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RULES AND DIRECTIVES BRANCH

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A. Bjornsen (abb5)

**Internal Review Comments for Lost Creek**

**Technical Comments**

Executive Summary, In-Situ Recovery Process; p. xiv line 25
This sentence says that uranium is 'leached' from the solution at the processing plant. Other sections in the SEIS, such as 2.1.1.3, use the term "extracted".

Executive Summary, In-Situ Recovery Process; p. xiv lines 36-37
The description of uranium recovery includes, "....dried into yellowcake....". This description is inconsistent with descriptions elsewhere that identify the production of yellowcake slurry at the Lost Creek site.

Executive Summary, Summary of Environmental Impacts
The summary of ecological impacts on page xv and xvi state that the expected construction and operation impacts to wildlife are MODERATE. Page xix states that the expected construction impacts to wildlife are MODERATE, and the expected operation impacts to wildlife are SMALL. Table 2-2 indicates the expected construction impacts to wildlife from the proposed action are MODERATE, but may be reduced to SMALL with mitigation. Table 2-2 also indicates the expected operations impacts to wildlife from the proposed action are SMALL. Section 4.6.1.1.1.2 states the expected construction impacts to wildlife are MODERATE, but may be reduced to SMALL with mitigation. Section 4.6.1.2.2 states the expected operations impacts to wildlife are SMALL.

Executive Summary, Water Resources (Surface Water and Wetlands), Aquifer Restoration;
p. xviii lines 7-9
This section states that there are no surface water impacts during aquifer restoration. Elsewhere there is discussion for the need for a stormwater runoff NPDES permit and the potential presence of stormwater runoff, which is a type of surface water that could be impacted.

Section 2.1.1.2.5, Other Structures and Systems; p.2-14 lines 28-29
It is not clear how livestock fencing around a majority of the CPP would help maintaining control of NRC-licensed material. Similarly, it is not clear how security cameras at the gates would provide security if the majority of the CPP is surrounded by unmonitored livestock fencing.

Section 2.1.1.3.3, Uranium Processing; p.2-16 lines 26-28
It does not appear that the processing steps included here are the same as those steps in Figure 2-11 and the preferred alternative - specifically "drying".

Section 2.1.1.4, Aquifer Restoration Activities; p. 2-21 lines 2-4
This does not describe how baseline sampling events conducted 14 days apart reflects seasonal variability (GEIS section 8.3.1.1).

Section 2.1.1.4.3, Groundwater Treatment; p. 2-21 lines 40-41
As described here, the ion exchange columns exchange uranium (cations) with chloride and sulfate (anions). It can also be described that the ion exchange columns remove most of the soluble uranium carbonate anion complexes (eg., $UO_2(CO_3)_2^{-2}$ or $UO_2(CO_3)_3^{-4}$ ) and replace them with chloride and sulfate anions.

Section 2.1.1.4.3, Groundwater Treatment; p. 2-22 lines 2-4
As described here, the RO process only separates water and associated dissolved constituents. It does not include a discussion of the concentration of dissolved constituents that is occurring.

2.1.1.4.5, Monitoring and Stabilization; p. 2-22 lines 22-23
The applicant has proposed monthly sampling for six months to verify that cleanup standards have been met. It is not clear that this sampling period is adequate to demonstrate stability in groundwater quality or account for seasonal variability in ground water quality.

Section 2.1.1.7, Transportation; p. 2-28
Without establishing the destination of the yellowcake slurry processing facility, it is not clear how impacts of the preferred alternative can be assessed and compared to the other alternatives.

Section 2.1.1.7, Transportation
Traffic estimates described in this section are limited to construction and operations phases and trucks, and do not include commuting workers to the traffic estimates.

Section 2.1.3, Dry Yellowcake (Alternative 3); p. 2-31
Based on the solids concentration in yellowcake slurry, Alternative 3 (onsite processing) would have 50 to 70% fewer shipments offsite compared to the preferred alternative.

Section 3.13, Waste Management; pp. 3-70 and 3-71
This section is organized by separate solid, liquid, and radioactive subsections although ISL radioactive wastes include both solid and liquids. The GEIS uses liquid and solid categories based on primary waste forms and within each subsection evaluates radioactive, hazardous, and municipal (or non-rad, non-haz).

