains lack of offset to the potentiometric surface in the KM horizon along the major fault*
- *Explains minimum vertical gradients*
- *Explains distribution of drawdown*
- *Nearby analogue – schroeckingerite deposit*

RESPONSE

As described, the K Shale is not represented by a single, discrete shale unit, rather the stratigraphic interval directly underlying the KM Horizon that is typically a mudstone containing thin, coalescing sands and multiple overlapping shales of varying thickness. Therefore, at any given location, the K Shale interval has been observed and interpreted as containing some thickness of shale, though potentially not the same laterally continuous bed. The presented isopach maps for the K Shale in both the KMA and the LCEEA are intended to illustrate thickness of the best confinement (or shale) within the interval, not the lack of continuity of each of the overlapping shales. As mining operations moves into areas of lower definition, much more drill hole and stratigraphic data will be collected and considered on a resolution sufficient at the mine unit scale. In the future, LC ISR will include a net shale thickness map for the overlying and underlying confinement zones with each wellfield data package.

LC ISR will follow the plan described below to properly characterize underlying and overlying confinement and ensure the proper density and spacing of overlying and underlying monitor

wells. While NRC does not approve wellfield data packages, LC ISR is required to adhere to commitments it makes and NRC assesses compliance during facility inspections.

- Each planned Mine Unit area, though all currently within the HJ and KM Horizons, will have unique hydrogeologic characteristics. Therefore, LCI would continue to propose a conditional commitment to increase the density of monitor wells based on Mine Unit or sub-Mine Unit scale hydrogeology.

- In most cases, only exploration drill hole densities are available prior to delineation drilling to characterize the overlying and underlying confining units and the underlying and overlying aquifer horizon on a regional scale. It is unreasonable and uneconomic to drill out all the anticipated mining unit areas to the resolution that would be needed on a wellfield basis (roughly 100' centers) in advance of development.

- Typically, mine unit delineation drilling occurs less than 3 years ahead of development to properly assess the geology and resources, plan pattern areas and monitor wells, and conduct pumping tests. LC ISR proposes a sufficient density of the mine unit delineation drilling be deep enough to characterize the underlying confining unit and aquifer horizon.

- Mine unit delineation drilling will typically take hole data to a resolution of at least a 100' center grid which will roughly be eight drill holes per acre. Drilling at least one of these eight holes per acre deep enough to penetrate the underlying stratigraphy should provide adequate characterization of these units. That is, no less than one hole per acre of proposed pattern area, or slightly more than 10% of the mine unit delineation drilling. For comparison, there would be approximately 4-5 patterns per 1 acre of wellfield for each ore bearing sub-horizon. This method will ensure there is proper spacing and density of information that can be used to plan monitor wells.

- After the density of deep delineation drill holes reaches one hole per acre, the geologists will assess the net shale thickness of the overlying and underlying confinement. If the net shale thickness is less than five feet in an area, the density of drill holes penetrating the underlying or overlying shale in that area will be increased to at least two delineation drill holes per acre of pattern area. This will ensure there is sufficient knowledge of the confinement to properly plan the position and density of overlying and underlying monitor wells.

- The information collected during the delineation phase gives rise to a monitor well plan, including the proper placement of overlying/underlying monitor wells at a density and spacing that honors the geology.

- In addition to a stratigraphic evaluation contributing to additional monitor well requirements, the results of a mine unit pump test would also influence the final monitor well density and placement.

- In areas where the confinement is less than five feet of net shale thickness or the pumptest drawdown in the overlying or underlying aquifer, greater than 100 horizontal feet from the pumptest well, is greater than three feet, the density of overlying and/or underlying monitor wells will be installed at a density of at least one monitor well per two

acres. Otherwise, the density of monitor wells will be no less than one monitor well per four acres of pattern.

Faulting within wellfields

- As with the stratigraphy, the observed faulting within proposed mining areas and their hydrogeologic characteristics will need to be evaluated on a mine unit basis. Therefore, a monitoring well plan will be tailored appropriately.

- As observed in the MU1 area, the existing fault at the HJ Horizon level presents itself as more of a hydrologic barrier. In the KM Horizon below, it appears to be less of a barrier. Additionally, observed offset within the HJ appears to be greater than that of the KM. This may be a reason for more hydrologic communication across the fault in the KM than in the HJ.

- Just because the fault does not appear to be as much of a barrier at the KM Horizon depth does not inherently mean that the fault is a conduit for flow. It just indicates that the KM is more transmissive from one side of the fault to the next – potentially due to evident reduced offset at that depth.

- When pump testing and/or stratigraphic information indicate communication between juxtaposed Horizons across faults within a mine unit, measures will be taken to install monitor wells that are appropriate for those operational conditions; laterally, vertically or for juxtaposed Horizons crossing faults. These considerations have already been implemented in Mine Units 1 and 2.

RAI-2a Barometric Efficiency Calculations

NRC Issue/Request

Response is confusing. Why did LC revise the drawdowns which used non-corrected water levels? Example of well M-KM5A. Please provide an acceptable cumulative drawdown analysis.

RESPONSE

Table 6-3, attached to this document, has been revised to include the barometric correction. The only significant change was for well M-KM5A which changed from a drop of 0.19 feet to 0.0 feet after correction, thus further supporting the conclusions of the report. The revised table now indicates a numeric value and a negative sign to indicate a water level rise and footnoted to indicate that the value is uncorrected for barometric effects (in circumstances where there was no data to perform a correction or the drawdown was very large).

RAI-8 Cumulative Drawdown

NRC Issue/Request

Academic exercise with no basis in reality - the best analysis is reviewing historical drawdown from operations at MU1.

Response is inadequate. Intent is not to predict actual future drawdown but worst case based on license maximum.

RESPONSE

LC ISR LLC engaged Petrotek to perform the necessary analysis. The results of their analysis are attached to these responses and indicate that even under an aggressive production/restoration schedule that the hydrologic drawdown is acceptable. Also, as expected, most of the recovery will occur very quickly.

