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December 11, 2013

Sean McCandless
Director of Permitting and Compliance
EnergySolutions, LLC
423 South 300 West, Suite 200
Salt Lake City, Utah 84101

RE: Depleted Uranium Performance Assessment (DUPA) for the Clive Facility
Preliminary Completeness Review
DRC Radioactive Material License UT 2300249

Dear Mr. McCandless:

Thank you for your submittal of November 8, 2013 (CD13-0302) which included Revision 1 to the Condition 35 Compliance Report and responses to the Task 1 Preliminary Completeness Report. This letter is intended to inform EnergySolutions about the Department of Environmental Quality's general concerns raised by the November 8, 2013 submittal. The concerns fall mainly into two categories: 1) the inclusion of considerable new material which was not included in the June 2011 DUPA; and 2) Energy Solutions' responses to the completeness comments.

Inclusion of Additional Material

Based on the initial review of Revision 1 of the Compliance Report, it is noted that EnergySolutions has made some significant changes to the original June 1, 2011 document. Some of the more noteworthy changes as compared to the formerly submitted DUPA include:

Class A West Cell as an Appropriate Analog for the Federal Cell

A recurring theme in the EnergySolutions response of November 8 is that the Class A West Cell design has been approved by the Division of Radiation Control (DRC) and the implied logic is that, since the Federal Cell cover design is basically the same as the Class A West Cell design, the Federal Cell will meet the DRC requirements. This logic cannot be accepted before completing the detailed technical review. A key open question is how will the Class A West Cell design, which appears to be based on a 1000-year life span, perform for 10,000 years or more. As noted on page 2-1 of the revised Compliance Report:

"The Division-approved Federal Cell design (i.e., the Class A West Embankment design) has been shown to perform for a minimum of 500 years based on requirements of UAC R313-25-8, which

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provides long-term disposal with minimal need for active maintenance after site closure (DRC, 2012)."

That performance demonstration is far short of the minimum of 10,000 years specified in UAC R313-25-8(5)(a).

Alternative Cell Designs

As noted on page 1-6 of the revised Compliance Report:

"Given its improved ability to protect the groundwater resources and exposed general public, EnergySolutions will evaluate the alternative evapotranspirative cover design for the proposed Federal Cell in future revisions to the depleted uranium Performance Assessment."

Introduction of an alternative cell design could potentially affect the timeline for review of the DUPA.

Revised Performance Assessment

On Page 1-10 of the revised Compliance Report, EnergySolutions states:

EnergySolutions has revised the depleted uranium Performance Assessment to demonstrate that no members of the general public who could hypothetically survive consumption of the natural groundwater beneath the Federal Cell with either the Division-Approved rock-armor design for the Class A West Embankment or alternate evapotranspirative cover design currently under review, will receive a CEDE in excess of 4 mrem/year within a 10,000-year Period of Performance."

What is the revised DUPA referred to in this statement? How does it differ from the June 2011 DUPA?

Industrial Worker

On page 2-14 of the revised Compliance Report, mention is made of exposure to an industrial worker. This is apparently a new scenario. A search of the 2011 DUPA Final Report and its Appendix 11 does not appear to include an industrial worker scenario. Additional documentation of this scenario needs to be provided by EnergySolutions before it can be reviewed (e.g., industrial worker location, exposure pathways, exposure durations, etc.).

Below Grade Disposal

Page 1-3 of the revised Compliance Report states that the DU disposal is below grade:

Although the Performance Assessment evaluates disposal both above- and below-grade, depleted uranium will be disposed below grade to enhance assurance of continued isolation under geologic-time events such as the return of a large lake inundating Clive. Figure 1-2 below demonstrates that the entire depleted uranium inventory evaluated can be disposed in such a manner.

The ramifications of this change from the 2011 DUPA will need to be explained with regard to potential impact to groundwater issues.

As indicated above, additional supporting references and documentation for these (and potentially other) changes reflected in the revised Compliance Report are required before the new material can be fully reviewed. Clearly, these items will be the subject of the future Round 1 Interrogatory.

