

**Second Subset of Request for Additional Information
Lost Creek KM Horizon and Lost Creek East Amendment Application**

RAI-16¹ Wastewater Balance

Description of Deficiency

The waste water mass balance references the program approved through the original licensing action but does not incorporate changes made to the program through amendments since the license was issued and the description for the future wastewater processes is not clear.

In the preamble to the Lost Creek ISR, LLC (LCI) proposed action for the existing licensed area (KM Horizon Amendment or herein referred to as the KMA), LCI lists sections of the approved license application that are unchanged from those sections that are modified by the KMA. The application “incorporates by reference” those sections from the approved license application that are unchanged, including Chapter 4 in its entirety. Similarly, the Lost Creek East Expansion Area (LCEEA) incorporates by reference Section 4 of the approved license application for the discussion of effluent control systems at the LCEEA (see Section OP 5.0 of the LCEEA). More specifically, the KMA and LCEEA infers or directly states that the liquid 11e.(2) byproduct material handling and disposal, as described in the approved license application, will be unchanged for the proposed amendments.

The LCEEA suggests that the currently “approved” handling and disposal processes “may” have to be augmented in the future. For example, section OP 5.2.3.2 of the LCEEA states that, if the disposal capacity of the five permitted Class I wells is insufficient, then three additional Class I wells “may” be installed within the LCEEA. Plate OP-2a depicts the locations for three additional Class I wells within the LCEEA. In addition, Section OP 2.1 states that three additional Class I wells may be needed and briefly references utilization of the Class V disposal wells, which is not discussed in the referenced sections of the approved license application as the Class V disposal well was added to the program as License Amendment No. 5.

While the processing and handling of 11e.(2) byproduct material would remain unchanged from those processes discussed in the approved license application, as amended, the three additional Class I wells are considered by staff as a “change,” and needs to be reviewed as part of this application. In addition, the application needs to be updated to reflect the current wastewater disposal system.

As used in the KMA and LCCEA, the NRC staff agrees that incorporation by reference to those sections of the approved license application that are “unchanged” is consistent with guidance in NUREG-1569 (see Basis of RAI below). Even though a section is “unchanged”, the NRC staff is required to find, with reasonable assurance, that programs described by the incorporation-by-reference sections have operated safely in the past, have no un-reviewed safety-related concerns, and are relevant and effective for the future under the proposed amendment. LCI

¹ The first subset for the RAIs, which was issued on July 27, 2017, had 14 separate informational requests. The numbering of the informational requests continues from the first subset.

may have inferred that these conditions apply by the meaning of “unchanged”; however, staff would need an affirmative statement by the applicant that the meaning of “unchanged” includes the above findings. The statement could be global in nature for all sections that are “unchanged.”

Regarding Section 4, LCI needs to identify in the KMA and LCEEA that Section 4 of the approved license application has been “augmented” by License Amendment No. 5, which permitted the use of Class V disposal wells. Approval for use of the Class V disposal wells was documented in the NRC staff’s Safety Evaluation Report for that amendment application (ML16123A336), and through use of license conditions (ML16123A338) rather than changes to the text of the approved application. These modifications are not presented nor discussed in the KMA or the LCEEA. The addition of the Class V disposal wells primarily modified the treatment process and changed the water mass balance for this project. Of those changes, the water mass balance has a more significant impact on safety issues associated with the KMA and LCEEA. Figures 9-1a through 9-1f in the Class V amendment application (ML15076A380) depict the revised water mass balances for the Lost Creek facility for various operating conditions with the addition of the Class V disposal wells. The revised water mass balances supersede those contained in the original license application (i.e., Figure 3.2-6). The revised water mass balances approved in the Class V amendment need to be included in the KMA. Furthermore, those water mass balances need to be adjusted to reflect the limitation on disposal through the Class V disposal wells to 200 gallons per minute.

The addition of the Class V disposal wells reduced the necessary disposal capacity for the Class I wells. The revised water mass balances suggest that the future wastewater system plans should include a design for disposal via the Class I wells of approximately 70 gallons per minute. With the historic disposal capacity for each of the existing three Class I wells of approximately 10 gallons per minute, it appears that the phrase in the application that “three additional Class I wells may be needed” (emphasis added) should be changed to “three additional Class I wells are highly likely”. The NRC staff would need a commitment that LCI intends to obtain a permit for the three additional Class I wells prior to operations in the Lost Creek East expansion area.