RAI-11 Background Radiological Characteristics

Additional clarification needed:

RAI-11(b) Gamma Scans

NRC Issue/Request

Provide additional information on the calibration of the UTV based radiation measurement instruments for exposure rate measurements and Ra-226 soil surface activity measurements.

RESPONSE

Please see the attached response developed by Tetra Tech; the consulting firm which performed the UTV based gamma scans of both Lost Creek and LC East.

RAI-11(c) Surface Soil Samples

NRC Issue/Request

Information on soil sampling at 5-cm or 15-cm depths is not included for LC East. The September 2013 Tetra-Tech, Inc. report does not contain Information on correlations between direct gamma measurements using sodium-iodide detectors with U-nat, Th-230 or Pb-210 in surface or subsurface soils.

Additional surface soil samples should be collected and analyzed as part of the preoperational monitoring program.

RESPONSE

Please see the attached response developed by Tetra Tech. If the methodology described in the Tetra Tech memo is determined to be adequate by the NRC, Lost Creek ISR, LLC will perform the soil sampling in the spring of 2018 and submit the results to the NRC.

RAI-11(d) Subsurface Soil Samples

NRC Issue/Request

Collection of 5 subsurface soil samples to a depth of 1 meter, and that all subsurface soil samples should be analyzed for Ra-226, and 1 set of subsurface soil samples should be analyzed for U-nat, Th-230 and Pb-210.

RESPONSE

A total of 5 subsurface soil samples will be collected to a depth of one meter as described in the attached Tetra Tech memo. The one meter samples will be divided into three equal sections for analysis. Two of the sample sets will be analyzed for all the radiometric parameters listed for soil in Reg Guide 4.14: natural uranium, radium-226, thorium-230 and lead-210. The remaining three sets of samples will be analyzed for just radium-226.

RAI-11(e) Sediment Samples

NRC Issue/Request

RG 4.14 recommends collection of sediment samples from surface waters that pass through the site, at a location downstream of the site. Please inform the NRC staff if the drainage channel, downstream from the above stock pond, crosses the LC East or LC site boundary.

RESPONSE

The sediment in the drainage that passes through the stock pond located in the northern portion of Section 21 T25N R92W will be sampled at the point it exits the LC East License Boundary as described in Reg Guide 4.14. The sample point is labeled SS-8. Sediment (i.e. drainage soil) were collected in October 2017. The second round will be collected in late spring of 2018 following the snowmelt runoff.

RAI-11(g) Vegetation Samples

NRC Issue/Request

a. *There will be construction disturbances and possibly spills in LC East, and cattle graze in the area. Baseline information on preoperational forage samples could be useful. Acceptable approach is to analyze MILDOS calculations (performed for the LC and LC East sites) to verify that the highest predicted airborne radionuclide concentrations due to milling operations are in similar locations.*

b. *Please clarify whether forage samples in LC East will be collected and analyzed as part of the operational monitoring program.*

RESPONSE

a. In 2009, Lost Creek ISR, LLC collected vegetation from seven locations that would be subject to maximum radon daughter deposition according to the 2009 'near-Plant' MILDOS analysis (See section 2.9.3.2 of the Lost Creek Technical Report revised in April 2010). Up to three additional sample points will be sampled in 2018 if the MILDOS modeling for the KM and LC East Amendments shows the location of maximum deposition has changed. Of course, these samples won't be baseline since the facility has been in operation since August 2013.

b. As described in the Lost Creek TR Section 5.7.7.1, vegetation samples will not be collected at LC East as part of the operational monitoring program since the highest predicted particulate concentrations will likely be in the immediate vicinity of the processing plant which is located in Lost Creek. However, if MILDOS results contradict this assumption, additional samples will be collected at LC East in areas with the highest predicted particulate deposition.

RAI-13 MILDOS-AREA Calculations

NRC Issue/Request

- *Please provide an update on these items, since the NRC has provided clarification on this RAI.*

Description of Deficiency

An updated MILDOS calculation that considers production from both the original Lost Creek site and the Lost Creek East expansion area wellfields is provided in Attachment D10-2 of the Technical Report, entitled "Revised Estimated Radiation Doses to Members of the Public from the Lost Creek Project including the Eastern Expansion, Sweetwater County, Wyoming; May 2014." Radiation doses were estimated using the MILDOS-AREA code, version 3.1 (2012). The information presented in the application needs clarification.

Basis for Request

NUREG-1569 Acceptance Criterion 7.3.1.2.3(4) states: "The conceptual model used for calculating the source term and individual exposures (and/or concentrations of radionuclides) from airborne effluents at the facility boundary is representative of conditions described at the site as reviewed in Section 2.0 of this standard review plan. The conceptual model is consistent with the methodologies described in Regulatory Guide 3.51, Sections 1–3, "Calculational Models for Estimating Radiation Doses to Man from Airborne Radioactive Materials Resulting from Uranium Mill Operations" (NRC, 1982). The conceptual model for the MILDOS-AREA code is one acceptable method for performing these exposure calculations"

NUREG-1569, Acceptance Criterion 7.3.1.2.3(5) states: "The parameters used to estimate the source term, environmental concentrations, and exposures are applicable to conditions at the site as reviewed in Section 2.0 of this standard review plan. Guidance on source term calculations is available in Regulatory Guide 3.59, Sections 1–3, "Methods for Estimating Radioactive and Toxic Airborne Source Terms for Uranium Milling Operations" (NRC, 1987). Additionally, an example source term calculation specifically applicable to *in situ* leach facilities is described in Appendix D."

Request for Additional Information

a) The original Lost Creek application identified the nearest resident as being located in Baroil, Wyoming, and formed the basis for installing a passive air sampling station (URPA-1) at that location. For the Lost Creek East expansion area, the nearest resident could include a person that resides nearby to monitor an inactive facility, such as Kennecott Uranium Company's Sweetwater Mill, since there is the potential for the person to receive an exposure, as a member of the public, when not being monitored occupationally under the facility's radiation protection program. The NRC staff noted that the prevailing wind direction from the Lost Creek site toward the Sweetwater Mill occurs diurnally and seasonally, as illustrated in Figure 16 and 17 of the document entitled, "Meteorology, Climatology, and Air Quality Data Report for the Lost Creek Uranium In-Situ Recovery Project Modifications" (ML16095A088). According to Section D1 of the LCEEA, the distance to the Sweetwater Mill from the Lost Creek site is less than 10 kilometers, which is the distance for evaluating air monitoring at residences or occupiable structures (see Regulatory Guide 4.14 Section 2.1.2). The applicant need s to address the potential dose to this member of the public or provide the rationale why such an evaluation is not required.

