



State of Utah

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DIVISION OF WASTE MANAGEMENT
AND RADIATION CONTROL

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Director

June 15, 2021

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

RE: Federal Cell Facility Radioactive Material License Application
UT2300636

Dear Mr. Rogers:

EnergySolutions submitted to the Utah Department of Environmental Quality (UDEQ) on April 9, 2021 a formal application for the licensing, construction, and operation of a Clive Federal Cell Facility (FCF) (CD-2021-052). EnergySolutions included in this submission a Depleted Uranium Performance Assessment (DU PA). Consistent with NRC guidance, UDEQ carried-out a Completeness Review of the application and transmitted the results of that review on May 13, 2021. The UDEQ has some comments on the DU PA and recommendations regarding its revision prior to resubmittal.

On November 25, 2015, EnergySolutions transmitted to UDEQ "Final Report for the Clive DU PA Model, Clive DU PA Model v1.4" (Neptune, NAC-0024_R4, November 24, 2015) and 21 appendices. Since November 2015, further technical work has been performed on the DU PA, including, but not limited to:

- A series of technical teleconferences between Neptune and Company (NAC) and SC&A, including calls on August 21, 2019, September 30, 2019, November 15, 2019, December 13, 2019, December 30, 2019, and March 8, 2020.
- A January 7, 2020 meeting between UDEQ, EnergySolutions, NAC, and SC&A at UDEQ's Salt Lake City offices.
- A second series of teleconferences between UDEQ, EnergySolutions, NAC, and SC&A, including calls on December 21, 2020, January 20, 2021, March 3, 2021, and March 17, 2021.

(Over)

DRC-2021-008182

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- ES/NAC issued a series of reports to supplement the information contained in the November 2015 version of the DU PA, including:

Number	Title	Date
NAC-0115_R0	Introduction to DU PA Model Version 1.4 Interrogatory Responses (to UDEQ,5/11/17, DSHW-2017-003882)	23 February 2018
NAC-0106_R0	ET Cover Design Responses for the Clive DU PA Model	23 February 2018
NAC-0108_R0	Erosion Responses for the Clive DU PA Model	23 February 2018
NAC-0105_R0	Deep Time Supplemental Analysis Responses for the Clive DU PA Model	23 February 2018
NAC-0102_R0	Other Wastes Responses for the Clive DU PA Model	23 February 2018
NAC-0104_R0	Groundwater Exposure Responses for the Clive DU PA Model	23 February 2018
NAC-0103_R0	Recycled Uranium Responses for the Clive DU PA Model	23 February 2018
NAC-0101_R0	Federal Cell Design Responses for the Clive DU PA Model (to UDEQ 7/25/19, DRC-2019-005281)	23 February 2018
NAC-0147_R0	Clive DU PA Model—Response to Model Version 1.4 Amended Interrogatories	24 April 2020
NAC-0032_R5	Deep Time Assessment for the Clive DU PA Model v1.5	30 March 2020

- UDEQ notified *EnergySolutions* of technical issues associated with the DU PA, including:
 - “Depleted Uranium Performance Assessment (DUPA), Clive Facility, Model Version 1.4 Interrogatories,” May 11, 2017, DSHW-2017-003882
 - “Depleted Uranium Performance Assessment (DUPA), Clive Facility, Model Version 1.4 Amended Interrogatories,” July 25, 2019, DRC-2019-005281
 - “Basal Aquifer Study,” July 29, 2019, DRC-2019-006989
 - “Comments on Basal Aquifer Study Plan,” October 30, 2019, DRC-2019-013242
 - Phase 1 of the Basal-Depth Aquifer Study, November 7, 2019, DRC-2019-014304
 - “Basal-Depth Aquifer Study: Interrogatories and Comments, UT2300249,” August 11, 2020, DRC-2020-013482
 - “Comments on *EnergySolutions* Cover System Described in the DU PA, Draft Federal Cell License Application,” December 3, 2020
 - “Interrogatories for Basal-Depth Aquifer System Study Submitted October 3, 2020,” January 15, 2021, DRC-2021-000511
 - “Technical Report, Performance Objective R313-25-23, Stability of the Disposal Site after Closure,” January 28, 2021

- EnergySolutions/RB&G issued a series of plans and reports on the Cover Test Cell study:
 - Cover Test Cell Deconstruction Study Plan, October 1, 2018, CD18-0179, DRC-2018-010133
 - Cover Test Cell Deconstruction Study Plan, (Revision 2), August 21, 2019, CD19-0178, DRC-2019-009721
 - Radioactive Material License UT 2300249: Cover Test Cell Deconstruction Study Final Report August 7, 2020, CD20-0123, DRC-2020-013604

- EnergySolutions/Stantec issued a series of plans and reports for a study of the basal-depth aquifer including:
 - Radioactive Material License UT2300249: Basal-Depth Aquifer Study Plan, Radioactive Material License UT2300478, October 3, 2019, CD19-0185, DRC-2019-012184
 - Radioactive Material License UT2300249: Phase 1 of the Basal-Depth Aquifer Study Plan, (Response to Request for Information),” November 5, 2019, CD19-0224
 - Radioactive Material Licenses UT2300249 and UT2300478: Phase 1 of the Basal-Depth Aquifer Study Plan, (Revised),” November 12, 2019, CD19-0227, DRC-2019-014589
 - “Phase 1 Basal-Depth Aquifer Report – Final,” March 13, 2020
 - “Phase 1 Basal-Depth Aquifer Report – Final, Revised,” September 30, 2020