Section 3.5.2.3.3 Groundwater Quality, p. 3-22 line 24
SEIS text initially states that Wyoming has three water quality classes, however five classes are listed.

Section 4.3, Transportation Impacts; p 4-6
This section focuses on truck traffic estimates and potential impacts, and does not include commuter traffic estimates and potential impacts.

Need clarification from PL - Section 4.3.1.2, Transportation Impacts, Operation Impacts (Proposed Action)
This section refers to 4.13 (public health) for accident risks

Section 4.3.1.2, Transportation Impacts, Operation Impacts (Proposed Action); p. 4-9 line 4
The SEIS indicates that truck accident rates are presented in Table 4-1; however, Table 4-1 is titled Stripped and Disturbed Land by Vegetation Type and is located in the ecology section. A table containing the truck accident rates is not present in chapter 4 of the SEIS.

Section 4.3.1.4, Transportation Impacts, Decommissioning Impacts (Proposed Action); p. 4-11 line 14
This section indicates no estimates of decommissioning transportation are available. Estimates are provided for the construction and operation phases.

Section 3.3, Transportation

Language in this section describes the proposed action transportation and traffic. Chapter 2 of the SEIS describes the proposed action and alternatives.

Section 4.14.1.2, Operation Impacts p. 4-98 line 21
The impact of sanitary liquid wastes during operations is not included as part of this assessment. It is not included as part of construction or aquifer restoration, either. Section 2.1.1.6.2 states sanitary liquid waste would be generated during each ISR phase.
Section 4.14.1.2, Operation Impacts; p.4-100 lines 18-24
The expected amount of hazardous waste to be generated is not included here. If more than 6.8 kg/yr [15 lbs/yr] are generated then out-of-state disposal will be required.

Section 4.14.1.2, Operation Impacts; p. 4-100 lines 19-22
The definition of CESQC here is different than the definition on p 4-97, lines 37-40.

Section 6.2.3, Vegetation, Food, and Fish Monitoring; p. 6-7 lines 1-2
The stated lack of intermittent surface waters appears to be inconsistent with the earlier description of various surface waters in section 3.5.1 of the SEIS.

Section 6.3.4, Meteorological Monitoring; p. 6-11 lines 24-25
The protocols and action levels for the continuous visual inspection for atmospheric particulate matter are not provided here. Also, the bases for using this non-typical approach to monitoring and assessing atmospheric particulates is not provided.

**Editorial Comments**

Executive Summary, Background; p. xiii line7
This sentence does not include information clarifying that the yellow cake slurry produced at Lost Creek will also be transported, dewatered and dried at another, yet to be named facility.

Executive Summary, SI* (Modern Metric) Conversion Factors Table; p. xxxi
Temperature conversion factor (Celsius to Fahrenheit) is 1.8 C + 32 not the listed 1.8C + 35

There is no status listed in Table 1-2. Environmental Approvals for the Lost Creek ISR Project for Storm Water Discharge Permit and County Development Permits.

There are a few minor inconsistencies or errors in the land use section. A couple of examples include some errors on unit conversions, a couple of double-negation and the use of the expression "production (mine) units", which could be understood to mean "well fields".

Please consider including the groundwater analytes in Table 6.2-1 of the TR in this document.

Section 2.1.1.6.3.1 is titled "Non-11e.(2) By-Product Materials". Please consider including clarification of currently applicable subcategories of byproduct material in this section.

Section 2.3 refers to "predicted" impacts rather than impact "conclusions" or similar. Chapter 4 uses both 'potential environmental consequences' and 'potential environmental concerns'. Terminology varies.

Impact analyses for resource areas that are also "actions" (land use, waste management, transportation) can overlap with impact analyses of other resource areas (e.g., impacts from road construction could be transportation, land use, ecology or all). Difference in organizational structure observed between SEIS and GEIS.

Waste management section is added to Chapter 3 of the SEIS. By NRC request this was not included in the GEIS.