   Response: The guard at the Sweetwater mill site was modeled as requested. Estimated dose was approximately 0.05 mrem/yr using the assumptions outlined in the report. Please see attached MILDOS Report.

Table 8 of the May 2014 MILDOS-AREA assessment lists four groups that represent members of the public (package delivery, tour group, reagent truck driver, and camper). The highest estimated annual doses were for the camper and reagent truck driver. Subsequent to this assessment, in a letter dated January 16, 2015 (ML15029A423), it is stated that either the package delivery driver or on-site contractor are the individuals likely to receive the highest public dose.

Response: An on-site contractor was modeled for a period of 3 months. Estimated dose was less than 0.5 mrem for the 3-month period. Even this is an overestimate because the basis of the calculation was the dose from the NB1 boundary location and it is doubtful that a contractor would stay at that location for the entire period. Further, the dose at that location assumes 100% occupancy during the year.

Please provide information on whether operations in the Lost Creek East expansion area would change the existing assessment of the individual likely to receive the highest public dose, including: (a) a package delivery driver; (b) an on-site contractor; (c) a camper; (d) a reagent truck driver; and (e) a person residing at Kennecott Uranium Company's Sweetwater Mill. Meteorological conditions, such as prevailing wind direction, direction from the Lost Creek East expansion area, and other factors should be considered, including meteorological data collected from a previously operating meteorological tower located in the vicinity.

Response: The location of the highest modeled annual dose remains the NB1 boundary location that is the nearest location to the CPP and its releases.

b) Meteorological data summarized in Table 1 of Appendix D10-2 differs from the 8-year on-site data described in Figure 10 of the document entitled, "Meteorology, Climatology, and Air Quality Data Report for the Lost Creek Uranium In-Situ Recovery Project Modifications" (ML16095A088). It appears that Table 1 of Appendix D10-2 is based on meteorological data from the Lost Soldier meteorological station, in comparison with Figure 2.2-3 of the Lost Creek Safety Evaluation Report (ML112231724).

Please provide an updated joint frequency distribution for the Lost Creek meteorological station, along with a revised Table 1 that provides the percentage of wind from each direction.

Response: The meteorological data set used in the original MILDOS modeling had some unrecognized missing data. A new data set was supplied and the model was run again for all data sets. Table 1 has been revised to reflect that change. A revised joint frequency distribution is shown below.

Joint Frequency in percent; Direction indicates direction where wind is from.

Mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTALS
Stability Class A																	
1.5	0.205	0	0	0.002	0.001	0.001	0	0.004	0.002	0.004	0.002	0.004	0.001	0.001	0.004	0	0.231
5.5	0.007	0.004	0.005	0.011	0.012	0.025	0.022	0.03	0.026	0.04	0.032	0.022	0.032	0.03	0.026	0.019	0.343
10	0.001	0.001	0	0.001	0.002	0	0.004	0	0.001	0.001	0.001	0	0.005	0	0.002	0.002	0.021
15.5	0.001	0.001	0	0	0.001	0	0	0	0.001	0	0.004	0	0	0	0	0	0.008
21.5	0	0	0	0	0	0	0	0	0	0	0	0.004	0	0	0	0	0.004
28	0	0	0	0	0	0	0	0	0	0	0	0	0.002	0	0	0	0.002
All	0.214	0.006	0.005	0.014	0.016	0.026	0.026	0.034	0.03	0.045	0.039	0.03	0.04	0.031	0.032	0.021	0.609
Mph	**Stability Class B**																
1.5	0.324	0.035	0.017	0.023	0.041	0.053	0.101	0.104	0.1	0.12	0.054	0.046	0.053	0.035	0.026	0.031	1.163
5.5	0.091	0.084	0.047	0.054	0.089	0.13	0.2	0.225	0.287	0.344	0.307	0.23	0.218	0.145	0.119	0.104	2.674
10	0.131	0.083	0.051	0.07	0.038	0.087	0.049	0.062	0.142	0.325	0.519	0.439	0.267	0.198	0.158	0.105	2.724
15.5	0.019	0.014	0.012	0.012	0	0	0	0.004	0.014	0.014	0.031	0.056	0.035	0.019	0.01	0.009	0.249
21.5	0.015	0.014	0.006	0.005	0	0	0	0	0	0.005	0.015	0.02	0.026	0.007	0	0.007	0.12
28	0.001	0.001	0	0.001	0	0	0	0	0.002	0.011	0.005	0.005	0.01	0.004	0.002	0.005	0.047
All	0.581	0.231	0.133	0.165	0.168	0.27	0.35	0.395	0.545	0.819	0.931	0.796	0.609	0.408	0.315	0.261	6.977
Mph	**Stability Class C**																
1.5	0.005	0.006	0.011	0.007	0.007	0.011	0.012	0.007	0.005	0.012	0.007	0.006	0.006	0.004	0.005	0.01	0.121
5.5	0.143	0.117	0.112	0.124	0.14	0.236	0.337	0.506	0.59	0.622	0.467	0.334	0.273	0.169	0.173	0.159	4.502
10	0.261	0.219	0.169	0.172	0.143	0.135	0.148	0.232	0.473	0.776	0.844	0.674	0.443	0.247	0.203	0.239	5.378
15.5	0.077	0.033	0.048	0.033	0.02	0.019	0.002	0.012	0.035	0.111	0.231	0.295	0.2	0.058	0.038	0.036	1.248
21.5	0.036	0.009	0.015	0.012	0	0	0	0	0.015	0.047	0.061	0.204	0.143	0.019	0.012	0.017	0.59
28	0.01	0.01	0.005	0.004	0	0	0	0.001	0.014	0.035	0.03	0.085	0.059	0.005	0.014	0.01	0.282
All	0.532	0.394	0.36	0.352	0.31	0.401	0.499	0.758	1.132	1.603	1.64	1.598	1.124	0.502	0.445	0.471	12.121
Mph	**Stability Class D**																
1.5	0.151	0.077	0.089	0.096	0.148	0.166	0.164	0.141	0.155	0.117	0.129	0.099	0.062	0.063	0.064	0.063	1.784
5.5	0.614	0.734	0.789	0.889	1.131	1.393	1.167	0.985	1.101	1.155	1.326	1.108	0.726	0.582	0.462	0.543	14.705
10	1.37	1.89	1.56	1.126	0.792	0.512	0.38	0.494	0.978	1.65	2.543	2.585	2.21	1.55	1.084	1.059	21.783
15.5	1.07	0.766	0.86	0.598	0.368	0.155	0.09	0.167	0.643	1.539	2.54	3.623	2.649	0.86	0.429	0.554	16.911
21.5	0.559	0.424	0.456	0.184	0.115	0.045	0.019	0.032	0.208	0.867	1.165	2.456	1.835	0.386	0.1	0.185	9.036
28	0.162	0.162	0.145	0.043	0.02	0.006	0	0.006	0.089	0.404	0.316	0.906	0.799	0.117	0.025	0.053	3.253
All	3.926	4.053	3.899	2.936	2.574	2.277	1.82	1.825	3.174	5.732	8.019	10.777	8.281	3.558	2.164	2.457	67.472
Mph	**Stability Class E**																
1.5	0.129	0.011	0.005	0.007	0.011	0.007	0.023	0.025	0.01	0.01	0.027	0.022	0.027	0.011	0.03	0.002	0.357
5.5	0.173	0.171	0.163	0.211	0.341	0.496	0.409	0.308	0.319	0.293	0.292	0.262	0.176	0.125	0.119	0.138	3.996
10	0.022	0.019	0.009	0.01	0.006	0.007	0.009	0.01	0.026	0.041	0.048	0.043	0.047	0.028	0.012	0.019	0.356
15.5	0.005	0.01	0.007	0.001	0.002	0	0.001	0.005	0.012	0.03	0.036	0.057	0.03	0.015	0.004	0.012	0.227
21.5	0.01	0.006	0.002	0.001	0.002	0	0	0	0.004	0.012	0.015	0.027	0.03	0.007	0.004	0.01	0.13
28	0.001	0.004	0.002	0	0	0	0	0	0	0.007	0.005	0.019	0.011	0.004	0.001	0.001	0.055
All	0.34	0.221	0.188	0.23	0.362	0.51	0.442	0.348	0.371	0.393	0.423	0.43	0.321	0.19	0.17	0.182	5.121
Mph	**Stability Class F**																
1.5	0.423	0.158	0.163	0.183	0.271	0.347	0.273	0.26	0.232	0.214	0.225	0.232	0.172	0.114	0.11	0.121	3.498
5.5	0.122	0.132	0.125	0.157	0.246	0.333	0.289	0.299	0.267	0.227	0.218	0.172	0.137	0.098	0.106	0.114	3.042
10	0.028	0.027	0.014	0.021	0.012	0.015	0.011	0.009	0.028	0.045	0.077	0.069	0.047	0.038	0.019	0.03	0.49
15.5	0.025	0.021	0.007	0.015	0.005	0.002	0.002	0.002	0.012	0.041	0.053	0.074	0.066	0.009	0.01	0.014	0.358
21.5	0.011	0.007	0.005	0.002	0.002	0	0	0.001	0.007	0.02	0.036	0.057	0.038	0.009	0.001	0.009	0.205
28	0.004	0.01	0.004	0	0	0	0	0	0.004	0.011	0.014	0.021	0.026	0.007	0	0.001	0.102
All	0.613	0.355	0.318	0.378	0.536	0.697	0.575	0.571	0.55	0.558	0.623	0.625	0.486	0.275	0.246	0.289	7.695
Total	**6.206**	**5.26**	**4.903**	**4.075**	**3.966**	**4.181**	**3.712**	**3.931**	**5.802**	**9.15**	**11.675**	**14.256**	**10.861**	**4.964**	**3.372**	**3.681**	**99.995**

c) Table 6 of Appendix D10-2 provides the calculated maximum annual quantities of radon-222 released each year, based on the production schedule in Figure 3 and input parameters in Tables 4 and 5. The NRC staff independently calculated maximum annual quantities of radon-222 released using the same methodology, but could not verify the values listed in Table 6.

Please provide more information on the calculation method and assumptions used to calculate maximum annual quantities, along with a detailed description of the calculation method for the peak year.

Response: MILDOS calculates the radon release rate for each source. To estimate the amount of radon released by source type (production purge, production venting, etc.) the MILDOS-calculated rate was multiplied by the fraction of each year that the source was active as controlled by the Qajust factor. The total releases for a given year are summed over all the sources and mine units that are active during that year.

d) The Population Distribution section of Appendix D10-2, which was prepared in May 2014, contains errors and omissions, and does not agree with information in Figure D1-6 or Table D1-2. For example, the Appendix D10-2 report states there are no towns within 30 km of the proposed site, but Table 3 of this section lists Bairoil as a town within 28 km of the site. Also, Table 3 lists the population of Jeffrey City as 110 based on 2010 census data, but the 2010 US Census data lists the population of Jeffrey City as 58, which is in agreement with data contained in Figure D1-6 and Table D1-2. In addition, Table 3 of Appendix D10-2 lists only four population groups within 80 km of the site, but additional population groups are listed in Figure Dl-6 and Table D1-2.

Please revise the population distribution section of the report to correct errors, and in the format specified in Regulatory Guide 3.46, "Standard Format and Contents of License Application, Including Environmental Reports, for In Situ Uranium Solution Mining" (June 1982).

Response: The population distribution in the MILDOS report was revised by adding the small town of Sinclair that is roughly ESE of Rawlins.

e) In the letter dated April 18, 2017 (ML17115A194), it is stated that the MILDOS-AREA model could be rerun prior to beginning mining at the Lost Creek East expansion area and prior to implementing any other material changes to the schedule.