EnergySolutions Response to Completeness Comments

In many of its responses to the Task 1 completeness comments included as Appendix A of the November 8 submittal, EnergySolutions took the position that it does not consider this comment to be relevant to completeness and that the comment will be addressed during the substantive review of the filing. It is recognized that there is an element of subjectivity in determining whether a comment speaks to a completeness issue or a technical issue. In the interest of maintaining the timeline, the better approach is not to debate into which category a comment falls. Rather, EnergySolutions' categorization will be accepted at this time and many of these deferred comments will be revisited in the Round 1 interrogatories.

Perhaps more importantly, there appears to be inaccuracies in some of the responses to comments in Appendix A. Some examples are:

Example 1. On page A-46, the comment and response are:

Comment –

Section 5, page 22, Human Processes. The text states that anthropogenic climate change is among the human process FEPs identified for assessment. The text should provide a specific cross-reference to this assessment.

EnergySolutions' Response –

Section 6.0 of Appendix 1 of Appendix A from revision 0 provides detail as to the manner in which the anthropogenic climate change FEP was assessed.

The response appears to be inaccurate. As can be seen from the following excerpt (complete as to climate change) from Section 6 of Appendix 1:

Climate change

Features, events, and processes of climate change considered in the conceptual model include effects on hydrology (including lake effects), hydrogeology, biota, and human behaviors. Lake effects include appearance/disappearance of large lakes and associated phenomena (sedimentation, wave action, erosion/inundation). Wave action, including seiches, is included in the CSM.

Section 6 does not appear to provide any detail as to the manner in which anthropogenic climate change is addressed.

Example 2. On page A-23, EnergySolutions states, "The effects of the deep-time temporal changes in Ra-226 activity have been evaluated in the depleted uranium Performance Assessment" and provides a quotation from page 5 of the Final Report. What is the relevance of the quotation? There was no evaluation of temporal changes of Ra-226 activity in the Final Report. In Section 6.5 of Appendix A from Revision 0, results are presented for U-238 only, and Ra-226 and all other radionuclides have not been included in the deep time analysis.

Example 3. On page A-39 the comment and response are:

Comment –

The last paragraph states that “the MOP performance objectives are not exceeded in all cases.” However, Table 17 shows that the 95th percentile ranch worker dose is 72.3 mrem/yr, which is greater than the 25 mrem/yr performance objective. The text should address this discrepancy.

EnergySolutions’ Response -

Doses summarized in Table 3-3 of the Compliance Report (which include 95-percentile doses of 110 mrem/year for the Industrial Worker and 72 mrem/year for the Rancher) are specifically associated with inadvertent intrusion scenarios and as such as comparable to the 500 mrem/year dose limit standard. Doses summarized in Table 3-1 of the Compliance Report (which cite 95-percentile doses of 16 mrem/year for the Industrial Worker and 11 mrem/year for the Rancher) are those specifically associated with the Division’s referenced 25 mrem/year protection of the general public performance objective. Therefore, the statement from Section 7.2, page 85 is correct, as originally drafted.

The response does not appear to address the comment. The Final Report indicates that the performance objective for a member of the public (MOP) is exceeded at the 95th percentile (72.3 mrem/yr versus 25 mrem/yr for a ranch worker). It appears that in the revised Compliance Report ES has determined that the ranch worker, who was an MOP in the 2011 DUPA, is now considered to be an inadvertent intruder. Please provide explanation regarding this definitional change.

These are only three examples. The DEQ expects to develop and submit more detailed comments on EnergySolutions’ responses to completeness comments concurrent with the preparation of Round 1 Interrogatories.

We welcome any response or clarification you may have to offer to the above comments (before the completion of the Round 1 Interrogatory).

If you have any questions, please call me at (801)536-0215.

Sincerely,



Helge Gabert, Project Manager DU Contract
Division of Solid and Hazardous Waste

HG/STA/tjm

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