Information from the Sweetwater Mill conventional uranium mill, located about 5 mi from the Lost Creek, is referenced in Sections 3.2.3 and 3.4.2 but is not listed in Section 1.4.5 (Related NEPA Reviews and Other Related Documents) or on Table 5-4 (Draft and Final National Environmental Policy Act (NEPA) Documents Related to the Great Divide Basin). The Pappy Draw Exploratory Coal-Bed Natural Gas Pilot Project is also in the vicinity of the Lost Creek project. Please consider including the Sweetwater Mill and Pappy Draw reports to Section 1.4.5 and Table 5-4 as appropriate.

Section 4.3.1.2 discusses both construction and operation impacts based on temporal overlap of the phases.

Section 4.3.1.4, Transportation Impacts, Decommissioning Impacts (Proposed Action); p. 4-8 line 20 should include the word 'trucks' between the words 'light' and 'during'.

Section 5.1.2, last paragraph, indicates, as GEIS does, that SMALL impact conclusions would not have a significant additional impact to the baseline cumulative impact yet there is still a following section with lots of discussion for each resource area including many that are SMALL

A general observation is the frequent use of "minimize" throughout document.

A general observation that the GEIS is often referenced rather than the primary reference.

Chapter 8, summary of impacts table is stratified by categories that are not reflected in Chapter 4 impact analyses (although this could be result of "speak to it if it applies" approach).

**FIGURES**

The figures are for the most part illegible throughout the document. Please consider modifying them.

Section 2.1.1, Figure 2-1 (Lost Creek Project Development, Production and Restoration Schedule); p.2-2
The "colors"/patterns on this figure are not clearly distinguishable from one another. Please consider modifying this figure.

Section 2.1.1, Figure 2-3 Site Access; p.2-4
This figure does not appear to contain the landmarks discussed in the associated text. Please consider including the landmarks in the text.

Section 2.1.1, Figure 2-4 Process Facility Layout; p. 2-6

Please include the location of the proposed septic system. Also, include a legible legend.

Section 2.1.1.2.2, Buildings; p.2-8 lines 1-4
Please show the locations of the auxiliary building discussed here on figure 2-4

Legend is illegible for Fig 3-1.

The legends for figures 3-11, 3-12, and 3-13 are illegible when printed as well as some identifiers on the maps.

**Lost Creek – Socioeconomics**

- The Environmental Report states that temporary rental housing such as hotels/motels and RV home spaces have few vacancies for Sweetwater and Carbon Counties and would be impacted during the tourism season. This is inconsistent with the SEIS, which states that impacts to temporary housing during the construction phase would be considered SMALL. Moreover, the GEIS states that impacts to temporary rental housing during the construction phase would be small for the region, but MODERATE if concentrated in one area. The SEIS states that workers would likely stay in temporary housing in Rawlins and Wamsutter, thus being concentrated in a general area.
- The Environmental Report states that 87 workers would be expected during the operations phase and the SEIS quotes 80 workers.
- The Environmental Report states that schools would not be impacted; however, the SEIS states that the operations phase would cause MODERATE impacts to schools. This is also inconsistent with the GEIS, which states SMALL impacts to schools during the operations phase.
- The Environmental Report states that the construction phase will have short-term indirect negative impacts to public services, local government, and transportation. This is inconsistent with the SEIS and GEIS, which state SMALL impacts to public services during the construction phase.

- The SEIS states MODERATE impacts to public services during the operations phase and mentions that this conclusion is consistent with the GEIS. This is inconsistent with the GEIS, which states SMALL impacts to public services during the operations phase.
- The SEIS states SMALL impacts to income during the construction phase. The GEIS states SMALL to MODERATE impacts to income during the construction phase, with MODERATE impacts to smaller communities such as Baroil. This is inconsistent with the SEIS conclusion of SMALL impacts.
- The SEIS states SMALL impacts to local finance during the construction phase. This is inconsistent with the GEIS, which states MODERATE impacts to local finance during the construction phase.
- The SEIS states MODERATE impacts to education during the operations phase. This is inconsistent with the GEIS, which states SMALL impacts to education during the operations phase.
- The SEIS states SMALL impacts to local housing during the decommissioning phase. This is inconsistent with the GEIS, which states MODERATE impacts for temporary rental housing if concentrated in a smaller community.