- The April 9, 2021 “Federal Cell Facility Application for a Radioactive Material License” submitted by EnergySolutions includes three appendices that contain information directly related to the DU PA, namely:
 - Appendix D “Phase 1 Basal-Depth Study Report and 2021 Interrogatory Responses,” including Stantec’s “Responses to the Division’s January 15, 2021 Interrogatory” (March 10, 2021) and Stantec’s “Phase 1 Basal-Depth Aquifer Study Report Clive Disposal Facility” (March 13, 2020)
 - Appendix N “Neptune Erosion Analysis” (NAC, “Clive DU PA Model—Response to DWMRC-1-28-2021 Comments,” NAC-0166_R0, 5 April 2021)
 - Appendix P “Neptune Cover Infiltration Analysis” (NAC, “Clive DU PA Model—Response to DWMRC 12-3-2020 Comments,” NAC-0165_R0, 31 March 2021)

In addition to this new information, which is not currently in the November 2015 DU PA, the design of the FCF has evolved so that the facility described and analyzed in NAC-0024 is not the current facility design (e.g., updating characterization of the groundwater profile, changing from an evapotranspiration (ET) to a hybrid cover, creating a Transition Zone between the top and side slopes, adjusting at a later time the location and size of the Transition Zone, modifying the Surface-Layer thickness, excluding non-DU waste placement above the DU waste, changing embankment dimensions, etc.).

In summary, the current DU PA comprises a series of documents that were published from 2015 to 2021, with no single document providing a complete, up-to-date picture of the entire DU PA process. For someone who has not been closely following the DU PA development, it would seem nearly impossible to comprehend the evolution of the DU PA over this six-year interval. For these reasons,

UDEQ is requiring that the DU PA Final Report be revised to capture current design and all the analyses that have occurred since November 2015.

The following is a summary of what information UDEQ anticipates would be provided in the revised DU PA Final Report:

- The information contained within the DU PA must agree with and support the information contained within the FCF License Application.
- The DU PA Final Report should explicitly state which of the Part 61, Subpart C “Performance Objectives” (i.e., 10CFR §61.41, §61.42, §61.43, and §61.44 and Utah Administrative Code R313-25-20, -21, -22, and -23) the DU PA Final Report addresses. For any performance objective that is not fully addressed in the DU PA, indicate specifically where it is being addressed in the FCF License Application. If the DU PA demonstrates compliance with any other rule/regulation (e.g., groundwater protection levels (GWPLs)), that should also be explicitly stated.
- The Deep Time analysis in the GoldSim Model v1.5 (described in NAC-0032_R5, see above) needs to replace the v1.4 discussion currently in the DU PA Final Report (i.e., NAC-0024).
- The DU PA Final Report does not need to describe the history as to how a particular result was determined (e.g., a series of back-and-forths between EnergySolutions and UDEQ); it only needs to describe how the current result meets the criteria.
- The Utah Administrative Code R313-25-9(5)(a) (and Utah Code 19-3-103.7(3)) requires the Director’s approval of the DU PA. The DU PA must include sufficient information (presented in a logical, easy-to-follow format) such that a reasonable layperson would be able to establish how it forms the basis for the Director’s approval.

To reduce the amount of revision required, UDEQ recommends that only the DU PA Final Report (i.e., NAC-0024) be revised and included with the FCF License Application, and that the 21 appendices be converted to references. Files that can be put into an electronic UDEQ DU PA library allowing these references and all other PA references to be linked should also be provided. The DU PA Final Report would then make *specific* citation to information needed from each of these 21 documents or other pertinent documents. For the 21 documents, ES would cite a specific piece of information by section, page, table, figure number, or another unique identifier. Each piece of information cited should be accurate, up-to-date, consistent with the current design, and justified.

Since many of the 21 appendices and the other documents listed above contain information that was once relevant to the FCF design and/or DU PA, but has since been superseded, all citations need to be *specific* to only that information that is current.

Of course, if EnergySolutions/NAC desire, the 21 appendices may alternatively be revised, updated and included in the FCF License Application, along with the DU PA Final Report. At present, all 21 DU PA appendices, as well as all the NAC documents tabulated above, are included in Appendix Q of the April 9, 2021 FCF License Application. If this is continued in the revised License Application, then each document will need to be revised to remove out-of-date and/or contradictory information. UDEQ is hoping to avoid this.

In closing, if the DU PA remains in multiple documents spread over multiple years (with some documents contradicting others or creating ambiguity due to the evolving nature of the design/analysis), then it would be extremely difficult for the Director (or any reasonable layperson) to dissect the information and determine whether the FCF meets the specified "Performance Criteria." The Director must determine that the DU PA demonstrates compliance with the "Performance Criteria" as part of a thorough review.

If you have any questions, please call Otis Willoughby at (801) 536-0220.

Sincerely,



Otis H. Willoughby, Low Level Radioactive Waste Section Manager
Division of Waste Management and Radiation Control

OHW/OW/wa

- c: Vern C. Rogers, Director of Regulatory Affairs, *EnergySolutions*, LLC (Email)
Jeff Coombs, Health Officer, Tooele County Health Department
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