Please submit a revised MILDOS calculation, in electronic format, using an updated wellfield production and restoration schedule, preferably with the latest version of MILDOS-AREA (v4.01, September 2016).

Response: The schedule of development, production and restoration was revised and all previous runs were run again and the data compiled. Due to changes in scheduling of various operations, there were some changes in doses.

RAI-15 Missing Tables and Figures

NRC Issue/Request

- *Please provide tables and figures for the October 2012 KLM 5-spot test report*

RESPONSE

The tables have been added to the file and a replacement CD has been provided with the submittal.

RAI-16 Wastewater Balance

NRC Issue/Request

- *Discuss LCI's plan to seek approval for permitting the three Class I wells*
- *Response unacceptable. Staff will need some commitment to ensure timely processing of the permitting process taking into account the time for the permitting to completion and disposal capacity*

RESPONSE

LCI currently has three Class I deep disposal wells installed on the project and two more permitted for installation (15 to 20 gpm installed capacity plus approximately 20 to 40 gpm permitted but not installed). The project also has incorporated Class V shallow water disposal to enhance waste water disposal capacity (200 gpm installed capacity). In addition, a Class I permit modification is currently out in draft form (WDEQ-Water Quality Division) for public comment that will allow for recompletion of the existing installed wells. We anticipate that the permit modification will substantially increase the injection rates in those wells (estimated total increase of 30 to 80 gpm). Including the recompletes of the three existing wells, the total permitted disposal capacity at Lost Creek will be between 65 and 140 gpm for brine plus 200 gpm for permeate (Class V). If the final realized rates are not adequate to support the water balances provided in Figures OP-5a through OP-5f (maximum of 70 gpm), then additional well(s) currently permitted for Lost Creek will be installed and operated.

Given the above threshold conditions, Lost Creek ISR is willing to commit that if the actions detailed in the previous paragraph do not support adequate waste water disposal, permitting of the next three disposal wells at LC East will be initiated immediately. Construction, as required to meet waste water needs, will follow permit approvals and will support production and restoration activities at Lost Creek including the LC East and KM Amendments.

The recompletes of existing UIC Class I wells will start with DDW #1. If this recompletion is effective then it may not be necessary to recomplete the other two existing wells.

The three additional UIC Class I wells were included in the LC East Amendment so that if they are ever needed we would not have to go back to the NRC and BLM for a license amendment (potentially an Environmental Assessment). NEPA requires that all reasonably foreseeable actions be included in an analysis. The three proposed LC East Class I wells were included in the LC East Amendment because of the potential need for additional capacity in the future. The LC East and KM Amendments are not seeking to increase the wellfield flow rate and any increases in waste water generated in the plant due to toll processing will be negligible. Therefore, the total amount of waste water generated is not expected to change significantly.

In summary, the existing water disposal capacity, plus recompletes, is sufficient to support existing production rates as well as groundwater restoration. Additionally, LC ISR already has permits in hand to install two additional deep wells if necessary and will likely have the required permits to recomplete the three existing deep wells by March 2018. Permitting of the three additional wells at LC East will be initiated if, after the recompletion effort, the installed and permitted wells at Lost Creek are insufficient to support the approved water balance.

RAI-18 Status of Airborne Effluent and Environmental Monitoring Program

NRC Issue/Request

a. *For airborne effluent, please explain why monitoring at location HV-6 is not being conducted at this time, and whether HV-6 was operational during the preoperational monitoring program.*
b. *Also, please explain why air particulate station HV-1 and passive radiological stations PR-1, PR-7, PR-8, and PR-11 were removed, and any impacts to the operational monitoring program for airborne effluents.*
c. *For well monitoring, please provide the rationale for not including Th-230, Pb-210 and Po-210 in the analyses of quarterly samples from stock watering ponds.*
d. *For surface water monitoring, please explain further the ad hoc surface water sampling that will be conducted as necessary and as feasible at "LC" or other ad hoc locations within ephemeral drainage using storm water autosamplers. The explanation should focus on surface water sampling for LC East.*

RESPONSE

a. Pre-operational radiological monitoring was conducted at the HV-6 location from the fourth quarter 2012 through first quarter 2017. Due to issues including winter accessibility and maintaining the air samplers, it was decided to terminate monitoring at location HV-6 since sufficient pre-operational data had been collected for LCE (i.e. 12 consecutive months are required by RG 4.14). Monitoring would be resumed upon start of operations at LCE. Monitoring at HV-6 is not a component of operational monitoring at Lost Creek nor is necessary.

b. The explanation of the removal of the monitoring stations HV-1, PR-1, PR-7, PR-8, and PR-11 is provided in the SERP that approved the changes. The SERP report LC17-03 is included in the attachments. The routine operational monitoring that remains is sufficient and compliant with Reg. Guide 4.14. The four "PR" monitoring locations existed for the passive monitoring of gamma exposure and radon and were extraneous to the recommendations in Reg. Guide 4.14.

c. Section 5.7.8.2 of the Technical Report states that analysis of groundwater for private wells would include uranium and Ra-226 which was reviewed and approved by NRC. However, it is not clear why the other analytes (Th-230, Pb-210, and Po-210) were omitted and Section 5.7.9.3.1.6 of the SER for the initial License states that the monitoring would be conducted in accordance with Reg. Guide 4.14. Therefore, going forward, Lost Creek agrees to include analysis of Th-230, Pb-210, and Po-210 in addition to uranium and Ra-226 in accordance with Reg. Guide 4.14.

d. Surface water sampling will be conducted at LCE the same as described in TR Section 5.7.8.2 which was referred to in the LCE Operations Plan Section 2.11.1:

"LC ISR, LLC does not propose to perform routine surface water sampling simply because surface water is rarely present. However, if a spill impacts a drainage, an automatic sampler will be installed in the downstream and upstream channel to quantify the radionuclide content of the water during the next precipitation event that results in flow in the channel. The upstream sampler will serve as a background measurement."

The existing autosamplers that were installed for pre-operational sampling (Figure D6.1-3) will be used as applicable.