In addition to the adjustments to the water mass balances, the symbol on plates (OP-2a and OP-2b) for the three proposed Class I wells within the LCEEA need to be modified. The current symbol is the same as that for the two permitted Class I wells in the approved licensed area, which have not be drilled yet. The symbol needs to be revised to indicate the three Class I wells are neither permitted nor installed.

Basis for RAI

Appendix A of NUREG-1569 states: “If, after a review of these historical aspects of site operations, the staff concludes that the site has been operated so as to protect health and safety and the environment and that no unreviewed safety-related concerns have been identified, then only those changes proposed by the license renewal or amendment application

should be reviewed using the appropriate sections of this standard review plan. Aspects of the facility and its operations that have not changed since the last license renewal or amendment should not be reexamined.”

Request for Additional Information

Please provide revised text, figures and tables for those sections that have been amended since the license application was initially approved. Preferably, the revisions would be to the license application; however, revision to the KMA and LCEEA are sufficient. For Section 4, please discuss LCI’s plan to seek approval for permitting the three additional Class I wells in the LCEEA, and to what extent the NRC staff’s evaluation of potential wastewater disposal capacity is dependent on those wells.

Please confirm that “unchanged” means that the program approved in the license application has performed safely during operations, has no identified un-reviewed safety concerns, and will be continued in the future under the KMA and LCCEA.

RAI-17 Current and Future Production and Transportation of Yellowcake Slurry

Description of Deficiency

The NRC staff issued, by letter dated April 22, 2013 (ML13016A071), License Amendment No. 1 to LCI’s License No. SUA-1569 approving, among other items, use of two vacuum dryers at the Lost Creek facility. It is the NRC staff’s understanding that LCI manufactures dried yellowcake exclusively, although LCI maintains the option for producing yellowcake slurry to be transported offsite for processing. Specifically, Section OP-1.0 of the LCEEA states that “the final product will be loaded resin, yellowcake slurry as approved in the original application or dried yellowcake as approved by a previous amendment.” However, the approved license application has not been updated to reflect changes approved by License Amendment No. 1. For example, Section 5.7.6.3, “Material Release Surveys and Equipment,” of the approved license application states that yellowcake slurry will be shipped to other facilities for drying and packaging.

Also, LCI letter dated April 18, 2017, and accompanying “Mapping Spreadsheet” (ML17115A205), contains a notation that the KM and LCEEA does not change the methods of transportation described in Sections 5.8, 5.8.1.1, 5.8.1.2, and 5.8.2 of the approved license application, but does change the transportation frequency. The notation also states that Sections 3.2 and 4.2 of the LCEEA accompanying Environmental Report “contain the most current information.” However, Section 5.8, “Transport of Radioactive Materials,” addresses risks associated with transportation of yellowcake slurry, but not risks associated with dried yellowcake. LCEEA Environmental Report Sections 3.2, “Transportation,” mentions dried yellowcake, but does not address changes in the frequency of occurrence, or consequences of, transportation accidents associated with dried yellowcake. Similarly, Environmental Report Section 4.2. “Transportation,” mentions shipments of dried yellowcake from the Lost Creek

facility to a conversion facility, but it does not include an analysis of dried yellowcake transportation accidents. Furthermore, LCEEA Environmental Report Section 4.2.1.2, "Shipments of Slurry from Lost Creek to an Off-Site Dryer or from an Off-Site Facility to Lost Creek," analyzed transportation of yellowcake slurry, rather than dried yellowcake.

In addition to the aforementioned inconsistencies regarding yellowcake slurry and dried yellowcake production and transportation, in the supplemental data dated April 18, 2017, LCI Lost Creek confirmed that the amendment application was requesting an increase in the amount of toll milling from 1 million pounds per year (currently approved) to 2.2 million pounds of U_3O_8 per year. In its response, LCI also provided sections of the amendment applications in which toll milling was discussed. The NRC staff reviewed those sections but found no discussion on the frequency or change in frequency of truck traffic due to toll milling.

