



State of Utah

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DIVISION OF WASTE MANAGEMENT
AND RADIATION CONTROL

Douglas J. Hansen
Director

June 13, 2023

Vern C. Rogers, Director of Regulatory Affairs
EnergySolutions, LLC
299 South Main Street, Suite 1700
Salt Lake City, UT 84111

RE: Federal Cell Facility Application Request for Information

Dear Mr. Rogers:

The Division of Waste Management and Radiation Control (Division) hereby provides Requests for Information (RFI) regarding the Federal Cell Facility Application dated August 4, 2022.

Each individual paragraph in the attached Federal Cell Application Review, Requests for Information is numbered and represents an issue discovered in a review of the application. When responding to an RFI, please use the assigned number representing the question. The Division will track all responses and provide regular updated information to the public and reviewers.

The current review does not represent a comprehensive evaluation of the Application's merit and additional RFI's will follow where appropriate.

If you have any questions regarding this letter, please call Otis Willoughby at 385-622-2213.

Sincerely,

Douglas J. Hansen, Director
Division of Waste Management and Radiation Control

(Over)

DJH/JK/OHW/jk

Enclosures: Federal Cell Application Review, Requests for Information

c: Jeff Coombs, EHS, Health Officer, Tooele County Health Department
Bryan Slade, Environmental Health Director, Tooele County Health Department
Energy*Solutions* General Correspondence Email
LLRW General Correspondence Email

Federal Cell Application Review

Requests for Information or Updates to the Application (RFI)

General

- Each RFI has been assigned an identifier with a numbering convention as follows:
 - Application/Appendix Section
 - Section/Appendix Subsection
 - Section/Appendix Subsection (when applicable)
 - Sequential numbering

Example: A question in Section 1, subsection 1, subsubsection 1 -The first RFI#1 would be 1.1.1-1., the next question in that section/subsection would be numbered 1.1.1-2

Please refer to the assigned RFI number when submitting a response.

Appendix W: Surety

- **W-1**

Please provide information that details the surety listed in Appendix W of the Federal Cell License Application. It appears to be representative of the transfer of the Depleted Uranium (DU) from the DU Storage Building to the Cell, with no additional waste placement.

- **W-2**

A premature closure plan for the Federal Cell is not included in the application. The surety will require a review and update when a premature closure plan is submitted.

- **W-3**

The surety in Appendix W included a non-approved cover design. The surety will require a review and potential update when an approved cover is designated.

- **W-4**

The Surety in Appendix W appears to be for the year 2020. The surety will require a review and update before the Federal Cell is put into service.

Appendix AB: Operational Period Modelling

▪ AB-15

Page 1 of Appendix AB states that a leach rate of 0.01/yr. is assigned “to account for the DU being containerized when placed in the disposal cell,” and “results in delayed leaching to groundwater and higher contaminated zone soil concentrations.” However, Sections 6.1.3.1, 6.1.3.2, 6.1.3.3, and 6.1.3.5 of the RML Application state that the concentration estimates “[do] not take credit for the DU waste containers and therefore is likely to overestimate releases.” Please address this inconsistency between the text of the application and the text of Appendix AB, as well as a justification for the assigned leach rate.

▪ AB-16

Examination of the RESRAD files show that the model was run for a 50 year operational period; however, text statements of the operational period within Appendix AB are inconsistent. For example, the Groundwater section on page 2 states “...within 50 years of operations...” and “...within an assumed 20-year operating period...,” and the Pond Biota section states, “Over a 20-year modeling period...” Additionally, every graph included in the appendix appears to include data up to approximately 25 years. Please revise the text to include a consistent representation of the assumed operational period and resulting data.

▪ AB-17

The graph in the Groundwater section, on page 2, does not adequately display the relevant information discussed in the preceding text. It indicates that Tc-99 reaches groundwater at approximately year 35, and that the well Tc-99 concentration is approximately 0.006 pCi/L at 40 years; however, the x-axis (abscissa) does not reach these time periods, and the y-axis (ordinate) is excessively large. Please revise the graph to appropriately reflect all modeled data.

▪ AB-18

Please provide justification that the use of the RESRAD default values for the applicable parameters listed in the parameters values table is descriptive/accurate for the site. Additionally, the parameter table of Appendix AB indicates that the K_d values of the contaminated zone in RESRAD are equal to the deterministic K_d values of Unit 3 (sand) material from the Goldsim model. However, the RESRAD contaminated zone porosity and dry bulk density are set to RESRAD default values of 0.4 and 1.5 g/cm³, respectively, which do not match the corresponding parameters for Unit 3 in Goldsim (0.393 and 1.609 g/cm³). Please provide justification for the use of the default values or rectify the RESRAD model.

▪ AB-19

The RESRAD model has an unsaturated zone hydraulic conductivity set to 227 m/yr. (or 7.2E-4 cm/s). However, in the Goldsim model, the hydraulic conductivity of the unsaturated zone has a mean of 5.15E-5 cm/s. Please provide information that addresses the difference in hydraulic conductivities between the two models.

- **AB-20**

The dimensions provided for the Federal Cell in Appendix O are 374 m by 585 m, but in the RESRAD model the active area modeled was only 30.48 m by 30.48 m. Even though a smaller portion of the overall cell may be open at a given time for waste placement, it is likely that an area larger than this will contain waste for a majority of the operating period. Please provide justification for the modeled contamination zone dimensions. Similarly, the length parallel to aquifer is set to 30.48 m; however, for a majority of the Federal Cell's operational period, it is likely that a longer portion of the cell will contain waste. Please provide justification for these parallel dimensions.

- **AB-21**

The clay liner unsaturated zone included in the RESRAD model is set to a thickness of 1 foot; however, Section 1.2.3 of the application states the clay liner is 2 feet. Please clarify which clay liner will be used and provide justification for the chosen thickness.

- **AB-22**

There are several citations included in the table of RESRAD parameter values, but no reference list is provided. Please include a complete list of references cited in this appendix.

- **AB-23**

If model parameters change in response to RFIs, please re-run the model and provide updated results.