RAI-19 Confirmation of Changes to the Nov 2016 TR

NRC Issue/Request

Please submit the latest version of the QAPP, and describe any other changes to Section 5.

RESPONSE

The latest QAPP that was revised in May 2016 is provided.

The changes in TR Section 5 were approved by SERP LC16-07 and are summarized as follows:

- Drill Supervisor was removed from Department Heads and placed under the Mine Geologist
- Wellfield Operations Superintendent was split into the Department Heads of Wellfield Operations Supervisor and Wellfield Construction Supervisor.
- The Site Accountant was removed from the Department Heads
- EHS Supervisor was removed from the RSO title (the RSO responsibilities do not change as a result).
- The Department Head of Plant Foreman was changed to Plant Manager
- References to General Manager or Operations Manager were removed since those positions are not part of the LC organizational structure. The Vice Presidents, Manager

EHS, or Mine Manager have absorbed the responsibilities that were listed as for the General or Operations Manager.

- The Organizational Chart TR Figure 5.1-1 was revised to coincide with the text changes

Response to RAI-2(a) Regarding Barometric Efficiency Calculations

Table 6-3 - L Horizon Pump Test Drawdown

Observed M-L7 Pump Test Drawdown

Well ID	Well Type	Completion Horizon	Distance from Pumping Well (ft.)	Drawdown† (ft.)
M-L7	Pumped Well	L	0	131[1]
North Cluster Monitor Wells				
M-KM9	Overlying Obs. Well	KM	195	-0.06[2]
M-L6	Observation Well	L	149	14.95[2]
M-N4	Underlying Obs. Well	N	185	-0.09[2]

Observed M-L9 Pump Test Drawdown

Well ID	Well Type	Completion Horizon	Distance from Pumping Well (ft.)	Drawdown† (ft.)
M-L9	Pumped Well	L	0	124.55
Center Cluster Monitor Wells				
M-KM7	Overlying Obs. Well	KM	63	-0.18
M-KM8	Overlying Obs. Well	KM	3,806	-0.12
LC27M	Overlying Obs. Well	KM	4,249	0
M-L8	Observation Well	L	120	72[1]-[2]
MB11	Observation Well	L	4,198	-0.06[2]
M-N3	Underlying Obs. Well	M	192	0.04[2]

Observed M-L11A Pump Test Drawdown

Well ID	Well Type	Completion Horizon	Distance from Pumping Well (ft)	Drawdown† (ft.)
M-L11A	Pumping Well	L	0	101.20
South Cluster Monitor Wells				
M-KM4A	Overlying Obs. Well	KM	811	-0.33
M-KM5A	Overlying Obs. Well	KM	72	0.0
M-L10	Observation Well	L	623	11.54[2]
M-N2	Underlying Obs. Well	N	680	-0.08

Notes:
† = At termination of pumping
Negative sign = water level rise
ft. = feet
[1] = Estimated
[2] = Uncorrected

Response to RAI-8 Regarding Cumulative Drawdown

FIGURES

TABLES

PLATES

ATTACHMENTS

Although the production duration is unique to each mine unit, the sweep phase typically lasts only 0.3 pore volumes, and the RO phase for six pore volumes. Obviously, the duration in each phase is dependent upon the sustainable flow rate.

Based on a bleed of 0.6 percent, the potential impact from the consumptive use of groundwater is expected to be manageable. In this regard, the vast majority (e.g., on the order of 99 percent) of groundwater used during production and restoration will be treated and re-injected. Potential impacts on groundwater quantity due to consumptive use outside the Permit Area are expected to be small.

The nearest surface water body to the Lost Creek Permit Area is the Sweetwater Mill Pit Lake, which is about 4 miles from the closest production planed at Lost Creek. It is unknown if the Sweetwater Mill Pit intercepts strata that are the stratigraphic equivalent of the HJ Horizon. The effects of the Sweetwater Mill Pit Lake on the hydrology of the HJ Horizon, or vice versa, are unknown. To date, in situ activities at Lost Creek have not had a discernable impact on water levels at the Sweetwater Pit Lake or associated monitor wells based on an email exchange with Mr. Oscar Paulson, the facilities manager, on January 22, 2017. Regardless, performing the Cumulative Effect Analysis described in the previous paragraph of projected Lost Creek ISR operations, approximately two feet or less of drawdown is projected at distances as far as the Sweetwater Mill Pit Lake. The Sweetwater Mill operation (Permit 481) has collected water level data from the Pit Lake for approximately 20 years. Based on a review of the Permit 481 Annual Report, it appears that Pit Lake water levels have remained relatively constant over 12 years. Water elevation records for the Pit Lake are believed to be of sufficient length to provide a reasonable baseline of expected fluctuations. In conjunction with the data collected from regional monitor wells, LC ISR, LLC will utilize the data available in the Permit 481 Annual Report to perform an ongoing assessment of impacts. In the event that the Sweetwater Mill Pit Lake experiences unacceptable drawdown (greater than two feet), LC ISR, LLC will cooperate with the owner of the Sweetwater Mill to determine the cause of the drawdown. If the Lost Creek ISR operations are determined to be the cause of the drawdown, LC ISR, LLC will work with the Sweetwater Mill Pit Lake owner to develop and implement a mutually agreeable solution.

The estimated drawdown from production and restoration will not result in loss of use of wells outside of the Lost Creek Permit Area. **See Attach. OP-2** for a life of mine analysis.