The inconsistencies and lack of updates to the approved license application subsequent to the amendment(s) approval should be resolved as part of the KMA and LCEEA.

Basis for Request

Section 10 CFR 40.9 states: "Information provided to the Commission by an applicant ... shall be complete and accurate in all material respects."

Request for Additional Information

Please update the approved license application to include discussions on dried yellowcake, and/or revise the KMA and LCEEA to include discussions and analyses on dried yellowcake and slurry.

RAI-18 Status of Airborne Effluent and Environmental Monitoring Program

Description of Deficiency

The KMA and LCEEA discussion of the airborne effluent and monitoring program is based on information contained in the original license application. A description of the original airborne effluent and environmental monitoring program is provided in the 2011 Safety Evaluation Report for the Lost Creek Project (ML112231724). However, the airborne effluent and environmental monitoring program has been modified through License Amendment No. 4 and the Safety and Environmental Review Panel (SERP) process.

Specifically, LCI submitted letters dated January 16, 2015 (ML15029A423), May 21, 2015 (ML15218A055), July 28, 2015 (ML15218A013), and January 26, 2016 (ML16043A365) that include commitments and changes to the airborne effluent and monitoring program. Those changes were ultimately approved by the NRC staff in License Amendment No. 4 and an accompanying 2016 Safety Evaluation Report in support of removing preoperational license conditions related to the airborne effluent and environmental monitoring program

(ML15279A572). Also, documents from a SERP performed by LCI on February 23, 2017, approved removal of air monitoring station HV-1 and cessation of monitoring at several passive radiological monitoring stations. In addition to information in these documents, LCI implemented these programs and submitted semi-annual effluent and environmental monitoring reports, none of which is documented in the KMA or LCEEA.

The lack of updated program elements in the KMA and LCEEA will lead to confusion should the NRC staff determine that older elements of a program are once again acceptable. Further, knowing of the changes, the NRC staff will have to discuss those elements to have a meaningful evaluation of the program in the safety evaluation of KMA and LCEEA.

Basis for Request

Section 10 CFR 40.9 states: "Information provided to the Commission by an applicant ...shall be complete and accurate in all material respects."

Request for Additional Information

Please provide an updated description of the current airborne effluent and environmental monitoring program with a summary of the changes since the issuance of License Amendment No. 4.

RAI-19 Confirmation of Changes to the November 2016 Technical Report

Description of Deficiency

The "Preamble" to the KMA (volume 1; "second" page 1) states, "Several portions of the approved Technical Report had to be updated in consideration of the KM Amendment..." The "Preamble" states that one of the updated portions is Section 5, "Operational Organization, Management, Programs, & Training."² The updates are reportedly documented in the Operations Plan (Ops Plan) in volume 3 of the LCEEA.

Information contained in LCI letter dated April 18, 2017, and accompanying "Mapping Spreadsheet" (ML17115A194), indicate the following changes were made to Section 5:

- Section 5.7; "No change of methodology. Sites used to collect baseline radon, OSL gamma and air particulate samples at LC East (Section D10 of Technical Report) will become routine monitoring locations during operations;"
- Sections 5.7.1 and 5.7.2; "See MILDOS modeling in Section D10 of the LC East Technical Report and Section 3.12 of the LC East Environmental Report;" and

² The KMA refers to Section 5 as "Operational Management and Organization", which differs from the title in the approved license application.

- Sections 5.8, 5.8.1.1, 5.8.1.2, and 5.8.2; “Methods of transport do not change but frequency does. LC East Environmental Report Sections 3.2 and 4.2 were updated to contain the most current information.”

There is no mention of changes to the Quality Assurance Project Plan. However, the quality assurance plan for the radiological monitoring program (Section 5.7.9) has been updated, according to information contained in LCI letter dated July 20, 2013 (ML13228A019). Changes to Section 5.7.9 should be reflected in the KMA, LCEEA or the approved Technical Report. Inconsistencies and lack of updates to the approved license application should be resolved as part of the KMA and LCEEA.

Basis for Request

Section 10 CFR 40.9 states: “Information provided to the Commission by an applicant ...shall be complete and accurate in all material respects.”

Request for Additional Information

Please provide a summary of the changes to the Quality Assurance Project Plan, and any other subsections of Section 5, since issuance of the original license.