OP 3.6.3.4 Cumulative Drawdown - Water Supply Wells

Since the bleed rate and drilling rate will not change with this amendment, little to no change is expected in the rate of water consumption from wellfield activities. The water consumption rate from the plant may increase slightly due to additional processing;

Response to RAI-18 Regarding Airborne Effluent and Environmental Monitoring Program

LOST CREEK ISR PROJECT

REPORT FOR SERP LC17-03

May 16, 2017

Proposed Change: *To terminate operational monitoring (air particulates, passive gamma, and radon) at extraneous locations. The change would include removal of the monitoring station HV-1/PR-1 at Bairoil and to terminate operational monitoring and remove passive radiological monitoring stations PR-6 – 9, 11, and 12.*

SERP MEMBERS

Management Representative: *John Cash – LCI Vice President*
Operations Representative: *Kurt Brown – Mine Manager*
Radiation Safety Officer: *Krista Amunson - RSO*
Support: *Michael Gaither - Manager EHS and Regulatory Affairs*

INTRODUCTION

A SERP meeting was held on February 23, 2017 to review the proposed change for terminating monitoring and removing various monitoring stations. The justification for removing the station HV-1 at Bairoil was the proximity to the site, challenges in attending to the station, and the fact that it is beyond the NRC Regulatory Guide 4.14 (RG 4.14) recommended distance of 10 km. The justification for removing the various PR monitors is that they are over and above what is recommended for monitoring locations as described in RG 4.14 and the labor intensive effort it takes to change the monitors compared to the usefulness of the data at those locations. Moreover, the removal of monitoring locations was a recommendation in the 2015 Annual ALARA Report for the Lost Creek Project.

ANALYSIS, DISCUSSION, AND REVIEWS

Applicable documents reviewed include:

- NRC RG 4.14
- NRC SER for Lost Creek TR
- Lost Creek Technical Report (TR) Section 2.9
- Lost Creek TR Section 5.7.7.1
- Lost Creek TR Figure 2.9-25
- Lost Creek TR Figure 2.9-27
- Lost Creek TR Section 2.5

Reviewing the air monitoring locations (HVs), the recommendations in RG 4.14 were compared to the monitoring scheme and the description of the placement of monitors in TR 2.9.3.7. The RG recommends monitoring air for residences or occupiable structures within 10km of the

operation. Bairoil has the closest residence but is greater than 10km (approximately 26km from the Plant) from the operation but was monitored anyway to demonstrate no impact from the operation (TR 2.9.3.7). The Sweetwater Mill to the southwest (upwind) has a "resident" (security guard) and is monitored by Sweetwater and therefore does not need to be included in the Lost Creek monitoring program. Other monitors (HV-2 through HV-5) were consistent and acceptable.

Reviewing the PR locations for radon, RG 4.14 recommends operational monitoring of radon at the same locations as the air samplers (HVs). Therefore, if HV-1 is removed then PR-1 for radon is removed as well. The remaining radon monitoring locations not co-located with air monitors are not consistent with RG 4.14 and have the potential for removal. However, some of the locations may be useful to monitor concentrations of radon downwind from the operation which include PR-6 and PR-12. Additionally, PR-9 is in the center of the wellfield and could provide useful data for wellfield effluent monitoring.

Reviewing the PR locations for passive gamma, RG 4.14 recommends operational monitoring of direct radiation at the same locations as the air samplers (HVs).

Above and beyond the logistical challenges of monitoring and maintaining the locations, a review of the data was performed to determine if the data was distinguishable from background. Statistical analysis was performed on the various PR locations (PR-6, PR-7, PR-8, PR-11, and PR-12) to compare with the background data (PR-2). An F-Test was performed on the paired sets of data to determine the equality of the variances followed by the appropriate t-Test for null hypothesis testing. The null hypothesis (H_0) states that there is no significant statistical difference in the paired data sets. A summary of the statistical results is provided below:

T-Test GAMMA										
	PR-2/PR-6		*PR-2/PR-7*		*PR-2/PR-8*		*PR-11/PR-2*		*PR-2/PR-12*	
Mean	54.165	54.956	54.165	60.641	54.165	56.111	58.163	54.165	54.165	54.752
Variance	84.524	73.640	84.524	74.482	84.524	82.781	116.384	84.524	84.524	84.396
Observations	26	25	26	27	26	27	27	26	26	27
Pooled Variance	79.193		79.404		83.635		100.766		84.459	
Hypothesized Mean Difference	0		0		0		0		0	
df	49		51		51		51		51	
t Stat	-0.317		-2.645		-0.774		1.449		-0.232	
P(T<=t) one-tail	0.376		0.005		0.221		0.077		0.409	
t Critical one-tail	1.677		1.675		1.675		1.675		1.675	
P(T<=t) two-tail	0.752		0.011		0.442		0.153		0.817	
t Critical two-tail	2.010		2.008		2.008		2.008		2.008	
Conclusion	Do not reject H0		Do not reject H0		Do not reject H0		Do not reject H0		Do not reject H0	

T-Test RADON						
	PR-2/PR-7		*PR-8/PR-2*		*PR-2/PR-11*	
Mean	123.388	103.421	190.746	123.388	123.388	119.524
Variance	12352.991	5845.109	14993.387	12352.991	12352.991	7440.203
Observations	26	24	24	26	26	25
Pooled Variance			13618.181		9946.728	
Hypothesized Mean Difference	0		0		0	
df	44		48		49	
t Stat	0.745		2.039		0.138	
P(T<=t) one-tail	0.230		0.023		0.445	
t Critical one-tail	1.680		1.677		1.677	
P(T<=t) two-tail	0.460		0.047		0.891	
t Critical two-tail	2.015		2.011		2.010	
Conclusion	Do not reject H0		Reject H0 - override		Do not reject H0	

To verify the results of the T-Test, a one-way ANOVA test was performed on the data sets:

ANOVA – GAMMA (PR-2, PR6, PR-7, PR-8, PR-11, PR-12)						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***
Between Groups	825.507	5	165.101	1.915	0.095	2.273
Within Groups	13189.583	153	86.206			
Total	14015.089	158		Do not reject H0		

ANOVA – RADON (PR-2, PR-7, PR-11 – PR-8 removed)						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***
Between Groups	5521.160	2	2760.580	0.320	0.727	3.124
Within Groups	621827.152	72	8636.488			
Total	627348.311	74		Do not reject H0		

The radon data for PR-8 was anomalous since it had a high variability likely due to the use of the older RadTrak radon detectors. The null hypothesis was therefore not rejected since the critical value and the t-statistic were very close. The location was recommended to be removed since it could not likely be impacted by operations and the upwind data would not be significant.

Operations/Technical Review

- The proposed change would not impact operations.
- The proposed change would not be a change to the processes used.
- No changes in SOPs are necessary.
- No change in the emergency response procedures is necessary.

Environmental/ Health Physics/Safety Review

- No changes in monitoring or record keeping are necessary.

- No additional training or training review is necessary.
- Risk assessment is not necessary.

Compliance Review

- There is no conflict with policies regarding training and safety.
- The proposed change is compliant with the Project license.
- The proposed change is compliant with NRC and State regulations.
- No change in surety is required.

CONCLUSION

The SERP approved the following changes:

- Termination of monitoring for air particulates, passive gamma, and passive radon at station HV-1/PR-1 in Bairoil and eventual removal of the monitoring station.
- Termination of passive gamma monitoring at locations PR-6, PR-7, PR-8, PR-11, and PR-12.
- Termination of passive radon monitoring at locations PR-7, PR-8, PR-11.

The SERP rejected the termination of monitoring of gamma and radon at PR-9 since the location was centrally located over the ore body within the Mine Unit and would provide useful data. The SERP rejected the termination of monitoring of passive radon at locations PR-6, PR-9, and PR-12 since it could potentially provide useful downwind data for radon.

Termination of monitoring at HV-1/PR-1 will be effective immediately. Termination of monitoring at the other passive gamma and radon locations will be effective for the third quarter 2017.

	LOST CREEK ISR PROJECT STANDARD FORM	
SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP) FORM		
Edition: 11Sep2014rev3	**FORM Number:** AD-003A	**Approval:** MDG

SERP ID Number (*LCyy-##*): LC17-03	**Date:** 2/23/2017

Proposed Change, Test, or Experiment:
Review and approve proposed plan for cessation of monitoring at and removal of:
air monitoring station HV-1 along with the passive radiological monitoring stations PR-1 (at HV-1), 6, 7, 8, 9, 11, and 12.

I. SERP MEMBERS

NAME	TITLE	SIGNATURE/DATE
Management: John Cash	LCI Vice President	3/24/17
Operations: Kurt Brown	Mine Manager	3/23/17
RSO: Krista Amunson	RSO	3.23.17
Other: Mike Gaither	Manager EHS and RA	3/23/2017
Other:		
Other:		
Other:		
Other:		
Other:		

II. SERP CONCLUSION

After performing the reviews in Section III, answer the SERP questions in Section IV. If any are "YES", then NRC License amendment is required. Check the appropriate conclusion below.

☐ APPROVED BY SERP (as signed above)

☒ CONDITIONALLY APPROVED BY SERP (as signed above w/ conditions listed below)

☐ NRC LICENSE AMENDMENT REQUIRED

Comments/Conditions:
ACCEPT REMOVAL OF HV-1. ACCEPT REMOVAL OF GAMMA AT PR-1, PR-7, PR-8, PR-6, PR-11, PR-12. ACCEPT REMOVAL OF RADON CUPS AT PR-1, PR-7, PR-8, PR-11. HV-1/PR-1 EFFECTIVE IMMEDIATELY - OTHERS EFFECTIVE 3RD QUARTER.

The SERP is convened and conducted in accordance with License Condition 9.4, NRC License Application Technical Report Section 5.2.2, and Standard Operating Procedure AD-003.

SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP) FORM

Edition: 11Sep2014rev3	**FORM Number:** AD-003A	**Approval:** MDG

III. SERP REVIEW ITEMS

Perform the following reviews A, B, and C referring to documents such as:

- NRC License Conditions
- NRC License Application Technical and Environmental Reports
- NRC Safety Evaluation Reports,
- Environmental Assessments or Impact Statements
- WDEQ Permit to Mine Operations Plan/Reclamation Plan
- Associated Federal and State regulations and regulatory guidance documents

A. OPERATIONS/TECHNICAL REVIEW

☑ Review operating criteria and critical equipment and determine if:
- The proposed change impacts the operations as described in the license application;
- The proposed change significantly changes the processes used at the facility as described in the license application.

☑ Review the SOP for the proposed change and determine the impact on existing SOPs. Make the necessary changes to the existing SOPs.

N/A If applicable, review the emergency response plan and determine compatibility with the proposed change.

B. ENVIRONMENTAL/ HEALTH PHYSICS/ SAFETY REVIEW

☑ Review the proposed change to determine if any changes in monitoring and record keeping are required to ensure compliance with existing programs.

N/A Review the proposed changes and determine the need for additional training.

N/A Review key personnel training records and determine training needs as required by the proposed change.

N/A Perform Risk Assessment, if necessary, according to the Risk Assessment procedure.

C. COMPLIANCE REVIEW

N/A Review the proposed change and determine whether it will conflict with Project policies regarding training and safety.

☑ Review the proposed change and determine compliance with the Project license.

☑ Review the proposed change and determine compliance with NRC regulations and other federal and state regulations.

☑ Review the proposed change to determine if any adjustment to the financial surety would be necessary. Surety must be updated through a license amendment or the annual surety update before the proposed change takes place.

	LOST CREEK ISR PROJECT STANDARD FORM	
SAFETY AND ENVIRONMENTAL REVIEW PANEL (SERP) FORM		
Edition: 11Sep2014rev3	**FORM Number:** AD-003A	**Approval:** MDG

IV. SERP QUESTIONS

When the reviews from A, B, and C above are complete answer the following SERP questions regarding the changes, tests, or experiments and provide a conclusion:

Will the proposed change, test, or experiment:	YES	NO
• Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated)?		✓
• Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a facility structure, equipment, or monitoring system (SEMS) important to safety previously evaluated in the license application (as updated)?		✓
• Result in more than a minimal increase in the consequences of an accident previously evaluated in the license application (as updated)?		✓
• Result in more than a minimal increase in the consequences of a malfunction of an SEMS previously evaluated in the license application (as updated)?		✓
• Create a possibility for an accident of a different type than any previously evaluated in the license application (as updated)?		✓
• Create a possibility for a malfunction of an SEMS with a different result than previously evaluated in the license application (as updated)?		✓
• Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER), environmental impact statement (EIS), environmental assessment (EA), or other analysis and evaluations for license amendments?		✓

Comments: