

UTAH DIVISION OF RADIATION CONTROL

***ENERGYSOLUTIONS* LLC.**

CLIVE, UTAH

**11e.(2) RADIOACTIVE MATERIALS LICENSE UT2300478
RENEWAL APPLICATION**

INTERROGATORIES – ROUND 1

JANUARY 2013

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ACRONYMS AND ABBREVIATIONS

| | |
|---------------|--|
| ALARA | As Low As Reasonably Achievable |
| AMSL | Above Mean Sea-Level |
| ASRSO | Assistant Site Radiological Safety Officer |
| BLM | Bureau of Land Management |
| CFR | Code of Federal Regulations |
| CQA/QC Manual | Construction Quality Assurance/ Quality Control Manual |
| DHP | Director of Health Physics at the Clive Facility |
| DOT | US Department of Transportation |
| DRC | Utah Division of Radiation Control |
| ES | Energy <i>Solutions</i> LLC |
| GWQDP | State of Utah Groundwater Quality Discharge Permit |
| LRA | License Renewal Application |
| NRC | Nuclear Regulatory Commission |
| m | Meter |
| OPB | Governor's Office of Planning and Budget |
| OSHA | Occupational Safety and Health Administration |
| OSL | Optically Stimulated Luminescence |
| PCP | Post Closure Period |
| PMF | Probable Maximum Flood |
| PMP | Probable Maximum Precipitation |
| RCRA | Resource Conservation and Recovery Act |
| RML | Radioactive Materials License |
| RPP | Respiratory Protection Program |
| RSO | Radiation Safety Officer |
| RWP | Radiation Work Permit |
| SOP | Standard Operating Procedure |
| TDS | Total Dissolved Solids |
| UDOT | Utah Department of Transportation |
| URCR | Utah Radiation Control Rules |
| WDHIA | West Desert Hazardous Industries Area |

11e.(2) Renewal Application Interrogatories

INTRODUCTION

The original renewal application for the 11e.(2) Radioactive Material License (RML) was submitted to the Nuclear Regulatory Commission (NRC) on May 1, 2003. At the time the State of Utah was in negotiation with the NRC to add 11e.(2) byproduct material to the State of Utah's agreement state status, so the NRC did not initiate review of the renewal application at that time.

The following is a timeline of events for the renewal of this 11e.(2) RML:

- August 16, 2004 the State of Utah's agreement with the NRC was amended to include 11e.(2) byproduct material thus giving the State of Utah regulatory authority over Envirocare of Utah's (now *EnergySolutions*) 11e.(2) byproduct RML;
- February 4, 2005, the Utah Division of Radiation Control (DRC) issued Envirocare of Utah a new 11e.(2) RML numbered UT2300478 and recognized that the RML was under timely renewal;
- February 28, 2005, Envirocare of Utah submitted the 11e.(2) RML renewal application to the DRC. The review was conducted by DRC contractor URS Corporation;
- June 29, 2005, the DRC issued the first round of Interrogatories for the 11e.(2) RML renewal;
- February 28, 2006, Envirocare of Utah submitted Revision 2 of the 11e.(2) RML renewal application;
- March 26, 2006, RML UT 2300478 was amended to change the corporate name from Envirocare of Utah Inc. to *EnergySolutions* LLC;
- February 13, 2007 the DRC issued a technical interrogatory;
- May 15, 2007, *EnergySolutions* submitted Revision 3 of the 11e.(2) RML renewal;
- October 16, 2007 the DRC issued round 2 interrogatories to *EnergySolutions*;
- After the round 2 interrogatories were issued, the DRC management placed the review of the 11e.(2) renewal on hold to reallocate DRC resources to other Licensing actions which include but not limited to:
 - Class A License: Class A Combined License Proposal;
 - Class A License: Capital Improvements License Amendment;
 - Class A License: RML Renewal;
 - Class A License: Class A South License Proposal;
 - Class A License: Class A West License Amendment;
 - Class A License: Approximately 18 other smaller License Amendments and License Variances;
 - 11e.(2) License: Eight License Amendments;
 - Miscellaneous 11e.(2) Licensing Actions from other Licensee's; and
 - *EnergySolutions*' RML Application for Waste Processing. (Later Rescinded by *EnergySolutions*).
- January, 2012 the DRC and *EnergySolutions* agreed to pick up the renewal license action;
- May 4, 2012 *EnergySolutions* submitted revision 4;
- DRC staff performed a completeness review and on May 22, 2012 sent a letter to *EnergySolutions* requesting for additional information; and

- June 1, 2012 EnergySolutions submitted revision 5 of the 11e.(2) RML renewal application.

The following are the interrogatories developed by DRC staff from the review of EnergySolutions 11e.(2) RML renewal application (Rev. 5). To aid in the review, the DRC staff created a topical outline of the information that needed to be addressed in an 11e.(2) RML renewal application from applicable NRC Regulatory Guides and NUREGs. This topical outline was adjusted to fit the specific licensed facility's unique circumstances. This topical outline was provided to the Licensee, for them to follow in developing their renewal application. The DRC staff used the topical outline to develop the outline of this Interrogatory document and will use it to write the Technical Review and Environmental Assessment Report at the conclusion of the review process.

A description of the format of the interrogatories follows:

INTERROGATORY STATEMENT:

The Interrogatory Statement identifies what additional information the Licensee needs to provide for the topic of the section. If the information provided by the Licensee is complete, by addressing the information required, then this section will state that the information provided is sufficient.

BASIS FOR INTERROGATORY:

If additional information is required, a justification is provided for the additional information. If the information provided by the Licensee is sufficient then this section provides a justification of why the information provided by the Licensee is complete.

APPLICABLE RULE(S) OR REGULATION(S):

The DRC will list the State of Utah Administrative Code Rules (UAC) and the Federal Regulations that apply to the section topic.

REFERENCES:

The DRC Staff will list and reference any document(s) used in the review of the section. These include but not limited to NRC Regulatory Guides, NRC NUREGs, the 11e.(2) RML License Conditions, DRC Forms and etc.

INTERROGATORIES

SECTION 1.0-PROPOSED ACTION

INTERROGATORY STATEMENT 1.0(1):

Please cite the correct latest revision of the CQA/QC Manual.

BASIS FOR INTERROGATORY:

The latest revision of the CQA/QC Manual is 26d not 25d. The last sentence of the second paragraph on page 1-1 states "... currently approved as revision 25d (CQA/QC Manual)."

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-1(3). Purpose and Authority

R313-15-101. Radiation Protection Programs

R313-19-2(2). General

R313-22-33(1)(c). General Requirements for issuance of Specific Licenses

R313-24-4. Clarifications or Exceptions

10 CFR 40.41(c). Terms and conditions of licenses

10 CFR 40 Appendix A Criterion 4

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 *Application for Radioactive Material License, Section 6 Purpose For Which Licensed Material Will Be Used.*

United States Nuclear Regulatory Commission (NRC): *Standard Review Plan for In Situ Leach Uranium Extraction License Applications*, NUREG 1569, *Section 1.0: Proposed Activities.*

U.S. Nuclear Regulatory Commission NUREG 1748: *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 5.1.1: Purpose and Need for the Proposed Action.*

U.S. Nuclear Regulatory Commission, Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills, Section C1: Proposed Activities.*

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: *Preparation of Environmental Reports for Uranium Mills, Chapter 1: Proposed Activities.*

SECTION 2.0-SITE CHARACTERIZATION

INTERROGATORY STATEMENT 2.0(1):

State of Utah Administrative Rules (UAC), in addition to NRC regulations, need to be cited.

BASIS FOR INTERROGATORY:

The last sentence in the first paragraph of page 2-2 should cite Utah Administrative Code R313-24-4, as it references 10 CFR 40 Appendix A Criterion 6 requirements for the 200 year to 1,000 year embankment design life, in addition to NUREG-1476. Also, throughout the entire document UAC references were not used.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a). Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 1, 4 and 6

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: *Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 2.0: Site Characterization.*

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills, Section 2.0: Site Characteristics.*

U.S. Nuclear Regulatory Commission, Regulatory Guide 3.8: *Preparation of Environmental Reports for Uranium Mills, Chapter 2: The Site.*

SECTION 2.1-SITE LOCATION AND LAYOUT

INTERROGATORY STATEMENT 2.1(1):

Clearly and precisely describe the 11e.(2) embankment location and layout. Provide updated drawings and descriptions to include changes to the facility as a result of the Class A West License Amendment for the Low Level Waste RML.

BASIS FOR INTERROGATORY:

The Class A West License Amendment for RML UT2300249 combined the Class A and Class A North embankments. This amendment was approved after the submittal of the 11e.(2) renewal application revision 5. The drawing and figures are now outdated. For example, Figure 2-3 and the text on page 2-3 refer to Class A and Class A North embankments.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(c). General Requirements for issuance of Specific Licenses
R313-24-3(1)(a). Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 1 and 4

REFERENCES:

U.S. Nuclear Regulatory Commission, NUREG 1569: *Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 2.1: Site Location and Layout.*

U.S. Nuclear Regulatory Commission, Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills, Section 2.0 Site Characteristics.*

U.S. Nuclear Regulatory Commission, Regulatory Guide 3.8: *Preparation of Environmental Reports for Uranium Mills, Chapter 2.1: Site Location and Layout.*

SECTION 2.2-USE OF ADJACENT LANDS AND WATERS

INTERROGATORY STATEMENT 2.2(1):

Correctly describe the land and water uses adjacent to the Facility. Discuss the limits to land and water use. Correct the information in the second full paragraph on page 2-13, which refers to the Hazardous Industrial District. Update Figure 2-4 and the information on surrounding land uses. Provide a figure showing water uses and water drainage surrounding the facility. Indicate where local grazers such as sheep and cattle get their water. Clearly identify the limits of land uses surrounding the facility such as the limits for crop development due to soil conditions (soil salinity) that are not conducive to sustainable crop yields.

BASIS FOR INTERROGATORY:

The second full paragraph on page 2-13 refers to Figure 2-4 and states that "...the area around the Clive Facility has been designated as a Hazardous Industrial District MG-H by Tooele County...."

Tooele County currently has 28 zoning districts including MG-H for Hazardous Industries and MG-EX for mining, sand and gravel excavation. In 1987, the West Desert Hazardous Industry Area or Corridor (WDHIA), with a MG-H zoning designation, was created to prohibit the construction of private dwellings and to provide an area in a remote locations where hazardous and low-level radioactive waste could be stored, treated and disposed in a safe manner (referred to as hazardous industries). The corridor consisted of 78,720 acres at a time when there was a boom in the hazardous and radioactive waste industry. Residential construction was prohibited within a ten mile radius of a hazardous industry (Tooele County, 2012). On November 22, 2005, the Tooele County Planning Commission decreased the size of the WDHIA to 9,440 acres and changed the corridor to four non-contiguous areas, surrounded by State Trust, MG-EX zoned and BLM lands. The prohibited distance to residential development was decreased from ten to five miles to accommodate a request by UDOT to have a resident live at the rest stop on I-80 (Tooele County, 2012).

The four areas of the WDHIA consist of Section 16 and parts of surrounding sections 17, 15, 10, 9 and 8 to accommodate the Aragonite Hazardous Waste Incinerator Facility; Sections 32 and 29 with parts of surrounding Sections 28, 33, 4 and 5 for the current *EnergySolutions* Facility; Section 16 with parts of surrounding Sections 15, 17, 10, 9, 8, 20, 21 and 22 for the Clean Harbors Grassy Mountain Hazardous Waste Storage, Treatment and Disposal Facility and Section 36 for the Clean Harbors Hazardous Waste Storage Facility (Tooele County webpage, 2012). Since September 26, 2005, Tooele County has prohibited the construction of any additional hazardous or radioactive waste treatment, storage or disposal facilities. The sections surrounding the *EnergySolutions* Facility are zoned for commercial use with restrictions stated in Chapter 17, Part 17-1, of the Tooele County Land Uses Ordinances of the Tooele County Plan (Beutler, 2010). This means that adjacent commercial/industrial properties have the potential to have worker occupancy.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(c). General Requirements for Issuance of Specific Licenses

R313-24-3(1)(a). Environmental Analysis

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 1 and 4

REFERENCES:

Radioactive Material License UT2300478, License Conditions 12.4.

U.S. Nuclear Regulatory Commission, NUREG 1569, *Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 2.2: Uses of Adjacent Lands and Waters.*

U.S. Nuclear Regulatory Commission, NUREG 1748, *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 5.3.1: Land Use.*

U.S. Nuclear Regulatory Commission, Regulatory Guide 3.5, *Standard Format and Content of License Applications for Uranium Mills, Section 2.0 Site Characteristics.*

U.S. Nuclear Regulatory Commission, Regulatory Guide 3.8, *Preparation of Environmental Reports for Uranium Mills, Chapter 2.2: Use of Adjacent Lands and Waters.*

Tooele County, <http://www.co.tooele.ut.us/PDF/Engineering/zmaps/01IndexZoning.pdf>

Beutler, Kerry, 2010, Tooele County Planner, *Memo to Tooele County Planning Commission Members*, October 19.

Tooele County Planning Commission, 2005, *Minutes of working meeting*, March 16.

INTERROGATORY STATEMENT 2.2(2):

Correct the information on settlement monitoring and move the information to Section 3.1, "Embankment Design, Construction and Performance."

Please discuss how settlement will be monitored on that portion of the cover that already has final cover but has no settlement monitoring and no monuments to date. The requirement for settlement monitoring for 11e.(2) is in the CQA/QC Manual but that portion of the cell with cover needs to be added to the license if it was placed before settlement monitoring was required.

Discuss the criteria to determine if differential settlement is unacceptable and therefore surcharging is required. Assuming that EnergySolutions is planning on placing settlement monuments sometime in the future, state the distance between settlement monuments and the acceptable and then unacceptable vertical settlement that facility inspectors will use. Discuss whether the 0.07 ft/ft maximum settlement and thus distortion in the CQA/QC Manual applies to the 11e.(2) cell. Discuss how the results of the Clay Distortion Study for the Class A West License Amendment Request (LAR) may affect the settlement monitoring of the 11e.(2) temporary cover and the radon barrier layer. Present a Surcharging Plan with details of how and when surcharging will be used with estimates of location and amount of unacceptable differential settlement of the waste, foundation, liner and cover and the amount and type of material that will be used as a surcharge.

BASIS FOR INTERROGATORY:

The third full paragraph on page 2-13 states that the settlement monitoring program is taking place and will take place on the temporary cover of the embankment. DRC understands that there is no current, and there has never been any, settlement monitoring on the 11e.(2) embankment even though there is temporary and final cover on a portion of the embankment.

The last sentence of the third full paragraph states that if the differential settlement exceeds, or is projected to exceed, the established criteria, then surcharging is required. Surcharging takes a long time, as much as several years. The established criteria was not stated. The information in many sections of the LRA are similar to this section in that it appears that no research was conducted to determine if the information in historical documents and references is still correct and applicable.

APPLICABLE RULE(S) OR REGULATION(S):

10 CFR 40 Appendix A Criterion 6

REFERENCES:

Radioactive Material License UT2300478, License Conditions 12.4.

U.S. Nuclear Regulatory Commission, NUREG 1569, *Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 2.2: Uses of Adjacent Lands and Waters.*

U.S. Nuclear Regulatory Commission, NUREG 1748, *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 5.3.1: Land Use.*

U.S. Nuclear Regulatory Commission, Regulatory Guide 3.5, *Standard Format and Content of License Applications for Uranium Mills, Section 2.0 Site Characteristics.*

U.S. Nuclear Regulatory Commission, Regulatory Guide 3.8, *Preparation of Environmental Reports for Uranium Mills, Chapter 2.2: Use of Adjacent Lands and Waters.*

Tooele County, <http://www.co.tooele.ut.us/PDF/Engineering/zmaps/01IndexZoning.pdf>

Beutler, Kerry, 2010, Tooele County Planner, *Memo to Tooele County Planning Commission Members*, October 19.

Tooele County Planning Commission, 2005, *Minutes of working meeting*, March 16.

SECTION 2.3-POPULATION DISTRIBUTION

INTERROGATORY STATEMENT 2.3(1):

Please update and correct the population and demographic projection data in Tables 2-1, 2-2 and the text on page 2-16.

BASIS FOR INTERROGATORY:

The stated current and projected Tooele County population values are based on a study that was completed in 2002. The most recent demographic study by Tooele County was published in June 2009 and is available at the web address: www.tooeleconomicdevelopment.com. The latest demographic projection data for Tooele County was developed in 2012 and is available from the Governor's Office of Planning and Budget (OPB) at the web address: www.governor.state.ut.us. The 2012 study by OPB projected the 2020 population of Tooele County to be 74,877.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(c). General Requirements for issuance of Specific Licenses
R313-24-3(1)(a). Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 1 and 4

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 2.0 *Site Characteristics*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2.3: *Population Distribution*.

SECTION 2.4-HISTORIC, SCENIC, ARCHEOLOGICAL AND CULTURAL RESOURCES

INTERROGATORY STATEMENT 2.4(1):

Information provided in this section of the 11e.(2) RML Renewal Application sufficiently described the historic, scenic, archeological and cultural resources of the area surrounding the facility.

BASIS FOR INTERROGATORY:

The information in section 2.4 of the RML renewal application and section 3.8 of the 11e.(2) environmental assessment, provided the results of previous cultural resource inventories at the Clive facility. Also, Section 2.4 of the RML renewal application discusses how License Condition 9.5, archeological resource inventories, will be followed for future activities at the Clive facility. In Section 3.9, of the 11e.(2) environmental assessment, scenic resources were discussed using the BLM visual resource inventory and evaluation system.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(c). General Requirements for issuance of Specific Licenses
R313-24-3(1)(a). Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 1 and 4

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.5.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2.4: *Regional, Historic, Archeological, Architectural, Scenic, Cultural, and Natural Landmarks.*

SECTION 2.5-METEOROLOGY AND CLIMATOLOGY

INTERROGATORY STATEMENT 2.5(1):

Provide data and discussion on frequency and impact of the high winds that occur at the Clive facility.

BASIS FOR INTERROGATORY:

High winds are not discussed in section 2.5.2, *Winds*, but are referenced to the safety assessment in Section 7.5.5. The EnergySolutions RML (UT2300249) for low level waste, License Condition 53D, requires that waste handling operations cease when sustained wind velocities exceed 35 miles per hour. It has been observed by DRC personnel that high winds occur several times a year and occasionally damage facilities at the Clive site. DRC may consider adding a similar requirement to the 11e.(2) license.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-15-302 Compliance with Dose Limits for Individuals Members of the Public

R313-15-501 Surveys and Monitoring-General

R313-24-3(1)(a) Environmental Analysis

R313-24-4 Clarifications or Exceptions

10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements

10 CFR 40 Appendix A Criterion 7 and 8

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 2.5: *Meteorology*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 5.3.6: *Meteorology, Climatology and Air Quality*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 2.2: *Meteorology*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.8: *Meteorology*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.63: Onsite Meteorological Measurement Program for Uranium Recovery Facilities- Data Acquisition and Reporting.

INTERROGATORY STATEMENT 2.5(2):

State temperature data in Fahrenheit units. Provide information on the times of year when precipitation may affect operations at the Clive facility. Provide more information on topographical effects, such as the diverse locally extreme topographic gradients exerting influence on surface winds, and the variability of surface winds throughout the region. Add more information and data on the climatology and meteorology of the site and area. Discuss high precipitation events which generally occur several times during the year. Provide more of a discussion on wind, which is a primary mechanism for the movement of materials in the region and how it will have an impact on disturbed lands and the operations and processes at the Facility. Provide tables that summarize the meteorological data collected at the site since the license was first issued. Throughout the document units are not consistent. Please correct.

BASIS FOR INTERROGATORY:

Fahrenheit temperature units are usually used in the U.S. The LRA does not sufficiently provide a discussion of severe weather phenomena, the relationship of the meteorological data gathered on a regional basis to local data, the impact of the local terrain and Great Salt Lake on meteorological conditions in the area, and the occurrence of severe weather in the area and its effects. Also, data on diurnal and monthly averages and extremes of temperature and humidity are not provided. Winter and mid Spring months are generally high precipitation periods for the site.

It is not clear if the average of 8.62 inches of precipitation per year, from January 1, 1993 through December 31, 2011, is the arithmetic average of the entire 19 years or the maximum annual value considering 19 years or if for some other time period.

APPLICABLE RULE(S) OR REGULATION(S):

- R313-15-101 Radiation Protection Programs
- R313-15-302 Compliance with Dose Limits for Individual Members of the Public
- R313-15-501 Surveys and Monitoring- General
- R313-24-3(1) & (1)(a) Environmental Analysis
- R313-24-4 Clarifications or Exceptions
- 10 CFR 40 Appendix A Criterion 7 and 8
- 10 CFR 40.31 (h) Application for Specific Licenses
- 10 CFR 40.65 (a)(1) Effluent Monitoring Reporting Requirements

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 2.8 *Meteorology*, 1982.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 2.2 *Meteorology*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.63: Onsite Meteorological Measurement Program for Uranium Recovery Facilities -- Data Acquisition and Reporting, 1988.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.6 *Meteorology, Climatology and Air Quality*, 2003.

INTERROGATORY STATEMENT 2.5(3)

Provide more figures, maps and citations for many of the statements and data. Do not merely reference older documents but provide current data. Also, see comments for Sections 7.5.5 and 7.5.6 of the LRA. Please provide references to any data and provide maps for any information in this section, that is not from the McCandles, 2012 referenced document, such as the description of the “Intermountain Plateau climatic zone.” On page 2-20, Section 2.5.6, please provide a current reference and current data for the discussion of Severe Weather Phenomena. Provide a current wind rose based on recent data collected at the facility. Provide a reference for the data on thunderstorms, a reference for the data from Dugway and a reference for the data on dust devils.

BASIS FOR INTERROGATORY

Some of the data in Sections 2.5.1, “Weather Patterns” through 2.5.5. “Evaporation” are from the report titled “Annual Summary 2011 Meteorological Report” compiled by MSI and received by the DRC with a cover letter from Sean McCandles, dated February 23, 2012. This report is referenced in the June 1, 2012, 11e.(2) LRA as McCandless, Sean, (2012). Referenced citations are not always correct, data from references are not correct and some data and information is not completely referenced.

Page 1-1 of the Meteorological Report states that the meteorological monitoring station at the EnergySolutions Clive, Utah Facility has been operating since April 1992. Page 2-19, Section 2.5 of the LRA, states that EnergySolutions has operated a weather station at Clive since July 1992.

Page 2-20, Section 2.5.2, and page 2-21, Figure 2-5, of the LRA, state that the 19-year time period of data collection is from July 1992 through December 2011. Page 4-2 of the Meteorological Report states that the 19-year period is from January 1993 through December 2011.

The information on “Winds” on Page 2-20, Section 2.5.2, is not consistent with the information on wind speed and wind direction reported on page 4-1 of the referenced Meteorological Report. The LRA states that the “most frequent (and predominant) winds were from the south-southwest direction, with the second most frequent direction being the east-northeast, followed by the south.” The referenced MSI report states that “For the 19-year period, the most frequent (and predominant) winds were from the east-northeast (12.7%) and the south-southwest (12.7%) followed by the south (12.3%). On average, for the 19-year period, the strongest winds were from the south at 9.6 mph and the average wind speed was 7.2 mph.”

The LRA does not support the claim of permanent isolation of tailing and associated contaminants by means of the meteorology and climatology as they contribute to continued immobilization and isolation as the description is not correct, is not adequately referenced and does not contain the most current data.

According to the most recent report by Brough et.al., (2012) there have been 127 tornadoes in Utah from 1950 through 2009, not 2010, as stated. The statement” “Utah tornadoes stay on the

ground for an average of only a few minutes and their path widths are usually one-eighth of a mile or less”, is not correct. The technical report by Brought et.al., 2010, states that tornado path widths are usually less than 60 feet not 600 feet as stated in the LRA. The title of Figure 2-5 is not correct. According to the report by MSI, the shown wind rose is from January 1993 through December 2011, not July 1992 through December, 2011.

Also, page 2-22 of Section 2.5.6, discusses thunderstorms and cites the report by Brough, et.al., 2010. The cited report does not present data on thunderstorms, it discusses tornadoes and waterspouts, not thunderstorms.

APPLICABLE RULE(S) OR REGULATION(S):

UAC R313-24-4 (Appendix A, Criterion 1).

REFERENCES:

Pages 2-19 through 2-22 of Section 2.5, “Meteorology and Climatology” of the submitted “EnergySolutions, State of Utah 11.e.(2) Byproduct Material License Renewal Application, Revision 5, June 1, 2012.”

SECTION 2.6-GEOLOGY AND SEISMOLOGY

INTERROGATORY STATEMENT 2.6(1):

The LRA should include a survey of pertinent literature and field investigations. The regional geology in the application seems to be mixing topography and structural geology. Please revise the text to indicate the Basin and Range topography is typified by generally parallel, nearly north to north-northeast trending mountain ranges separated by wide desert basins. The description of mountain ranges and valley sediments in the application does not provide a clear and comprehensive picture.

The description of site sediments in the application does not provide a clear and comprehensive picture. The Grayback Hills (stratigraphic) description in the application is wrong. Describe geomorphic processes, and indicate if the 11e.(2) embankment has resulted in modification of natural site conditions. Numerous managerial practices have been developed to control and mitigate the effect of various geomorphic processes. During the facility operation, efforts seem to center on minimizing the on-site impacts from water discharge and wind dispersion.

Provide a discussion of the seismic history of the region and site, and tectonic features and associated seismic activity found in the area. Provide the peak ground acceleration, and return period values used in the design of the 11e.(2) embankment, and compare these with the values presented in the updated assessment. Provide liquefaction analyses that rely on the site-specific data from the updated assessment (AMEC, 2012 report). Demonstrate that conditions used in the liquefaction analyses are consistent or conservative compared to the design of the 11e.(2) embankment.

BASIS FOR INTERROGATORY:

The objective in the siting and design of the 11e.(2) embankment is the permanent isolation of the waste by minimization of disturbance by natural forces. The risk/threat to this objective could depend on many types of geologic, geophysical, and geotechnical consideration that should enter into the siting and overall design of facilities. Black et al (1999) provided a report on the geology and geologic hazards of the west desert hazardous industry area and should be referenced as a source of information. The characterization in the application should provide an adequate understanding of the site; geologic criteria are important in siting critical facilities.

The Basin and Range topography is typified by generally parallel, nearly north to north-northeast trending mountain ranges separated by wide desert basins. The mountain ranges are a result of complex, east-west-directed, Sevier age (Cretaceous) compression, which created folds and thrusts in Paleozoic and Mesozoic rocks that were subsequently dissected by northwesterly and northeasterly trending normal and listric faults, formed during Tertiary extension, resulting in the predominant geologic structural features of block-faulted mountain ranges and alluvial-filled basins. The mountain ranges rise abruptly from the valley floor to altitudes of over 9,000 feet (topographic relief between the valley floor and the mountain ranges can be over 4,000 feet), and are affected by mass-wasting and fluvial process. Quaternary faults, associated with the mountain ranges in this region of the Basin and Range (Great Basin), generally bound the uplifted or tilted mountain ranges, trend north-south, have normal slip displacement, and have relatively low slip rates that result in relatively long recurrence intervals. Bedrock exposed

primarily in the mountain ranges is composed almost exclusively of Paleozoic rock, with minor amounts of Mesozoic sedimentary rocks, whose regional outcrop is a ribbon-like pattern of generally north-south striking units. Correlation of sedimentary rock units between ranges is difficult. Limited exposures of Precambrian igneous and metamorphic rocks occur in a few isolated areas (Antelope Island, Stansbury Island, and Granite Peak areas). Several Jurassic plutons and numerous Tertiary intrusives, all generally of intermediate chemical composition, are present in the region, along with a modest amount of Tertiary volcanic rock. The basin-fill deposits consist of unconsolidated to semiconsolidated Tertiary-age sediments overlain by unconsolidated Quaternary-age sediments primarily originating or derived from the surrounding mountains. Surface and shallow basin fill is dominated by sediments of late Pleistocene lacustrine Lake Bonneville and Quaternary and Tertiary colluvial and alluvial deposits. Black et al (1999) indicate that up to 3,000 feet of basin fill can be found in Ripple Valley. The valley fill consists of unconsolidated and semi-consolidated colluvium, alluvial, lacustrine and fluvial deposits (Stephens, 1974). The Great Basin is a hydro logically closed region with no surface outlets, and the only means for water to leave the Great Basin is by evaporation to the atmosphere.

The site is underlain by unconsolidated Quaternary lacustrine carbonate muds with minor clay minerals (Holocene and latest Pleistocene), some associated with Lake Bonneville (Black et al, 1999). The shallow ground-water system is probably primarily contained in deposits associated with Lake Bonneville. Site subsurface logs indicate the sequence continuous to at least 500 feet underneath the site, consisting of primarily horizontal, discontinuous lenses of fine-grained lacustrine deposited carbonate clay, with small amount of marl and non-lacustrine sand and silt, with infrequent sand layers. Exposed sedimentary rocks in the Grayback Hills consist of Permian and Triassic Grandeur(?), Murdock Mountain, Gerster, Dinwoody(?), and Thaynes Formations. Igneous extrusive rocks form a resistant cap on the Grayback Hills and are mapped as Tertiary-age lava and volcaniclastic rock (Black et al, 1999).

From a geomorphologist's standpoint, the facility is located in a transition area/zone between the alluvial fans coming off of the Cedar Mountains and Lone Ridge, and the Great Salt Lake Desert salt flats. Several remnant Lake Bonneville shoreline features on the steep mountain flanks are visible from the site. The irregular topography and large topographic gradients of the mountain ranges cause surface winds to be extremely complex and variable. Aeolian transport is a function of the availability of transportable sediment. Most of the region has low precipitation and abundant potential aeolian material. The geomorphic process operating on the disturbed lands should differ significantly when compared to adjacent undisturbed areas, e.g., natural drainage networks and stream channels are obliterated. Landform assemblages' mechanical and chemical weathering processes advance weathering at a very slow rate. Wind and water erosion remove materials from the upper surface of the disposal site. Water erosion is small because of small slope gradients. Geomorphic processes operating on these disturbed lands differ in magnitude, frequency, and work performed when compared to the adjacent, undisturbed areas. Both the side-slope and upper surfaces of the embankments are subject to the erosive forces of wind and water. Numerous engineering and administrative procedures have been developed to control and mitigate the effect of the disturbances.

Natural resources in northwest Utah, in the eastern Great Basin geographic province, consist of a wealth of base- and precious-metal mineral districts whose production history began in the mid

to late 1800's and have continued intermittently throughout the 1900's. In the 1980s and 1990s, this geographic province was the scene of intense exploratory activity by numerous mining companies searching primarily for precious metals, particularly gold. The region contains the Bingham, Mercur, and Gold Hill districts in addition to numerous smaller districts and metallic deposits. The ore deposits in the region are related to the geology and structural evolution of the Great Basin. They were affected by two periods of mechanical modification of the crust producing structures that later localized ore solutions and provided ore hosts. However, bedrock exposure in the region is reduced by the large regions of unconsolidated basin fill, characteristic of Basin and Range topography. This fill includes the Great Salt Lake Desert. Major non-metallic deposits are associated with saline brines containing sodium, potassium and magnesium chlorides, sand and gravel, clays, and limestone. The region also has some potential for oil, gas, and geothermal resources.

Consideration must be given to earthquake-related effects due to strong ground shaking, ground failure, differential ground motion, stability of the embankment, and such factors as soil condition at the site. The licensee must demonstrate that the embankment is not located near a fault capable of producing an earthquake larger than the embankment design earthquake. Central to the siting of the facility is the need to identify locations at which future significant earthquakes may occur. Historical seismicity is summarized in Figure 2-6, *Energy Solutions Fault and Seismicity Map* (AMEC, 2012), but no discussion is provided. The 14 mile-long Cedar Mountain normal fault separating Skull Valley from the Cedar Mountains needs to be justified as the source of an earthquake affecting the site.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1) & (1)(a) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40.31 (h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 1,4e, 6, & 7

REFERENCES:

Black, B.D., Solomon, B.J., and Harty, K.M., 1999, *Geology and Geologic Hazards of Tooele Valley and the West Desert Hazardous Industry Area*, Tooele County, Utah: Utah Geological Survey Special Study 96.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 2.4 *Geology and Seismology*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 2.5 *Geology and Soils* and Section 2.6 *Seismology*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Revision 1, Section 1.0 *Geology and Seismology*, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.3 *Geology and Soils* and Section 6.4.3 *Geology and Soils Impacts*, 2003.

INTERROGATORY STATEMENT 2.6(2):

Provide a native surface soil profile and subsurface lithology and fence diagrams, specific to the 11e.(2) embankment. Then, refer to the figures in the succeeding geology, hydrology, seismicity and soil subsections.

BASIS FOR INTERROGATORY:

The section on seismicity references a document submitted to the DRC in 2012. The referenced document does not have a surface soil profile nor a vadose zone and groundwater lithology and fence diagram.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1) & (1)(a) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40.31 (h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 1,4e, 6, & 7

REFERENCES:

None Required

SECTION 2.7-HYDROLOGY AND HYDROGEOLOGY

INTERROGATORY STATEMENT 2.7(1):

The last paragraph of this section is not supported by the drawings. A similar statement is also made on page 3-6, second paragraph. Please assure the drawings and flood calculations support this statement in the LRA, or change the proposed LRA descriptive verbiage and demonstrate adequate Probable Maximum Flood (PMF) protection for the 11e.(2) embankment.

BASIS FOR INTERROGATORY:

The last paragraph of this section states, “Runoff from such a hypothetical event as the Probable Maximum Precipitation (PMP) or PMF (the heaviest reported rainfall in the area is 1.3 inches over a 24-hour period) will be diverted from encroaching into the embankment by using a berm surrounding the disposal area. Flow would be diverted around the site to the south and through the areas between the embankments, which are designed to channel runoff flow to the south and west.”

It does not appear the drawings contain a continuous perimeter diversion berm with adequate dimensions and erosion protection surrounding the cell. It appears the LRA verbiage above is inaccurate in its description.

Please demonstrate the existence of this berm by drawings and design calculations. Update any drawings to propose construction to create such a system, or change the proposed LRA descriptive verbiage above and demonstrate adequate PMF protection for the 11e.(2) embankment.

APPLICABLE RULE(S) OR REGULATION(S):

10CFR 40.43 Renewal of Licenses
10CFR 40.31 Application for Specific Licenses
10 CFR 40 Appendix A Criterion 4
R317-6 Utah Ground Water Protection

REFERENCES:

None Required

INTERROGATORY STATEMENT 2.7(2):

What is used to define the depth of unconsolidated sediments, which range from 300 to over 500 feet? What defines the upper and lower boundary of the aquifer system? What specifically in the Grayback Hills rises 500 and 230 feet, respectively? The term "confining aquifer" as used here means what? How is it defined in well logs? In the generalized model of the aquifer system that EnergySolutions is proposing, does the aquifer consist of an unconfined aquifer at and along the mountain front (recharge zone) that becomes confined towards the center of the valley by layers of silt and clay? Characterization of the regional groundwater hydrology is not clear. What are slug-out tests?

BASIS FOR INTERROGATORY:

The characterization of ground water hydrology in the LRA must be sufficient to assess potential effects of the operations on the uppermost aquifer, where regulatory compliance is evaluated. The basin-fill aquifer generally consists of several hundred feet of fine-grained lacustrine and fluvial sediments. The shallow ground-water system at the Clive facility is primarily contained in deposits associated with Lake Bonneville and possibly in overlying, more-recent stream deposits. In the west desert area, ground water is generally present in several distinct aquifers. What is referred to as the basin-fill aquifer is the largest in volume. Because the alluvial-fan aquifer is in close proximity to sources of recharge, such as seepage through consolidated rock at the mountain front, and infiltration of surface runoff, it is generally the source of any usable water. The shallow aquifer, where present, generally is in near-surface deposits. The risk/threat to safety could depend on site location, type of containment and isolation medium.

The DRC calculates that the average horizontal hydraulic conductivity of Unit 1, based on the data supplied (saturated thickness of 12 feet and a transmissivity of 40 ft²/day), to be about 1.1 x 10⁻³ cm/sec. Please modify or explain the estimated horizontal hydraulic conductivity.

APPLICABLE RULE(S) OR REGULATION(S):

- R313-24-3(1) (b) Environmental Analysis
- R313-24-4 Clarifications or Exceptions
- 10CFR 40.31 (h) Application for Specific Licenses
- 10CFR40 Appendix A Criterion 1, 4(a), 4(b) and 11

REFERENCES:

- U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 2.3 *Hydrology*, 1977.
- U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 2.7 *Hydrology and* Section 2.6 *Seismology*, 1982.
- U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Revision 1, Section 3.0 *Surface Water Hydrology and Erosion Protection*, 2003.

Stephens, J. C., 1974, Hydrologic Reconnaissance of the Northern Great Salt Lake Desert and Summary Hydrologic Reconnaissance of Northwestern Utah: Utah Department of Natural Resources Technical Publication No. 42.

SECTION 2.8-ECOLOGY

INTERROGATORY STATEMENT 2.8(1):

Update Section 2.8, especially Section 2.8.2, “Terrestrial Life,” and Section 2.8.4, “Endangered and Threatened Species.” Present current information; discuss and cite recent studies on the ecology of the site and surrounding areas.

BASIS FOR INTERROGATORY:

DRC personnel have seen Kit Foxes, Prong horn sheep, rattle snakes and other wildlife at the Clive facility. A study in 1980 is the reference for the information in Section 2.8.4, “Endangered and Threatened Species.” The list of threatened and endangered species has been updated since 1980. The most recent list was compiled in 2012. Also EnergySolutions conducted their own ecological survey in 2011 and 2012 that was not referenced and results discussed.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(c). General Requirements for issuance of Specific Licenses
R313-24-3(1)(a). Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 1 and 7

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 2.8: *Ecology*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.5: *Ecology*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.9: *Ecology*.

INTERROGATORY STATEMENT 2.8(2):

Provide data on the depth of root growth of the Black Greasewood plant to justify the statement that the plant will not penetrate the clay radon barrier. Provide data from studies on burrowing animal species, burrowing depth and densities, which could reasonably be expected to colonize the site within the performance period of the embankment.

BASIS FOR INTERROGATORY:

If black greasewood has tap roots that extend beyond 11 feet, then they can be expected to penetrate the 4-foot thick clay radon barrier. Burrowing animals have the potential to penetrate the cover system and disturb the waste of an embankment. The burrowing animals could disturb the cover system resulting in channels for water movement, roots, and other animals.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40.31 (h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 1 and 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 2.9 *Ecology*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.5 *Ecological Resources* and Section 6.4.5 *Ecological Resources Impacts*, 2003.

SECTION 2.9-SOILS

INTERROGATORY STATEMENT 2.9(1):

Provide a native surface soil profile and a subsurface lithology and fence diagram specific to the 11e.(2) embankment and based on soil data collected in previous studies. Provide a table with current engineering characteristics of the soil surrounding and beneath the 11e.(2) embankment.

BASIS FOR INTERROGATORY:

The section on seismicity references a document submitted to the DRC in 2012. The document does not have a surface soil profile nor a vadose zone and groundwater lithology and fence diagram.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40.31 (h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 1

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 2.4 *Geology and Seismology*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 2.5 *Geology and Soils*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.3 *Geology and Soils* and Section 6.4.3 *Geology and Soils Impacts*, 2003.

SECTION 2.10-MINIMIZATION OF EROSION AND DISPERSION

INTERROGATORY STATEMENT 2.10(1):

List specific characteristics of the site and specific embankment design parameters that provide the necessary protection from wind and water erosion and dispersion. State specifically how the parameters and characteristics provide the protection.

BASIS FOR INTERROGATORY:

This section states that natural characteristics of the site as well as the facility design provide protection to minimize the potential for erosion and dispersion but does not list specific characteristics and design parameters and does not state how these parameters will protect the embankment from wind and water erosion.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40.31 (h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Section 3.4 *Design of Erosion Protection* and Section 3.5 *Design of Erosion Protection Covers*, 2003.

SECTION 2.11-CONSOLIDATION OF WASTE FACILITIES

INTERROGATORY STATEMENT 2.11(1):

Correct the statement that the site is part of the Tooele County Hazardous Waste Zone.

BASIS FOR INTERROGATORY:

Tooele County does not have a “Hazardous Waste Zone.” See interrogatory 2.2(1) for further basis for this interrogatory.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

R313-24-4 Clarifications or Exceptions

10 CFR 40.31 (h) Application for Specific Licenses

10 CFR 40 Appendix A Criterion 2

REFERENCES:

None Required

SECTION 2.12-BACKGROUND RADIOLOGICAL CHARACTERISTICS

INTERROGATORY STATEMENT 2.12(1):

Summarize the background radiological characteristics of the Clive facility. Provide data and references of all background radiation values for all media at the site and surrounding areas.

BASIS FOR INTERROGATORY:

The LRA states that the background radiological conditions were established prior to construction but the application does not document the results and data nor completely references documents where that data can be found.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(h) Application for Specific Licenses

10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 2.9: *Background Radiological Characteristics*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.10: *Background Radiological Characteristics*.

SECTION 2.13-BACKGROUND NON-RADIOLOGICAL CHARACTERISTICS

INTERROGATORY STATEMENT 2.13(1):

Summarize the background non-radiological characteristics of the Clive facility. Provide data and references for all non-radiological background chemical characteristics of all media at the site and surrounding areas.

BASIS FOR INTERROGATORY:

The LRA states that background non-radiological conditions were established prior to construction but the application does not document the results and data nor completely references documents where that data can be found.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40.31(h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.11: *Background Nonradiological Characteristics*.

SECTION 3.0-DESCRIPTION OF FACILITY

INTERROGATORY STATEMENT 3.0(1):

The license renewal application (LRA), dated June 4, 2012, Rev. 5, Section 3.0, refers to Appendix I and drawings. The LRA does not contain an Appendix I and drawings. Please correct the references to drawings cited, or add an Appendix I with construction drawings to Rev. 5 of the LRA.

BASIS FOR INTERROGATORY:

The first paragraph of Section 3.0 states that “The construction drawings also include the site topography (included in Appendix I).” The drawings are not in any of the appendices in Rev. 5 of the LRA. The 2007 LRA submittal, Rev. 3, contains embankment construction drawings in Appendix L. Page 3-1, Section 3, end of third paragraph, states: “A cross sectional drawing of the embankment is provided in Appendix I (Drawing Number 9420-05)”. Appendix L of the 2007 Rev 3 submittal has drawing 9420-05, Rev D, dated 2/21/02. If the intent is to reference the drawings in Appendix L, Rev.3 of the LRA, then the correct citation in Rev. 5 should be as stated on page 3-6: “The final drainage design is as shown on Figure 9420-4, Appendix L of *EnergySolutions*, (2005b).”

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 4 and 5

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 3.0 *Mill Process and Equipment*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 3.0 *The Mill and Mine*, 1982.

SECTION 3.1-EMBANKMENT DESIGN, CONSTRUCTION AND PERFORMANCE

INTERROGATORY STATEMENT 3.1(1): The type of embankment and thus the type of design is not consistently used throughout the LRA. Clarify the type of embankment used for the design of the 11e.(2) embankment. Clarify if the current ground surface is at original grade. Explain whether the 11e.(2) embankment is shallow land burial of waste and why other descriptions are used throughout the document.

BASIS FOR INTERROGATORY: Numerous times throughout the LRA, the 11e.(2) embankment is referred to as an “above ground embankment.” At other times, the LRA refers to the “above grade embankment.” Some sections of the LRA refer to the embankment as below grade or below original contour.

For example, the third paragraph on page 3-1, states “... the above-grade 11e.(2) embankment design documented in this application” Page 4-1 states: “The above-grade disposal embankment is the most environmentally sound approach for disposal. Although it was demonstrated that deep and shallow below-grade embankments were designed to meet the same standards of effluent protection from water erosion, wind erosion, geotechnical instability, settlement of embankment, roots and burrowing animals, the above-grade embankment utilized by *EnergySolutions* provides the best protection for the groundwater. It was also found that both below-grade embankment designs have a higher potential for water infiltration than the above-grade 11e.(2) Embankment design due to their closer proximity to the upper boundary of the unconfined aquifer (NUREG-1476).”

Also, the first full paragraph on page 3-3, states: “*EnergySolutions*’ above-grade 11e.(2) Embankment provides better protection against water infiltration by minimizing the amount of time that precipitation is in contact with the cover. The above-grade 11e.(2) Embankment has slopes that are designed to shed water. Also, the above-grade embankment provides better protection against potential water infiltration from the Probable Maximum Flood and other large storms. An NRC analysis of viable alternatives for 11e.(2) management concluded that the above-grade 11e.(2)... “

The last paragraph on page 2-29 states “Based on the historic minimum depth to groundwater, groundwater levels would need to rise some 18 feet below the 11e.(2) Embankment to begin to threaten contact with disposed waste. The historic minimum depth for this area is roughly 24 feet below original contour. The 11e.(2) Embankment is constructed by excavating approximately eight feet below the ground surface ...”

The fourth paragraph on page 3-4, states “As previously mentioned, the above-grade 11e.(2) Embankment design employed by *EnergySolutions* provides better groundwater protection in two ways. First, the above-grade 11e.(2) Embankment provides a greater distance from the waste to the groundwater. Second, the above-grade 11e.(2) Embankment provides less of a chance that the groundwater level will rise above the bottom of the waste.”

The DRC understands that the 11e.(2) embankment is considered “shallow land burial” of waste even though some older NRC guidance documents refer to above-ground or below ground waste

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 4 and 5

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 3.0 *Mill Process and Equipment*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 3.0 *The Mill and Mine*, 1982.

INTERROGATORY STATEMENT 3.1(2):

Provide provisions in the design, analysis and CQA/QC manual for fill and cover or “staged construction”.

BASIS FOR INTERROGATORY:

The stability of the embankment and liner cannot be verified because there is no settlement monitoring data. 11e.2 waste has been in the cell for several years with no settlement monitoring. The liner of the entire cell is not complete. Those sections filled with waste are on a different consolidation curve than the rest of the embankment. The CQA/QC manual states that surging will take place if necessary but surging can take time (years). Differential consolidation can create large cracks and fissures in the liner and foundation which can affect the porosity of these layers.

UAC R313-24-4 invokes the following requirement from 10 CFR40, Appendix A, “Introduction: ...The specifications must be developed considering the expected full capacity of tailings or waste systems and the lifetime of mill operations. Where later expansions of systems or operations may be likely (for example, where large quantities of ore now marginally uneconomical may be stockpiled), the amenability of the disposal system to accommodate increased capacities without degradation in long-term stability and other performance factors must be evaluated.”

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 6

REFERENCES:

Radioactive Material License UT2300478, License Conditions 10.9.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Section 2.5 *Disposal Cell Cover Engineering Design* and Section 2.6 *Construction Considerations*, 2003.

INTERROGATORY STATEMENT 3.1(3):

The stated design capacity of the 11e.(2) embankment is not consistent between all sections of the LRA and between the License, GWQDP, LRA, and remaining capacity of the 11e.(2) embankment after the proposed Class A South volume was transferred to the Class A West (CAW) embankment. Please state the correct design capacity of the 11e.(2) embankment.

BASIS FOR INTERROGATORY:

Page 4, Section 2.0, of the 2003 LRA states; “The current 11e.(2) embankment disposal capacity is approximately 4.5 million cubic yards of waste.”

Page 3-3, Rev.5 of the LRA states; “The capacity of the above-grade 11e.(2) Embankment design employed by EnergySolutions is 5,050,000 cubic yards and will occupy ...”

License UT2300478 Condition 8 states “the maximum quantity licensee may possess at any one time as 5.5 Million cubic yards” and Condition 10.8(d) states that the “total embankment capacity will not exceed 5.50×10^6 yd³.”

During the CAW amendment of RML UT2300249 for low level waste, the volume of the 11e.(2) embankment was reduced by 3.5 million cubic yards. This is based on the DRC’s interpretation of the Huntsman Agreement, which is an agreement between EnergySolutions and the State of Utah on the total volume of waste to be accepted in Section 32 of the Clive facility.

In 2012, the Annual as Built Report stated a remaining capacity of 3.4 million cubic yards as of August 25, 2012.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 4 and 5
R317-6 Ground Water Quality Protection

REFERENCES:

State of Utah, *Agreement between Governor of the State of Utah Jon M. Huntsman, Jr. and EnergySolutions LLC.*, March 15, 2007.

Radioactive Material License UT2300478, License Conditions 10.9.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title **II** of the Uranium Mill Tailings Radiation Control Act of 1978, Section 2.5 *Disposal Cell Cover Engineering Design* and Section 2.6 *Construction Considerations*, 2003.

INTERROGATORY STATEMENT 3.1(4):

The stated maximum height of waste in the embankment is not consistent between all sections of the LRA, the GWQDP and the License. Please state one design waste thickness and state the thickness with an expected error.

BASIS FOR INTERROGATORY:

Part I.D of the GWQDP (No. UGW450005), Section 15 and 11.e.2 License Condition 3(b) states; "...the 11e.(2) waste shall not exceed a final thickness of 47 feet above the bottom clay liner."

Page 3-3, Rev. 5 of the LRA states that the "waste column is 52 ft thick."

Page 4, Section 4 of the May 2007 LRA states that the "waste column will be approx. 54 feet thick."

Page 6-3, Section 6 of the LRA states; "... approximately 35 to 52 feet of tailings and then a six foot thick cover system."

Page H-11 in the 11.e.2 license states; "The 11e.(2) byproduct waste is being placed in the lined excavation in layers and compacted in place to a maximum elevation of approximately 4316 feet AMSL." Drawing 9420-05 in Appendix L of Rev. 3 of the LRA indicates a final elevation of waste of 4315 ft. When stating elevations of waste or any other embankment component, the error should be stated. For example, an elevation is stated as 4316 +/- 2 ft.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 4 and 5

R317-6 Ground Water Quality Protection

REFERENCES:

Radioactive Material License UT2300478, License Conditions 10.9.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Section 2.5 *Disposal Cell Cover Engineering Design* and Section 2.6 *Construction Considerations*, 2003.

INTERROGATORY STATEMENT 3.1(5):

The embankment design criteria and how they relate to the performance objectives are not stated. Please add a table listing the embankment design features, the function of each feature and how each feature is designed to meet the criteria required by UAC R313-24 (10 CFR 40 Appendix A Criterion 4, 5, and 6). Provide all design calculations based on current models and assumptions. Research current design methods and update design calculations when necessary. Show how design methodologies for the CAW embankment are applicable to the 11e.(2) embankment even though the dimensions and geometry may be different. Provide a table will all design features, design methodologies for each feature and location (i.e. Section xx of LAR Rev. x) of the calculations or provide all calculations and conclusions in the latest revision of the LRA. Provide a table of all geologic or natural conditions and how they complement the design features of the embankment.

BASIS FOR INTERROGATORY:

This information was not clear and organized to adequately determine the design performance objectives of the embankment and assess whether each element is designed adequately to support a performance objective.

10 CFR Part 40, Appendix A, I Technical Criteria 1 states, “In selection of disposal sites, primary emphasis must be given to isolation of tailings or wastes, a matter having long-term impacts, as opposed to consideration only of short-term convenience or benefits, such as minimization of transportation of land acquisition costs. While isolation of tailings will be a function of both site and engineering design, overriding consideration must be given to siting features given the long-term nature of the tailings hazard.”

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 4, 5 and 6
R317-6 Ground Water Quality Protection

REFERENCES:

Radioactive Material License UT2300478, License Conditions 10.9.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Section 2.5 *Disposal Cell Cover Engineering Design* and Section 2.6 *Construction Considerations*, 2003.

SECTION 3.1.1-STORM-WATER DESIGN

INTERROGATORY STATEMENTS 3.1.1(1) – 3.1.1(5):

3.1.1(1) Several unclear statements are made in Section 3.1.1. After the cited rules given in the beginning of this section, the last four sentences of the second paragraph are unclear. They are unclear as to what specific storm water is being referred to. Please rewrite these sentences to be clear and specific as to what storm water event is being referred to.

3.1.1(2) The second to last sentence of the first paragraph on page 3-6 of the LRA states, “Thus, the PMF would not infiltrate into the ground water beneath the facility.” Please justify this statement.

3.1.1(3) Please demonstrate the ability of the southern 11.e(2) drainage ditch to properly flow, without overflowing, during drainage of the 100-year and smaller storms, due to any level of water inventory in the Southwest Fresh Water Storage Pond. Or, submit demonstrated adjustments to the design of the spillway on the pond to prevent ditch overflow.

3.1.1(4) Please submit a demonstrated design to adequately convey water discharged from the spillway of the Southwest Fresh Water Storage Pond to a distance that will not influence ground water mounding.

3.1.1(5) Please demonstrate or revise the surety estimate to include the costs to remove all temporary storm water drainage works.

BASIS FOR INTERROGATORIES:

The various items discussed in this interrogatory have potential affects to the ground water system under the restricted area. The numbered items below correspond to the numbered interrogatory statements above:

1. The last four sentences of the second paragraph discuss storm water types that are:
 - a. Removed by mobile pumping trucks.
 - b. Draining into evaporation ponds.
 - c. Water in evaporation ponds.
 - d. In areas equipped with permanent pumps.
 - e. In other areas of the property channeled to the southwest.
 - f. Short-term bodies of standing water, which do not affect facility performance.
 - g. Dissipated primarily through evaporation, with no impact to ground water gradients.

From sentence to sentence, it is unclear what storm water types, as listed above, are being referred to. What exactly are items 1.a through 1.g above? What is the relationship among these storm water types? These storm water types are usually not clearly identified or accurately identified from sentence to sentence in the LRA. The referenced four sentences need to be rewritten clearly, so the reader might understand what exactly is being referred to.

In the last sentence of the second paragraph, the claim that there is “no impact to ground water horizontal gradients” from “short-term bodies of standing water on the surface in other areas of the property,” is unclear. What is being referred to? What is the difference between items 1.c, 1.f, and 1.g?

Since ground water mounding exists around the southern border area of the 11e.(2) embankment area, the claim of “no impact to ground water horizontal gradients,” is peculiar, and could be misleading to readers. This statement needs to be clarified as to its exact meaning, and justified as to its validity, or it should be deleted from the LRA.

2. The first paragraph on page 3-6 of the LRA includes the following statement, “The maximum depth of flow at the site was calculated to be approximately one foot and last for 6 hours. Thus, the PMF would not infiltrate into the ground water beneath the facility.” The second quoted sentence appears not justified within the LRA. However, Appendix G to the LRA, interrogatory no. 2, and its response, discuss the assumed site hydraulic conductivity of 0.00283 ft/day. It appears this conductivity would allow a small amount of infiltration during the PMF, not zero infiltration as stated above.

Please justify the site-specific use of this conductivity over the entire route of the PMF. Include soil testing results over the PMF route, the potential range of effects on the ground water table (mounding) from the potential range of conductivity over the entire PMF route.

3. An important item to prevent overflow of this ditch is the ability of the ditch to maintain its normal depth and flow. Normal discharge of the ditch could potentially be stopped or decreased, depending on the surface elevation of the water in the Southwest Fresh Water Storage Pond. At *EnergySolutions*, a major portion of all drainage from the embankment systems is routed along the southern 11e.(2) ditch. For the 100-year storm, the ditch has a calculated depth of 3.88 feet, corresponding to only a 0.12 foot (1.5-inch) freeboard.

Inasmuch as the ditch discharges to the southwest fresh water storage pond, this pond must have an adequate spillway elevation and dimensions to prevent ditch overflow caused by blocking and surcharging of the normal ditch flow.

4. The Southwest Fresh Water Storage Pond currently has a spillway. This pond overflowed in 2010 and the discharged water collected just outside of the storage pond. This feature needs to be modified to prevent ground water mounding in the restricted area of ES. Appropriately conveying the spillway discharge, via piping or other suitable means, which will not affect mounding, to an adequate distance from the restricted area, to also prevent mounding, is necessary.
5. The Ground Water Discharge Permit, Part I.E.12(c) requires that, “Prior to site closure, the Permittee shall remove all temporary storm water drainage works (e.g., drainage grates, piping, ditches, etc. not approved under Part I.D.4) as part of the site Decontamination and Decommissioning Plan required under RML, Condition 74.”

APPLICABLE RULE(S) OR REGULATION(S):

10CFR 40.43 Renewal of Licenses
10CFR 40.31 Application for Specific Licenses
10 CFR 40 Appendix A Criterion 4
R317-6 Utah Ground Water Quality Protection

REFERENCES:

Radioactive Material License UT2300478, License Conditions 11.1 and 11.2.

EnergySolutions, State of Utah 11e.(2) Byproduct Material License Renewal Application (UT 2300478 Revision 3, Appendix G, 2007

Class A West (CAW) Drainage Ditch Calculations, EnergySolutions Class A West Embankment, License Amendment Request (May 2, 2011)

Class A West CAW Drainage Ditch Calculations (October 18, 2011), ES Responses to Round 1 Interrogatories.

State of Utah, Ground Water Quality Discharge Permit, Part I.E.12(c)

INTERROGATORY STATEMENT 3.1.1(6):

Provide information that demonstrates surface water from the probable maximum precipitation event cannot flow into the 11e.(2) embankment impoundment area, and that it can be conveyed in the 11e.(2) drainage ditch system. Justify the design storm used for the 11e.(2) embankment. Provide a description and evaluate free-drainage of the 11e.(2) drainage ditch. Update title of Permit Condition I.E.7.

BASIS FOR INTERROGATORY:

Information provided must be sufficient to properly assess isolation of embankments from surface water. All stormwater drainage is free draining at the site, except for the stormwater culvert south of the 11e.(2) embankment, part of the 11e.(2) drainage ditch. Condition I.E.7 of the Ground Water Quality Discharge Permit is titled “General Stormwater Management Requirements.”

APPLICABLE RULE(S) OR REGULATION(S):

R313-25-24(5) Disposal Site Design for Near- Surface Land Disposal
R313-24-3(1)(a) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40.31 (h) Application for Specific Licenses
10 CFR 40.32 (c) General Requirements for Issuance of Specific Licenses
10 CFR 40 Appendix A Criterion 1,4e, 4f, & 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Revision 1, Section 3.0 *Surface Water Hydrology and Erosion Protection*, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1623: Design of Erosion Protection for Long Term Stability, Revision 1, 2002.

SECTION 3.1.2-WASTE DISPOSAL OPERATIONS AND PROCEDURES

INTERROGATORY STATEMENT 3.1.2(1):

Reference the specific SOPs that apply to Waste Disposal Operation.

BASIS FOR INTERROGATORY:

Not every SOP referenced in Appendix A of the 11e.(2) RML renewal application apply to waste disposal operations at the Clive facility for waste disposal.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1001 Waste Disposal – General Requirements

R313-15-1002 Method for Obtaining Approval of Proposed Disposal Procedures

R313-15-1006 Transfer for Disposal and Manifests

R313-15-1008 Disposal of Section R313-12-3 Byproduct Material Definition Paragraphs (c) and (d)

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6.

SECTION 3.2-UNLOADING FACILITIES (i.e. DOCKS, ROLLOVERS DIGGING TRACK AND ETC.)

INTERROGATORY STATEMENT 3.2(1):

List and describe the function, safety features and radiological protection design features of each unloading facility that is used for accepting, inspecting, receiving and unloading 11e.(2) waste.

BASIS FOR INTERROGATORY:

R313-22-33(1)(b) requires that all facilities and equipment are adequate to minimize danger to human health, safety and the environment.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 4

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 9 *FACILITIES AND EQUIPMENT*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 3.0 *Mill Process and Equipment*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 3.0 *The Mill and Mine*, 1982

SECTION 3.2.1-PROCEDURES FOR RECEIVING AND OPENING SHIPMENTS

INTERROGATORY STATEMENT 3.2.1(1):

Reference or list specific SOPs, that apply to receiving and opening waste shipments.

BASIS FOR INTERROGATORY:

Not every SOP referenced in Appendices A, B, E and F of the 11e.(2) RML renewal application applies to receiving and opening waste shipments at the Clive facility for waste disposal.

APPLICABLE RULE(S) OR REGULATION(S):

R313-19-100 Transportation

R313-15-906 Procedures for Receiving and Opening Packages

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6, 10.2(a) and 10.7.

SECTION 3.3-DECONTAMINATION FACILITIES

INTERROGATORY STATEMENT 3.3(1):

List and describe the function, safety features and radiological protection design features of each decontamination facility that is used for decontaminating equipment, shipping containers, railcars and tools used to manage and dispose of 11e.(2) waste.

BASIS FOR INTERROGATORY:

R313-22-33(1)(b) requires that all facilities and equipment are adequate to minimize danger to human health, safety and the environment.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 4

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 9 *FACILITIES AND EQUIPMENT*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 3.0 *Mill Process and Equipment*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 3.0 *The Mill and Mine*, 1982

INTERROGATORY STATEMENT 3.3(2):

Reference or list specific SOPs, that apply to decontaminating equipment, shipping containers, railcars and tools used to manage and dispose of 11e.(2) waste.

BASIS FOR INTERROGATORY:

Not every SOP referenced in Appendices A, B, E and F of the 11e.(2) RML renewal application apply to decontaminating equipment, shipping containers, railcars and tools used to manage and dispose of 11e.(2) waste.

APPLICABLE RULE(S) OR REGULATION(S):

R313-19-100 Transportation

R313-15-906 Procedures for Receiving and Opening Packages

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6, 10.2 and 10.7.

SECTION 3.3.1-WASTE-WATER FACILITIES (i.e. SUMPS AND EVAPORATION PONDS)

INTERROGATORY STATEMENT 3.3.1(1):

List and describe the function, safety features, radiological protection design features and locations of each facility that is used to manage waste water at the facility. Include sumps, evaporations ponds, piping, pump trucks, storage tanks and any other items or equipment used to manage waste water at the facility. Include a description of the laboratory waste water management.

BASIS FOR INTERROGATORY:

R313-22-33(1)(b) requires that all facilities and equipment are adequate to minimize danger to human health, safety and the environment.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses
R313-24-4 Clarifications or Exceptions
10CFR 40.43 Renewal of Licenses
10CFR 40.31 Application for Specific Licenses
10 CFR 40 Appendix A Criterion 4
R317-6 Utah Ground Water Quality Protection

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 9 *FACILITIES AND EQUIPMENT*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 3.0 *Mill Process and Equipment*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 3.0 *The Mill and Mine*, 1982

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Revision 1, Section 4.0 *Protecting Water Resources*, 2003.

SECTION 3.4-WASTE HANDLING FACILITIES (i.e. INTERMODAL UNLOADING FACILITY, CONTAINER PADS, ETC.)

INTERROGATORY STATEMENT 3.4(1):

Discuss the specific facilities used to store 11e.(2) shipments prior to disposal. (i.e. Intermodal Unloading Facility, Container Pads, etc.) List and describe the function, safety features and radiological protection design features of each storage facility that is used for 11e.(2) waste.

BASIS FOR INTERROGATORY:

R313-22-33(1)(b) requires that all facilities and equipment are adequate to minimize danger to human health, safety and the environment. The facilities used at the Clive facility for waste handling are not identified or discussed in the application.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(b) Application for Specific Licenses

10 CFR 40 Appendix A Criterion 5

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 3.0: *Mill Process and Equipment*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 3.0 *The Mill and Mine*, 1982

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 9 *FACILITIES AND EQUIPMENT*.

SECTION 3.4.1-PROCEDURES FOR WASTE HANDLING

INTERROGATORY STATEMENT 3.4.1(1):

Reference specific procedures that are used for handling 11e.(2) waste.

BASIS FOR INTERROGATORY:

Section 3.4.1 refers to SOPs that are used in different areas of waste handling but not every SOP referenced in Appendices A, B, E and F of the 11e.(2) RML renewal application apply to waste handling at the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses

R313-15-101 Radiation Protection Program

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6 and 10.8.

INTERROGATORY STATEMENT 3.4.1(2):

Provide the formula used in waste handling as referenced in Section 3.4.1.1. Demonstrate how the formulas are used in an example calculation.

BASIS FOR INTERROGATORY:

In Section 3.4.1.1 *Management of Shipments with External gamma Rates in Excess of 5mR/hr*, the Licensee refers to two examples when calculation will be made to demonstrate compliance. The first is in the fourth paragraph to show Radon emanation values are within the guidelines of License Condition 10.9(c). The second is referred to in the fifth paragraph to demonstrate that the average Ra-226 and Th-230 is within compliance.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses
R313-15-101 Radiation Protection Program

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6 and 10.8.

SECTION 3.5-INSTRUMENTATION AND CONTROL

INTERROGATORY STATEMENT 3.5(1):

Update the list of radiological instruments used at the Clive facility. This list should include but not limited to scalers, dose rate meters, personnel monitors and etc. Provide a brief description of what each is used for.

BASIS FOR INTERROGATORY:

The majority of the instruments listed in the 11e.(2) RML renewal application are not used at the Clive facility. The DRC requested that the application be resubmitted so that the application would have current information.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-15-406 Minimization of Contamination

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses.

R313-24-4. Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 4

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01
APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 9 FACILITIES AND EQUIPMENT.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 3.3: Instrumentation and Control.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: Environmental Measurements and Monitoring Programs.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C3.2: Mill Equipment and C3.3: Instrumentation.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: Applicant's Proposed Operational Monitoring Programs.

INTERROGATORY STATEMENT 3.5.(2):

Calculate the MDAs (MDCs) of the radiological instruments used at the Clive facility. Show formulas and calculations.

BASIS FOR INTERROGATORY:

The majority of the instruments listed in the 11e.(2) RML renewal application are not used at the Clive facility. In addition, some of the meter and/or probes that were listed would not be sensitive enough to detect radiation at the limits required at the facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-15-406 Minimization of Contamination

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses.

R313-24-4. Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 4

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 9 *FACILITIES AND EQUIPMENT*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 3.3: Instrumentation and Control.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: Environmental Measurements and Monitoring Programs.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C3.2: Mill Equipment and C3.3: Instrumentation.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: Applicant's Proposed Operational Monitoring Programs.

INTERROGATORY STATEMENT 3.5(3):

List the Non-radiological instruments and equipment used at the Clive facility. This list would include but not limited to air sampling equipment, soil moisture/density gauges, GPS equipment, computer program (i.e. WITS and EWIS) and etc. Describe what the instruments and equipment are used for.

BASIS FOR INTERROGATORY:

The Licensee did not discuss non-radiological survey meters/equipment that are also used to demonstrate compliance and health and safety. The DRC requested the Licensee provide information so that the application contains current information. Non-radiological instrumentation and equipment are used at the facility for compliance and health and safety purposes.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-15-406 Minimization of Contamination

R313-22-33(1)(b) General Requirements for the Issuance of Specific Licenses.

R313-24-4. Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 4

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 9 *FACILITIES AND EQUIPMENT*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 3.3: Instrumentation and Control.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: Environmental Measurements and Monitoring Programs.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C3.2: Mill Equipment and C3.3: Instrumentation.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: Applicant's Proposed Operational Monitoring Programs.

SECTION 4.0-EFFLUENT CONTROL SYSTEMS

INTERROGATORY STATEMENT 4.0(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient.

BASIS FOR INTERROGATORY:

The requirements of this section and any interrogatories for this section are discussed in Subsections 4.1, 4.2 and 4.3. This information was not required to be provided because the paragraph in the RML renewal application was an introductory statement for the subsections.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions
10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements
10 CFR 40 Appendix A Criterion 7 and 8

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.14.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 11 *WASTE MANAGEMENT*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 4.0: *Effluent Control Systems*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C3.4: *Waste Management System*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

SECTION 4.1-GASEOUS AND AIRBORNE PARTICULATES

INTERROGATORY STATEMENT 4.1(1):

Identify the locations and identify on a map or site drawing the air monitoring stations that are used in gaseous and airborne particulate monitoring. Demonstrate or justify that the identified stations are located appropriately to detect airborne emissions.

BASIS FOR INTERROGATORY:

The Licensee states that there are multiple monitoring locations but the application does not discuss where they are located and the rationale on how the locations were determined.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions

10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements

10 CFR 40 Appendix A Criterion 7 and 8

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 11 *WASTE MANAGEMENT*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 4.1: *Gaseous and Airborne Particles*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C3.4: *Waste Management System*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

INTERROGATORY STATEMENT 4.1(2):

Discuss the gaseous and airborne effluent control systems and monitoring used in the different facilities (i.e. rotary, laboratory, decontamination facilities) at the Clive facility.

BASIS FOR INTERROGATORY:

Ventilation and monitoring within the different facilities that handle 11e.(2) material and 11e.(2) contaminated conveyances were not discussed in the LRA.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions

10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements

10 CFR 40 Appendix A Criterion 7 and 8

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 11 *WASTE MANAGEMENT*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 4.1: *Gaseous and Airborne Particles*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C3.4: *Waste Management System*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

SECTION 4.2-LIQUIDS AND SOLIDS

INTERROGATORY STATEMENT 4.2(1):

Discuss the liquids and solids effluent, control systems and monitoring used in the different facilities (i.e. rotary, laboratory, decontamination facilities) at the Clive facility.

BASIS FOR INTERROGATORY:

Need to demonstrate that contaminated liquids and solids are being maintained within the restricted area and not impacting non-restricted areas and ground water. This section discusses soil and ground water sampling but does not discuss control of liquid and solid effluents.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions

10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements

10 CFR 40 Appendix A Criterion 7 and 8

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 11 *WASTE MANAGEMENT*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 4.2: *Liquids and Solids*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C3.4: *Waste Management System*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

INTERROGATORY STATEMENT 4.2(2):

How does the groundwater monitoring program detect releases of contaminants from the disposal embankments? What measurements and observations are made and recorded? How are these evaluated? List the groundwater compliance monitoring wells for the 11e.(2) embankment, their distance from waste, spacing, and monitoring frequency. How do these provide early warning of contamination? What is the technical basis for their locations? What are the groundwater sampling protocols? Please explain or correct the statement that the annual sampling events are conducted at least six months later than the previous year's sampling event; what requirement requires this six month space between sampling events? Does the site-wide groundwater mound most prevalent under the 11e.(2) embankment, due to leakage from the surface impoundments, etc., affect the detection of hazardous contaminants with the monitoring wells? What happens when a concentration exceeds the groundwater protection level? What does the corrective action address? This information belongs in the ground-water and surface-water monitoring section of the LRA (Section 5.7.13).

BASIS FOR INTERROGATORY:

The ground-water protection programs at the Clive facility, along with ground-water inspection, monitoring, and recording requirements, are areas of significant concern to the DRC. One objective of the groundwater monitoring program is to meet regulatory requirements. The data obtained from the groundwater sampling program is used to evaluate whether the 11e.(2) embankment, including the 2000-pond, is operating correctly. Adherence to, and enforcement of, requirements of the GWQDP ensures compliance with all applicable ground-water quality standards, provides for a reasonable assurance that ground-water standards will be met, and protects the environment and human health from current and potential threats posed by the uncontrolled release of radioactive and hazardous waste to the natural subsurface soil and/or ground water. This is demonstrated by the analysis of ground-water sampling from compliance monitoring wells for analytes and concentrations listed in Table 1A of the GWQDP. BAT requirements in the GWQDP direct facility construction, operations, and waste management as means for soil and ground-water protection. The DRC employs the GWQDP to address issues of ground-water protection, and requirements for ground-water monitoring at the Clive facility are specified in the GWQDP, which requires that under no circumstances shall the facility cause ground water at a compliance monitoring wells to exceed the ground-water protection levels in Part I.C for a minimum period of time (Part I.F.1). The effectiveness of EnergySolutions' ground-water monitoring and detection system for the 11e.(2) embankment is maintained in the GWQDP. The approach of consolidating ground-water protection requirements into the GWQDP is consistent with EnergySolutions' and the DRC's strategic plans for ground-water protection, and will make ground-water monitoring more effective, efficient, and timely.

The monitoring system is capable of providing early warning of releases of waste from an embankment before waste leaves the site boundary. Six wells have exception status, with different concentration status, and are listed in Table 1D of the GWQDP. A corrective action program is utilized at the facility to return groundwater quality to protection standards; during corrective action the groundwater monitoring network is used to evaluate the effectiveness of the corrective action.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

R313-24-4 Clarifications or Exceptions

10 CFR 40.31 (h) Application for Specific Licenses

10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements

10 CFR 40 Appendix A Criterion 1,4e & 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 2.4 *Geology and Seismology*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 2.5 *Geology and Soils* and Section 2.6 *Seismology*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Revision 1, Section 1.0 *Geology and Seismology*, 2003.

SECTION 4.3-CONTAMINATED EQUIPMENT

INTERROGATORY STATEMENT 4.3(1):

Reference the specific procedures that are used to manage contaminated equipment.

BASIS FOR INTERROGATORY:

Section 4.3 refers to SOPs that are used in different areas of handling contaminated but not every SOP referenced in Appendices A, B, E and F of the 11e.(2) RML renewal application apply to handling contaminated equipment at the Clive facility. R313-22-32(5) states “In the application, the applicant may incorporate by reference information contained in previous applications, statements, or reports filed with the Executive Secretary, provided the references are clear and specific.”

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-32(5) Filing Application for Specific Licenses

R313-24-4 Clarifications or Exceptions

10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements

10 CFR 40 Appendix A Criterion 7 and 8

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01
Application for Radioactive Material License, Section 11: Waste Management.

U.S. Nuclear Regulatory Commission NUREG 1569: *Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 4.3: Contaminated Equipment.*

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills, Section 3.4: Waste Management System.*

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: *Preparation of Environmental Reports for Uranium Mills, Section 6.2: Applicant’s Proposed Operational Monitoring Programs.*

INTERROGATORY STATEMENT 4.3(2):

Justify the use of brooms in cleaning up contaminated material. Reference the specific SOP that is used to decontaminate a piece of equipment with a broom.

BASIS FOR INTERROGATORY:

In the fourth and sixth paragraphs of this section it states that contaminated material can be removed by using a broom. Using a broom for cleaning up contaminated material is not a good practice because it puts the material into the air in form of dust and makes the material an airborne hazard.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions
10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements
10 CFR 40 Appendix A Criterion 7 and 8

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 *Application for Radioactive Material License*, Section 11: *Waste Management*.

U.S. Nuclear Regulatory Commission NUREG 1569: *Standard Review Plan for In Situ Leach Uranium Extraction License Applications*, Section 4.3: *Contaminated Equipment*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills*, Sections C3.4: *Waste Management System*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: *Preparation of Environmental Reports for Uranium Mills*, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

INTERROGATORY STATEMENT 4.3(3):

List specific references in 49 CFR that have the release limits used at the Clive facilities for conveyances (i.e. railcars, intermodal containers and etc.) from the restricted area. Discuss the different release criteria of: *return to service*, *DOT* and *sole use* (EnergySolutions' terminology) and how they protect public health and safety.

BASIS FOR INTERROGATORY:

The first paragraph of this section references 49 CFR. However, the Clive facility uses more than one type of release limit found in different parts of 49 CFR. R313-22-32(5) states “In the application, the applicant may incorporate by reference information contained in previous applications, statements, or reports filed with the Executive Secretary, provided the references are clear and specific.”

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions
10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements
10 CFR 40 Appendix A Criterion 7 and 8
R313-19-100 Transportation
R313-22-32(5) Filing Application for Specific Licenses

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01: *Application for Radioactive Material License*, Section 11, *Waste Management*.

U.S. Nuclear Regulatory Commission NUREG 1569: *Standard Review Plan for In Situ Leach Uranium Extraction License Applications*, Section 4.3: *Contaminated Equipment*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills*, Section C3.4: *Waste Management System*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: *Preparation of Environmental Reports for Uranium Mills*, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

INTERROGATORY STATEMENT 4.3(4):

Justify the need for specifying road dust and grime in determining the need to decontaminate a vehicle.

BASIS FOR INTERROGATORY:

In the fourth paragraph of this section it states that road dust and grime do not have to be removed from vehicles. However, it is very difficult to distinguish between road dust and grime and material that have leaked from a conveyance. Therefore, it is more appropriate to determine the need to decontaminate a vehicle based on data from a radiological survey and visual evidence of the conveyance leaking then trying to determine what is road dust and grime and what is not.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions
10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements
10 CFR 40 Appendix A Criterion 7 and 8
R313-19-100 Transportation
49 CFR 173.443 Contamination Control

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 11 *WASTE MANAGEMENT*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 4.3: *Contaminated Equipment*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C3.4: *Waste Management System*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: Applicant's Proposed Operational Monitoring Programs.

INTERROGATORY STATEMENT 4.3(5):

Discuss what happens to equipment that is used within the restricted area when the equipment can no longer be used (i.e. decontaminated and surveyed, disposed in the disposal embankments and etc.).

BASIS FOR INTERROGATORY:

Hand tools to large heavy equipment are used within the restricted area of the Clive facility. This equipment becomes contaminated and has to be properly disposed of in or released from the restricted area. This is not discussed in this section.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-4 Clarifications or Exceptions
10 CFR 40.65(a)(1) Effluent Monitoring Reporting Requirements
10 CFR 40 Appendix A Criterion 7 and 8

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FROM RADIOACTIVE MATERIAL LICENSE, Section 11 *WASTE MANAGEMENT*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 4.3: *Contaminated Equipment*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C3.4: *Waste Management System*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: Applicant's Proposed O

SECTION 5.0-OPERATIONS

INTERROGATORY STATEMENT 5.0(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient.

BASIS FOR INTERROGATORY:

The requirements of this section and the associated interrogatories are discussed in the subsections 5.1 through 5.7.14 below. This information was not required to be provided because the paragraph in the RML renewal application was an introductory statement for the subsections.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-24-4 Clarifications or Exceptions
10 CFR 40.31(h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 2

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 5.0: *Operations*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Sections C5: *Operations*.

SECTION 5.1-CORPORATE ORGANIZATION AND ADMINISTRATIVE PROCEDURES

INTERROGATORY STATEMENT 5.1(1):

Update all supporting license documents with the changes made in the new Appendix I Organization submittal dated October 24, 2012. Change the Titles and descriptions of responsibilities as applicable of responsible personnel referenced in the documents that are part of the Clive Facility's RMLs. These documents include but not limited to the:

- LLRW and 11e.(2) Construction Quality Assurance/Quality Control (CQA/QC) Manual;
- EnergySolutions' Clive Facility Radiation Protection Program;
- EnergySolutions' Clive ALARA Program;
- EnergySolutions' Clive Site Radiological Security Plan;
- EnergySolutions' Waste Characterization Plan;
- EnergySolutions' Environmental Monitoring Plan;
- EnergySolutions' Standard Operating Procedures; and

BASIS FOR INTERROGATORY:

After the 11e.(2) renewal application was submitted, EnergySolutions made organizational changes which included a new CEO and Vice President of the Clive Facility. A new Appendix I for RML UT2300249, *Organization*, (referenced in License Condition 9.10 of RML UT2300478) was submitted to the DRC on October 24, 2012 (CD12-0275). The DRC reviewed this submittal and requested additional information (RFI) in a letter dated December 14, 2012. EnergySolutions responded to the DRC RFI on December 19, 2012. After reviewing the information provided in the December 19, 2012 response, the DRC accepts the changes indicated. However, the titles and responsibilities were changed to several positions that are referenced within the supporting documentation to the 11e.(2) License Renewal Application and the currently approved RMLs. Therefore, these changes need to be made prior to the completion and approval of the 11e.(2) License Renewal Application review so that the entire renewal application is accurate and complete.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-32 Filing Application for Specific Licenses.

R313-22-33(1)(a) General Requirements for the Issuance of Specific Licenses.

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.9 and 9.10

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills.

SECTION 5.1.1-STANDARD OPERATING PROCEDURES

INTERROGATORY STATEMENT 5.1.1(1):

Identify job titles, including any designees, who are assigned to review SOPs. Describe what criteria are used to review the SOPs, and the frequency of the reviews.

BASIS FOR INTERROGATORY:

RML UT2300478 License Condition 9.8 requires that SOPs are reviewed prior to implementation and annually after implementation. This requirement was not discussed in Section 5.1.1 of the application.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6, 9.8 and 9.11.b

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.2 *Operating Procedures*.

INTERROGATORY STATEMENT 5.1.1(2):

Describe how SOPs are used to train employees.

BASIS FOR INTERROGATORY:

RML UT2300478 License Condition 9.11.b requires that SOPs are used in training employees. This requirement was not discussed in Section 5.1.1 of the application.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6, 9.8 and 9.11.b

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.5 *Radiation Safety Training*.

SECTION 5.2-MANAGEMENT CONTROL PROGRAM

INTERROGATORY STATEMENT 5.2(1):

Refer to Interrogatory Statement for Section 5.1.

BASIS FOR INTERROGATORY:

After the 11e.(2) renewal application was submitted, EnergySolutions had some organizational changes which included, but were not limited to, a new CEO.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-32 Filing Application for Specific Licenses.

R313-22-33(1)(a) General Requirements for the Issuance of Specific Licenses.

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.10

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills.*

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: *Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 1.1 Licensee Management.*

SECTION 5.3-MANAGEMENT AUDIT, INSPECTION AND RECORDKEEPING PROGRAM

INTERROGATORY STATEMENT-5.3(1):

Information provided in this section of the LRA was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The requirements of section 5.3 and the associated interrogatories are discussed in the subsections 5.3.1 through 5.3.2.9 below. This information was not required to be provided because the paragraph in the RML renewal application was an introductory statement for the subsections.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-24-4 Clarifications or Exceptions
10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

Radioactive Material License UT2300478, License Condition 11.3

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills.*

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.3 *Surveillance: Audits and Inspections.*

SECTION 5.3.1-MANAGEMENT AUDIT, INSPECTION AND INTERNAL INSPECTION PROGRAM

INTERROGATORY STATEMENT 5.3.1(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided in Subsection 5.3.1 met the requirement for RML UT 2300478 License Condition 11.3 and R313-15-101(3). The Management Audit, Inspection and Recordkeeping Program requirement will be met by following and documenting the information outlined in Section 2.3.3 of NRC Regulatory Guide 8.31.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-24-4 Clarifications or Exceptions
10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

Radioactive Material License UT2300478, License Condition 11.3

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills.*

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.3 *Surveillance: Audits and Inspections.*

SECTION 5.3.1.1-DAILY, WEEKLY AND MONTHLY INSPECTIONS

INTERROGATORY STATEMENT 5.3.1.1(1):

Identify who (job titles) actually performs the inspections discussed in this section. Describe how the individuals are qualified through training and/or experience to perform the inspections.

BASIS FOR INTERROGATORY:

The items to be checked during the different inspections are described. The job titles of those who actually perform these inspections and their qualifications to perform the inspections are not clear.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 8a

REFERENCES:

Radioactive Material License UT2300478, License Condition 11.3

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.3 *Surveillance: Audits and Inspections*.

INTERROGATORY STATEMENT 5.3.1.1(2):

Under the description of BAT inspections, describe what the BAT inspectors check at the Decontamination facilities, Access control facilities and any other building or facility that are inspected

BASIS FOR INTERROGATORY:

DRC inspectors have observed BAT inspectors. The BAT inspectors check more than what is described in Section 5.3.1.1 of the application.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 8a

REFERENCES:

Radioactive Material License UT2300478, License Condition 11.3

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.3 *Surveillance: Audits and Inspections*.

SECTION 5.3.2-RECORDKEEPING AND RECORD RETENTION

INTERROGATORY STATEMENT 5.3.2(1):

Identify the procedure(s) that document the “prescribed retention policy” for records retention.

BASIS FOR INTERROGATORY:

Throughout this section the Licensee refers to the retention of hard copies that will be in accordance to the “prescribed retention policy.” The Licensee did not state or provide a copy of the policy.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1101 Records- General Provision
R313-24-4 Clarifications or Exceptions
10 CFR 40.31(h) Application for Specific Licenses
10 CFR 40.61 Records

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills.

SECTION 5.3.2.1-RECORDS OF RADIATION PROTECTION PROGRAM

INTERROGATORY STATEMENT 5.3.2.1(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The Licensee did not have a separate section for this topic; however the topic was covered in Section 5.3.2. *Recordkeeping and Record Retention* of the renewal application. The information provided by the licensee regarding specific records that address the radiation protection program and maintenance of the records, meet the requirements of R313-15-1102, License Condition 12.6 and NRC Regulatory Guide 3.5. Therefore, the licensee met the requirements for this item.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1102 Records of Radiation Protection Program

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills.

SECTION 5.3.2.2-RECORDS OF SURVEYS

INTERROGATORY STATEMENT 5.3.2.2(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The Licensee did not have a separate section for this topic, however the topic was covered in section 5.3.2. *Recordkeeping and Record Retention* of the renewal application. The information provided by the licensee regarding specific records that address how records of surveys are managed, meet the requirements of R313-15-1103, License Condition 12.6 and NRC Regulatory Guide 3.5. Therefore, the licensee met the requirements for this item.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1103 Records of Surveys

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills.

SECTION 5.3.2.3-RECORDS OF TEST FOR LEAKAGE OR CONTAMINATION OF SEALED SOURCES

INTERROGATORY STATEMENT 5.3.2.3(1):

Describe how the results from leak tests on sealed sources are documented and the records are maintained.

BASIS FOR INTERROGATORY:

The Licensee did not have a separate section for this topic and the topic was not covered in Section 5.3.2. The Licensee does have portable soil density/moisture gauges that have sealed sources that are authorized in RML UT 2300249. The use of these gauges are one of the authorized ways to approve the density of the lifts in the 11e.(2) embankment.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1104 Records of Tests for Leakage or Contamination of Sealed Sources

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills.*

SECTION 5.3.2.4-RECORDS OF PRIOR OCCUPATIONAL DOSE

INTERROGATORY STATEMENT 5.3.2.4(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The Licensee did not have a separate section for this topic; however the topic was covered in section 5.3.2. *Recordkeeping and Record Retention* of the renewal application. The information provided by the licensee regarding specific records that address the how records of prior occupational dose are obtained and managed, meet the requirements of R313-15-1105, License Condition 12.6 and NRC Regulatory Guide 3.5. Therefore, the licensee met the requirements for this item.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1105 Records of Prior Occupational Dose

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills.*

SECTION 5.3.2.5-RECORDS OF PLANNED SPECIAL EXPOSURES

INTERROGATORY STATEMENT 5.3.2.5(1):

Describe how *Planned Special Exposures* will be documented.

BASIS FOR INTERROGATORY:

The Licensee did not have a separate section for this topic. However the topic was covered in section 5.3.2. Section 5.3.2 states that “Planned Special Exposures are not authorized for the Clive facility.” However Section 5.7.3.2.5 of the LRA commits to follow the requirements for Planned Special Exposures located in R313-15-206. The DRC does recognize that the situations where a Planned Special Exposure would be unlikely, however it is not impossible.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1106 Records of Planned Special Exposures

R313-15-206 Planned Special Exposures

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills.*

SECTION 5.3.2.6-RECORDS OF INDIVIDUAL MONITORING RESULTS

INTERROGATORY STATEMENT 5.3.2.6(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The Licensee did not have a separate section for this topic. However the topic was covered in Section 5.3.2 *Recordkeeping and Record Retention* of the renewal application. The information provided by the licensee regarding specific records that address how records of individual monitoring results are managed, meets the requirements of R313-15-1105, License Condition 12.6 and NRC Regulatory Guide 3.5. Therefore, the licensee met the requirements for this item.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1107 Records of Individual Monitoring Results

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills.*

SECTION 5.3.2.7-RECORDS OF DOSE TO INDIVIDUAL MEMBERS OF THE PUBLIC

INTERROGATORY STATEMENT 5.3.2.7(1):

Describe how dose to individual members of the public are documented and the records are maintained.

BASIS FOR INTERROGATORY:

The LRA did not have a separate section for this topic and the topic was not covered in section 5.3.2.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1108 Records of Dose to Individual Members of the Public

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills.*

SECTION 5.3.2.8-RECORDS OF WASTE DISPOSAL

INTERROGATORY STATEMENT 5.3.2.8(1):

Describe documentation and records maintenance of onsite generated waste disposal activities.

BASIS FOR INTERROGATORY:

The LRA did not have a separate section for this topic and the topic was not covered in section 5.3.2.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1109 Records of Waste Disposal

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills.

SECTION 5.3.2.9-FORMS OF RECORDS

INTERROGATORY STATEMENT 5.3.2.9(1):

See Interrogatory for Section 5.3.2.

BASIS FOR INTERROGATORY:

Licensee refers to the retention of hard copies that will be in accordance to the “prescribed retention policy.” The LRA did not contain a copy of the policy.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-1111 Form of Records

REFERENCES:

Radioactive Material License UT2300478, License Condition 12.6

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills.*

SECTION 5.4-QUALIFICATIONS FOR PERSONNEL

INTERROGATORY STATEMENT 5.4(1):

See Interrogatory for Section 5.1.

BASIS FOR INTERROGATORY:

After the 11e.(2) renewal application was submitted, Energy *Solutions* had some organizational changes which included but not limited to a new CEO.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-32 Filing Application for Specific Licenses.

R313-22-33(1)(a) General Requirements for the Issuance of Specific Licenses.

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.9

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills.

SECTION 5.4.1-RSO (DHP) QUALIFICATIONS

INTERROGATORY STATEMENT 5.4.1(1):

Demonstrate that the current DHP is qualified for the position by providing documentation of their training and experience.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) “*Application for Radioactive Material License*” Section 7 requires the applicant for a license renewal to identify the “Individual(s) Responsible for Radiation Safety Program and their training and experience.” RML UT2300478 License Condition 9.10 states “the DHP or their designate(s) shall be qualified as specified in Section 1.2 and 2.4 of NRC Regulatory Guide 8.31.” This documentation was not provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-1(3). Purpose and Authority

R313-15-101. Radiation Protection Programs

R313-22-33(1)(a). General Requirements for Issuance of Specific License

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.10

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 1.2 *Radiation Safety Officer* and Section 2.4. *Technical Qualifications of Health Physics Staff*.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 7 *INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE*.

INTERROGATORY STATEMENT 5.4.1.2(2):

License Condition 9.10 states; “the DHP shall also receive 40-hours of related health and safety training every two years.” Please provide the documentation of the 40-hours training that the DHP has taken every two years since the last license renewal or from the date when the current DHP started at the position, whichever is most applicable.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) “*Application for Radioactive Material License*” Section 7 requires the applicant for a license renewal to identify the “Individual(s) Responsible for Radiation Safety Program and their training and experience.” RML UT2300478 License Condition 9.10 states “the DHP or their designate(s) shall be qualified as specified in Section 1.2 and 2.4 of NRC Regulatory Guide 8.31.” This documentation was not provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-1(3). Purpose and Authority

R313-15-101. Radiation Protection Programs

R313-22-33(1)(a). General Requirements for Issuance of Specific License

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 1.2 *Radiation Safety Officer* and Section 2.4. *Technical Qualifications of Health Physics Staff*.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 7 *INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE*.

SECTION 5.4.2-RADIATION SAFETY STAFF

INTERROGATORY STATEMENT 5.4.2(1):

Demonstrate that the current ASRSO(s) and other personnel who may act as a designate for the DHP are qualified for the position by providing documentation of their training and experience.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) “*Application for Radioactive Material License*” Section 7 requires the applicant for a license renewal to identify the “Individual(s) Responsible for Radiation Safety Program and their training and experience.” RML UT2300478 License Condition 9.10 states; “the DHP or their designate(s) shall be qualified as specified in Section 1.2 and 2.4 of NRC Regulatory Guide 8.31.” RML UT2300249 Application Appendix I (current revision) Section I.1.6 *Radiation Safety* states “The ASRSO(s) can serve as acting DHP.” This information was not provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-1(3) Purpose and Authority

R313-15-101 Radiation Protection Programs

R313-22-33(1)(a) General Requirements for Issuance of Specific License

REFERENCES:

EnergySolutions, Radioactive Material License UT2300249 Application Appendix I: Organization, May 3, 2012.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 1.2 *Radiation Safety Officer* and Section 2.4. *Technical Qualifications of Health Physics Staff*.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 7 *INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE*.

INTERROGATORY STATEMENT 5.4.2(2):

Please provide the documentation of the training that the ASRSO(s) and other personnel that may act as a designate for the DHP have taken every two years since the last license renewal or from the date when the current ASRSO(s) started at the position, whichever is most applicable.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) “*Application for Radioactive Material License*” Section 7 requires the applicant for a license renewal to identify the “Individual(s) Responsible for Radiation Safety Program and their training and experience.” RML UT2300478 License Condition 9.10 states; “the DHP or their designate(s) shall be qualified as specified in Section 1.2 and 2.4 of NRC Regulatory Guide 8.31.” RML UT2300249 Application Appendix I (current revision) Section I.1.6 *Radiation Safety* states “The ASRSO(s) can serve as acting DHP.” NRC Regulatory Guide 8.31 Section 2.4 last sentence third paragraph state “In addition, the RSO should attend refresher training on UR facility health physics every 2 years.” This information was not provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-1(3) Purpose and Authority
R313-15-101 Radiation Protection Programs
R313-22-33(1)(a) General Requirements for Issuance of Specific License

REFERENCES:

EnergySolutions, Radioactive Material License UT2300249 Application Appendix I: Organization, May 3, 2012.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 1.2 *Radiation Safety Officer* and Section 2.4. *Technical Qualifications of Health Physics Staff*.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 7 *INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE*.

INTERROGATORY STATEMENT 5.4.2(3):

Describe the Duties and Responsibilities of the ASRSO(s) and other positions that may act as a designate for the DHP at the Clive facility.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) “*Application for Radioactive Material License*” Section 7 requires the applicant for a license renewal to identify the “Individual(s) Responsible for Radiation Safety Program and their training and experience.” RML UT2300478 License Condition 9.10 states; “the DHP or their designate(s) shall be qualified as specified in Section 1.2 and 2.4 of NRC Regulatory Guide 8.31.” RML UT2300249 Application Appendix I (current revision) Section I.1.6 *Radiation Safety* states “The ASRSO(s) can serve as acting DHP.” The Duties of the ASRSOs were not described.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-1(3) Purpose and Authority

R313-15-101 Radiation Protection Programs

R313-22-33(1)(a) General Requirements for Issuance of Specific License

REFERENCES:

EnergySolutions, Radioactive Material License UT2300249 Application Appendix I: Organization, May 3, 2012.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 1.2 *Radiation Safety Officer* and Section 2.4. *Technical Qualifications of Health Physics Staff*.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 7 *INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE*.

INTERROGATORY STATEMENT 5.4.2(4):

Please provide the documentation of the training that the radiation safety staff (i.e. Health Physics Technicians I, II and III, Dosimetry Technicians and etc.) receive to be qualified for those positions. Documentation should include but not limited to Qualification Cards, example exams and a list of study materials.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) “*Application for Radioactive Material License*” Section 7 requires the applicant for a license renewal to identify the “Individual(s) Responsible for Radiation Safety Program and their training and experience.” RML UT2300478 License Condition 9.10 states “the DHP or their designate(s) shall be qualified as specified in Section 1.2 and 2.4 of NRC Regulatory Guide 8.31.” RML UT2300249 Application Appendix I (current revision) Section I.1.6 *Radiation Safety* states; “The ASRSO(s) can serve as acting DHP.” NRC Regulatory Guide 8.31 Section 2.4 last sentence third paragraph state “In addition, the RSO should attend refresher training on UR facility health physics every 2 years.” This information was not provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-1(3) Purpose and Authority

R313-15-101 Radiation Protection Programs

R313-22-33(1)(a) General Requirements for Issuance of Specific License

REFERENCES:

EnergySolutions, Radioactive Material License UT2300249 Application Appendix I: Organization, May 3, 2012.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 1.2 *Radiation Safety Officer* and Section 2.4. *Technical Qualifications of Health Physics Staff*.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 7 *INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE*.

SECTION 5.5-RADIATION SAFETY TRAINING

INTERROGATORY STATEMENT 5.5(1):

Provide documentation of the Clive facility's Radiation Safety Training. This includes but is not limited to course outline, example exams, and SOPs on training used.

BASIS FOR INTERROGATORY:

The text of this section of the 11e.(2) RML renewal did not refer to any SOPs used or provide example documentation.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Programs

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.11

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.5 *Radiation Safety Training*.

INTERROGATORY STATEMENT 5.5(2):

Explain what is considered a passing score for tests (i.e. Radiation Safety, Respirator Protection, Standard Operating Procedure, etc.). Explain what is done when an employee fails a test. Explain how many times an employee is allowed to fail a test before they are not allowed to perform the task or work within the restricted area. Explain in detail how this testing is documented.

BASIS FOR INTERROGATORY:

The text of this section of the 11e.(2) RML renewal did not define the minimum training requirements to work within the restricted area or perform a specific task.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Programs

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.11

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.5 *Radiation Safety Training*.

INTERROGATORY STATEMENT 5.5(3):

Identify who (job titles) actually does the Radiation Safety Training. Describe how the individuals are qualified through training and/or experience to perform the duties assigned.

BASIS FOR INTERROGATORY:

The text of this section of the 11e.(2) RML renewal states that Radiation Safety Training Program is operated under the direction of the DHP but it does not state who performs the training. DRC Form (DRC-01) “*Application for Radioactive Material License*” Section 7 requires the applicant for a license renewal to identify the “Individual(s) Responsible for Radiation Safety Program and their training and experience.”

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Programs
R313-24-4 Clarifications or Exceptions
10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.11

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.5 *Radiation Safety Training*.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 7 *INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE*.

SECTION 5.6-SECURITY (ADMINISTRATION PROCEDURES AND PHYSICAL BARRIERS)

INTERROGATORY STATEMENT 5.6(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirement for R313-15-801 because the requirements of section 5.6 and the associated interrogatories are discussed in the subsections 5.6.1 through 5.6.2 below. This information was not required to be provided because the paragraph in the RML renewal application was an introductory statement for the subsections.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-801 Security and Control of Licensed or Registered Sources of Radiation.

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.4 *Security*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 3.2 *Access Control*.

SECTION 5.6.1-ACCESS CONTROL

INTERROGATORY STATEMENT 5.6.1(1):

Identify the specific SOP(s) used for access control requirements for the Clive facility's restricted area.

BASIS FOR INTERROGATORY:

The text of this section of the 11e.(2) RML renewal did not refer to any SOPs.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-801 Security and Control of Licensed or Registered Sources of Radiation.

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.4 *Security*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 3.2 *Access Control*.

INTERROGATORY STATEMENT 5.6.1(2):

Identify who (job titles) is responsible to maintain access control into the restricted area as discussed in this section. Describe how the individuals are qualified through training and/or experience to perform the duties assigned.

BASIS FOR INTERROGATORY:

The text of this section of the 11e.(2) RML renewal did not describe how access control to the restricted area is maintained and who is responsible.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-801 Security and Control of Licensed or Registered Sources of Radiation.

R313-24-4 Clarifications or Exceptions

10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.4 *Security*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 3.2 *Access Control*.

SECTION 5.6.2-SIGNS AND POSTING

INTERROGATORY STATEMENT 5.6.2(1):

Identify the specific SOP(s) used to determine signage and posting requirements for the Clive facility.

BASIS FOR INTERROGATORY:

The text of this section of the 11e.(2) RML renewal referred to a long list of SOPs. Not all of the SOPs referred are applicable to signage and posting requirements.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-901 Caution Signs.

R313-15-902 Posting Requirements.

R313-15-903 Exceptions to Posting Requirements.

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 3.2 *Access Control*.

SECTION 5.7-RADIATION CONTROL AND MONITORING

INTERROGATORY STATEMENT 5.7(1):

Please rewrite section to include information on the topic of this section which is Radiation Control and Monitoring. This section should describe what EnergySolutions does for Radiation Control and Monitoring not OSHA. Include specific references to SOPs used.

BASIS FOR INTERROGATORY:

The Licensee did not provide any useful information. Information provided did not relate with the topic of discussion. An introductory statement for the subsections of the section would have been more appropriate.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Manual

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5 *Radiation Safety*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 6: *Effluent and Environmental Measurements and Monitoring Programs*.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 10, RADIATION SAFETY PROGRAM.

SECTION 5.7.1-ALARA PROGRAM

INTERROGATORY STATEMENT 5.7.1(1):

Information provided in this section of the 11e.(2) RML Renewal Application plus the Clive ALARA Program was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The DRC reviewed the Clive ALARA Program (Rev. 12), document as part of its review of this section even though it was not referenced in the 11e.(2) RML renewal application. The information provided in RML renewal application in addition to the Clive ALARA Program document met the requirement for R313-15-101(2) and License Conditions 9.17 and 12.3.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101(2) Radiation Protection Program
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 7

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.17 and 12.3

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable.

SECTION 5.7.2-RADIATION SAFETY PROGRAM

INTERROGATORY STATEMENT 5.7.2(1):

State the legal dose limit in the *EnergySolutions Clive Facility's Radiation Protection Program* document Rev. 6 Section 2.1.1. Then reference the appropriate Rule/Regulation.

BASIS FOR INTERROGATORY:

This section of the 11e.(2) RML renewal application references *EnergySolutions Clive Facility's Radiation Protection Program Rev. 6.*, document. Section 2.1.1, *Legal Dose Limit*, refers to "reference 8.13". The document referenced in 8.13 is NRC Regulatory Guide 8.9, *Acceptable Concepts, Models, Equations and Assumptions for a Bioassay Program*, July 1993. The referenced document does not match the topic of Section 2.1.1 of the *EnergySolutions Clive Facility's Radiation Protection Program Rev. 6* document.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 7

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01
APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 10, RADIATION SAFETY PROGRAM.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5 *Radiation Safety*.

INTERROGATORY STATEMENT 5.7.2(2):

Change all references to the Utah Radiation Control Board Executive Secretary to the Director of the Utah Division of Radiation Control in the Energy *Solutions* Clive Facility's Radiation Protection Program document.

BASIS FOR INTERROGATORY:

This section of the 11e.(2) RML renewal application references Energy *Solutions Clive Facility's Radiation Protection Program document Rev. 6*. Throughout this document it references the Utah Radiation Control Board Executive Secretary. Recent changes have occurred and it should now read Director of the Utah Division of Radiation Control.

In the 2012 General Session of the Utah Legislature, Senate Bill 21 (SB 21) was passed. As a result of the changes in SB 21, references to the "Executive Secretary" were modified to read "Director." This is a non-substantial change in that the "Executive Secretary of the Utah Radiation Control Board" has historically been the "Director of the Utah Division of Radiation Control." SB 21 replaced references to the "Executive Secretary of the Utah Radiation Control Board" with "Director of the Division of Radiation Control"; therefore, duties and responsibilities previously held by the "Executive Secretary" were transferred to the "Director" of the Division of Radiation Control.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 7

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 10, RADIATION SAFETY PROGRAM.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5 *Radiation Safety*.

INTERROGATORY STATEMENT 5.7.2(3):

Clarify the skin contamination limits used to determine if a person is radiologically contaminated.

BASIS FOR INTERROGATORY:

This section of the 11e.(2) RML renewal application references EnergySolutions Clive Facility's Radiation Protection Program document Rev. 6. Section 5.5.1 states that the limits outlined in Table 2-1 shall be used. During the review, the DRC also looked at EnergySolutions SOP CL-RS-PR-120 Access Control Section 3.3.9 which states that the limit for skin and clothing is 100 dpm/100 cm² Alpha and 1,000 dpm /100 cm² Beta. These limits are in Table 2-1 however there are other limits outlined in Table 2-1 that are not in EnergySolutions SOPs. The skin contamination limits and any other dose and contamination limits need to be consistent between the EnergySolutions' Clive Facility's Radiation Protection Program document and the Clive Facility's SOPs. The DRC does agree that the Clive facility's skin contamination limits are conservative and are compliant with the 50 rem skin contamination limit found in R313-15-201(1)(a)(ii). This determination is based on the recommended skin contamination limits found in NRC Regulatory Guide 8.30 section 2.6 of 1,000 dpm/100 cm² Alpha and no limits for Beta.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-15-201(1)(a)(ii) Occupational Dose Limits for Adults
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 7

REFERENCES:

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 10, RADIATION SAFETY PROGRAM.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5 *Radiation Safety*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.30: Health Physics Surveys in Uranium Recovery facilities, Section 2.6 *Surveys for Contamination of Skin and Personal Clothing*.

SECTION 5.7.3-RADIATION WORK PERMITS

INTERROGATORY STATEMENT 5.7.3(1):

Information provided in this section of the 11e.(2) RML Renewal Application and the referenced SOP (CL-RS-PR-140 Radiation Work Permit (RWP)) by the Licensee was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements to RML UT2300478 License Condition 9.13 and NRC Regulatory Guide 8.31 Section 2.2 by documenting what information is required in an RWP and when an RWP is used.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.13

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.2 *Operating Procedures*.

SECTION 5.7.4-RESPIRATORY PROTECTION PROGRAM

INTERROGATORY STATEMENT 5.7.4(1):

List other appropriate guidance documents used to develop the Clive facility's Respiratory Protection Program.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) "*Application for Radioactive Material License*" Section 10 requires the applicant for a license renewal to provide a Radiation Safety Program. UAC R313-15-703 *Use of Individual Respiratory Protection Equipment* outlines what needs to be in a respiratory protection program. In addition, License Condition 9.15 requires the Licensee to follow the guidance in NRC Regulatory Guide 8.15 *Acceptable Programs for Respiratory Protection*. Contrary, the licensee stated in the 11e.(2) RML renewal application that "a respiratory protection program has been implemented, based on ANSI guidance." The ANSI guidance referenced in the renewal application ANSI/AIHA Z88.6-2006 *Respiratory Protection-Respirator Use Physical Qualifications for Personnel* provides guidance on medical clearance for respirator users and does not address the other requirements of a respiratory protection program. Therefore, the ANSI guidance referenced is not equivalent to NRC Regulatory Guide 8.15.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-703 Use of Individual Respiratory Protection Equipment

R313-15-704 Further Restrictions on the Use of Respiratory Protection Equipment

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.15: Acceptable Programs for Respiratory Protection, Revision 1, October 1999.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 10 *Radiation Safety Program*.

INTERROGATORY STATEMENT 5.7.4(2):

UAC R313-15-703(3)(d) and Section 3.2 of NRC Regulatory Guide 8.15, as referenced by License Condition 9.15, require written SOPs regarding specific elements of a respiratory protection program. Please identify specific EnergySolutions' SOPs and/or sections of SOPs used at the Clive facility that document the elements of facility's respiratory protection program that are required by R313-15-703(3)(d) and NRC Regulatory Guide 8.15 Section 3.2.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) "*Application for Radioactive Material License*" Section 10 requires the applicant for a license renewal to provide a Radiation Safety Program. UAC R313-15-703 *Use of Individual Respiratory Protection Equipment* outlines what needs to be in a respiratory protection program. In addition, License Condition 9.15 requires the Licensee to follow the guidance in NRC Regulatory Guide 8.15 *Acceptable Programs for Respiratory Protection*. Contrary, the licensee stated in the 11e.(2) RML renewal application that "a respiratory protection program has been implemented, based on ANSI guidance." The ANSI guidance referenced in the renewal application ANSI/AIHA Z88.6-2006 *Respiratory Protection-Respirator Use Physical Qualifications for Personnel* provides guidance on medical clearance for respirator users and does not address the other requirements of a respiratory protection program. Therefore, the ANSI guidance referenced is not equivalent to NRC Regulatory Guide 8.15. The specific required written procedures were not referenced or not provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-703 Use of Individual Respiratory Protection Equipment

R313-15-704 Further Restrictions on the Use of Respiratory Protection Equipment

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.15: Acceptable Programs for Respiratory Protection, Revision 1, October 1999.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 10 *Radiation Safety Program*.

INTERROGATORY STATEMENT 5.7.4(3):

NRC Regulatory Guide 8.15, as referenced by License Condition 9.15, Section 5.2 requires a training program for a respiratory protection program and identifies a minimum training requirement. Provide training documentation that demonstrates the training that respirator users receive at the Clive facility.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) “*Application for Radioactive Material License*” Section 10 requires the applicant for a license renewal to provide a Radiation Safety Program. UAC R313-15-703 *Use of Individual Respiratory Protection Equipment* outlines what needs to be in a respiratory protection program. In addition, License Condition 9.15 requires the Licensee to follow the guidance in NRC Regulatory Guide 8.15 *Acceptable Programs for Respiratory Protection*. Contrary, the licensee stated in the 11e.(2) RML renewal application that “a respiratory protection program has been implemented, based on ANSI guidance.” The ANSI guidance referenced in the renewal application ANSI/AIHA Z88.6-2006 *Respiratory Protection-Respirator Use Physical Qualifications for Personnel* provides guidance on medical clearance for respirator users and does not address the other requirements of a respiratory protection program. Therefore, the ANSI guidance referenced is not equivalent to NRC Regulatory Guide 8.15. Training for respirator users was not provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-703 Use of Individual Respiratory Protection Equipment

R313-15-704 Further Restrictions on the Use of Respiratory Protection Equipment

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.15: Acceptable Programs for Respiratory Protection, Revision 1, October 1999.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 10 *Radiation Safety Program*.

INTERROGATORY STATEMENT 5.7.4(4):

NRC Regulatory Guide 8.15, as referenced by License Condition 9.15, Section 3.5 requires that a respiratory protection program is properly staffed and managed. Identify the positions and a summary of the duties of the individual responsible for the Clive Facility’s respirator protection program.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) “*Application for Radioactive Material License*” Section 10 requires the applicant for a license renewal to provide a Radiation Safety Program. UAC R313-15-703 *Use of Individual Respiratory Protection Equipment* outlines what needs to be in a respiratory protection program. In addition, License Condition 9.15 requires the Licensee to follow the guidance in NRC Regulatory Guide 8.15 *Acceptable Programs for Respiratory Protection*. Contrary, the licensee stated in the 11e.(2) RML renewal application that “a respiratory protection program has been implemented, based on ANSI guidance.” The ANSI guidance referenced in the renewal application ANSI/AIHA Z88.6-2006 *Respiratory Protection-Respirator Use Physical Qualifications for Personnel* provides guidance on medical clearance for respirator users and does not address the other requirements of a respiratory protection program. Therefore, the ANSI guidance referenced is not equivalent to NRC Regulatory Guide 8.15. RML UT2300249 application appendix I: Organization, does not contain these positions.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-703 Use of Individual Respiratory Protection Equipment

R313-15-704 Further Restrictions on the Use of Respiratory Protection Equipment

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.15: Acceptable Programs for Respiratory Protection, Revision 1, October 1999.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 10 *Radiation Safety Program*.

INTERROGATORY STATEMENT 5.7.4(5):

NRC Regulatory Guide 8.15, as referenced by License Condition 9.15, Section 3.5 requires that a respiratory protection program is properly staffed and managed. Provide the minimum qualifications, training requirements and retraining requirement for each position in the Clive facility's respiratory protection program.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01) "*Application for Radioactive Material License*" Section 10 requires the applicant for a license renewal to provide a Radiation Safety Program. UAC R313- 5-703 *Use of Individual Respiratory Protection Equipment* outlines what needs to be in a respiratory protection program. In addition, License Condition 9.15 requires the Licensee to follow the guidance in NRC Regulatory Guide 8.15 *Acceptable Programs for Respiratory Protection*. Contrary, the licensee stated in the 11e.(2) RML renewal application that "a respiratory protection program has been implemented, based on ANSI guidance." The ANSI guidance referenced in the renewal application ANSI/AIHA Z88.6-2006 *Respiratory Protection-Respirator Use Physical Qualifications for Personnel* provides guidance on medical clearance for respirator users and does not address the other requirements of a respiratory protection program. Therefore, the ANSI guidance referenced is not equivalent to NRC Regulatory Guide 8.15. RML UT2300249 application appendix I: Organization does not contain these positions.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-703 Use of Individual Respiratory Protection Equipment

R313-15-704 Further Restrictions on the Use of Respiratory Protection Equipment

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.15: Acceptable Programs for Respiratory Protection, Revision 1, October 1999.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 10 *Radiation Safety Program*.

SECTION 5.7.5-RADIOLOGICAL SURVEYS

INTERROGATORY STATEMENT 5.7.5(1):

List all of the different radiological surveys that are performed at the Clive facility. List applicable radiological limits and/or release limits. Discuss what happens when limits or release criteria are not achieved. Identify specific SOPs on radiological surveys.

BASIS FOR INTERROGATORY:

This section provided good information on personnel working at the Clive facility being surveyed out of the restricted area but it did not discuss all of the other radiological surveys (i.e. daily surveys, weekly routine surveys, conveyance release surveys and etc.) that occur at the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-15-501 Surveys and Monitoring- General
R313-19-100 Transportation
49 CFR 173.443 Contamination Control

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.30: Health Physics Surveys in Uranium Recovery facilities.

U.S. Nuclear Regulatory Commission Regulatory Guide 1.86: Termination of Operating Licenses for Nuclear Reactors, Table 1 *Acceptable Surface Contamination Levels*.

SECTION 5.7.6-EFFLUENT CONTROL TECHNIQUES

INTERROGATORY STATEMENT 5.7.6(1):

Identify specific SOPs on Effluent Control Techniques including but not limited to fugitive dust suppression and management.

BASIS FOR INTERROGATORY:

RML UT2300478 License Condition 9.14 specifies SOPs shall be provided. SOPs were not discussed or referenced by the Licensee in the renewal application.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 7

REFERENCES:

Radioactive Material License UT2300478, License Condition 9.14

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable.

SECTION 5.7.7-EXTERNAL RADIATION EXPOSURE MONITORING PROGRAM

INTERROGATORY STATEMENT 5.7.7(1):

Identify specific SOPs that are used to perform Gamma radiation surveys in work areas. Describe the frequency that these surveys are performed and how the information from these surveys is reviewed and used at the Clive facility in determining external radiation exposures.

BASIS FOR INTERROGATORY:

NRC Regulatory Guide 8.30 discusses the need for external Gamma radiation surveys to be performed on a regular basis to determine posting and dosimetry requirements. NUREG 1569 adds the following guidance “The staff should review survey methods, instrumentation, and equipment for determining exposures of employees to external radiation during routine and non-routine operations, maintenance, and cleanup activities. This review should include the types of surveys conducted, criteria for determining survey locations, frequency of surveys, action levels, management audits, and corrective action requirements. Staff should also review the program for personnel exposure monitoring, the criteria for including workers in the program, the sensitivity and range of devices used, and calibration frequency and methods.” This information was not adequately provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-201 Occupational Dose Limits for Adults.
R313-15-202 Compliance with Requirements for Summation of External and Internal Doses.
R313-15-203 Determination of External Dose from Airborne Radioactive Material.
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5: *Radiation Safety*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.30: Health Physics Surveys in Uranium Recovery facilities, Section 2.4 *Surveys for External Radiation*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 5.7.2: *External Radiation Exposure Monitoring Program*.

SECTION 5.7.7.1-DOSIMETRY

INTERROGATORY STATEMENT 5.7.7.1(1):

Information provided in EnergySolutions' 11e.(2) renewal application does not discuss the type of dosimetry used, how the dosimetry is used and worn at the Clive facility. Provide the information on the Clive facility's Dosimetry program to demonstrate that the appropriate dosimetry is used and worn and that the dosimetry is sufficient to obtain the necessary data to demonstrate compliance with the applicable State of Utah Rules and Federal Regulation. Identify the specific SOPs that are used at the Clive facility in managing the dosimetry program.

BASIS FOR INTERROGATORY:

The topic of dosimetry is not discussed in this section. Therefore the application is incomplete until the information is provided. Section 5.7.7 was more relevant than the information provided in section 5.7.7.1.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-15-501 Surveys and Monitoring-General

R313-15-502 Conditions Requiring Individual Monitoring of External and Internal Occupational Dose

R313-15-503 Location of Individual Monitoring Devices

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5: *Radiation Safety*.

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 5.7.2: *External Radiation Exposure Monitoring Program*.

SECTION 5.7.8-AIRBORNE RADIATION MONITORING PROGRAM

INTERROGATORY STATEMENT 5.7.8(1):

Discuss how the design and implementation of the air sampling program at the Clive facility follows NRC Regulatory Guide 8.25 *Air Sampling in the Workplace*.

BASIS FOR INTERROGATORY:

The 11e.(2) RML License Condition 9.6 Paragraph (f) requires that NRC Regulatory Guide 8.25 or equivalent be used in designing and implementing an air sampling program. The first sentence in the renewal application on this section states that work area airborne monitoring will follow the “intent” of NRC Regulatory Guide 8.25. However, the remainder of the discussion in this section did not discuss how the work place air monitoring at the Clive facility follows NRC Regulatory Guide 8.25.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-201 Occupational Dose Limits for Adults.
R313-15-202 Compliance with Requirements for Summation of External and Internal Doses.
R313-15-203 Determination of External Dose from Airborne Radioactive Material.
R313-15-204 Determination of Internal Exposure
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 7

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6 & 11.4

U.S. Nuclear Regulatory Commission Regulatory Guide 8.25: Air Sampling in the Workplace.

INTERROGATORY STATEMENT 5.7.8(2):

Identify specific SOPs that are used to perform and evaluate Airborne Radiation monitoring.

BASIS FOR INTERROGATORY:

The 11e.(2) RML License Condition 9.6 Paragraph (a) requires SOPs for all operational activities.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-201 Occupational Dose Limits for Adults.

R313-15-202 Compliance with Requirements for Summation of External and Internal Doses.

R313-15-203 Determination of External Dose from Airborne Radioactive Material.

R313-15-204 Determination of Internal Exposure

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 7

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6 & 11.4

U.S. Nuclear Regulatory Commission Regulatory Guide 8.25: Air Sampling in the Workplace.

INTERROGATORY STATEMENT 5.7.8(3):

Identify the “pertinent” information that is recorded on the envelopes that air samples are placed in.

BASIS FOR INTERROGATORY:

The Licensee in this section of the 11e.(2) RML renewal states that the “pertinent” information for the air particulates samples is recorded on the envelopes that the sample is stored in. However, the Licensee never states what that information is.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-201 Occupational Dose Limits for Adults.

R313-15-202 Compliance with Requirements for Summation of External and Internal Doses.

R313-15-203 Determination of External Dose from Airborne Radioactive Material.

R313-15-204 Determination of Internal Exposure

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 7

REFERENCES:

Radioactive Material License UT2300478, License Conditions 9.6 & 11.4

U.S. Nuclear Regulatory Commission Regulatory Guide 8.25: Air Sampling in the Workplace.

SECTION 5.7.9-EXPOSURE CALCULATIONS

INTERROGATORY STATEMENT 5.7.9(1):

Please rewrite section, no useful information was provided by the Licensee. This section is on how Exposure Calculations are performed at the Clive facility. Please summarize the contents of the subsections on how exposure calculations are performed.

BASIS FOR INTERROGATORY:

The Licensee did not provide any useful information. An introductory statement for the subsections of the section would have been more appropriate.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-201 Occupational Dose Limits for Adults
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 7

REFERENCES:

Radioactive Material License UT2300478, License Condition 11.4

SECTION 5.7.9.1-EXTERNAL AND INTERNAL DOSE

INTERROGATORY STATEMENT 5.7.9.1(1):

Provide the formulas used and provide an example of how the formulas incorporate the dose conversion factors in ICRP 68 in calculating external and internal dose. Use current data.

BASIS FOR INTERROGATORY:

The dose conversion factors in ICRP 68 are acceptable. Demonstrate that the Licensee knows how to use them. Current data needs to be used because data from the UMTRA project is not relevant for a renewal.

APPLICABLE RULE(S) OR REGULATION(S):

R313-1-202 Compliance with Requirements for Summation of External and Internal Doses.

REFERENCES:

Radioactive Material License UT2300478, License Condition 11.4

ICRP, “Dose Coefficients for Intakes of Radionuclides by Workers.” ICRP68. Ann. ICRP 24, 1994

INTERROGATORY STATEMENT 5.7.9.1(2):

Identify specific SOPs and work practices used at the Clive facility to limit external and internal dose to employees.

BASIS FOR INTERROGATORY:

Specific programs, RWP's and SOP's describe along with work practices and other controls used at the facility that limit/reduce the amount of occupational dose employees receive while doing their assigned job. None of these items were provided in this section.

APPLICABLE RULE(S) OR REGULATION(S):

R313-1-202 Compliance with Requirements for Summation of External and Internal Doses

REFERENCES:

Radioactive Material License UT 2300478, License Condition 10.1

SECTION 5.7.9.2-PRIOR OCCUPATIONAL DOSE

INTERROGATORY STATEMENT 5.7.9.2(1):

Information provided in this section of the 11e.(2) RML Renewal Application by the Licensee was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

Energy *Solutions* stated that they would follow NRC regulation 10 CFR 20.2104 which is the same as R313-15-205. R313-15-205 is detailed enough that further information is not required.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-205 Determination of Prior Occupational Exposure.

REFERENCES:

None required

SECTION 5.7.9.3-PLANNED SPECIAL EXPOSURES

INTERROGATORY STATEMENT 5.7.9.3(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

Energy *Solutions* stated that they would follow 10 CFR 20.2106 which is the same as UAC R313-15-206. UAC R313-15-206 is detailed enough that further information is not required.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-2. Definitions

R313-15-206 Planned Special Exposures

REFERENCES:

None Required

SECTION 5.7.9.4-OCCUPATIONAL DOSE FOR MINORS

INTERROGATORY STATEMENT 5.7.9.4(1):

Information provided in this section of the 11e.(2) RML Renewal Application by the Licensee was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

Energy*Solutions* does not employ individuals under the age of 18 at the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-207 Occupational Dose Limits for Minors

REFERENCES:

None required

SECTION 5.7.9.5-DOSE TO AN EMBRYO/FETUS

INTERROGATORY STATEMENT 5.7.9.5(1):

There are several different methods to determine the dose to an embryo/fetus. Explain how the dose to an embryo/fetus is determined at the Clive facility. Include formulas used and provide an example of how the formula is used to calculate the dose.

BASIS FOR INTERROGATORY:

The Licensee did a good job on explaining what the dose limit is to an embryo/fetus, the procedure for a woman to declare a pregnancy and the steps the company will take to limit occupational exposure to the woman and her embryo/fetus after a pregnancy is declared. However, there was no explanation on how the dose to the embryo/fetus is monitored (i.e. separate dosimeter, using the mother's dosimeter, etc.) and which formulas/calculations are used to determine the dose.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-208 Dose to an Embryo/fetus

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.13: Instruction Concerning Prenatal Radiation Exposure.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.36: Radiation Dose to the Embryo/Fetus.

SECTION 5.7.9.6-DOSE LIMITS TO THE INDIVIDUAL OF THE PUBLIC

INTERROGATORY STATEMENT 5.7.9.6(1):

Specify the SOPs, describe the work practices and engineering controls that are used at the Clive facility to keep dose limits to the public below 0.1 rem/year limit or 0.002 rem/hr. in an unrestricted area from any one source.

BASIS FOR INTERROGATORY:

Licensee did not provide any detail or useful information in the 11e.(2) renewal application. Referencing the Utah Rules and the Federal Regulations does not provide enough detail on how the dose limit to the Public will be achieved.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-15-301 Dose Limits to the Individual of the Public

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.30: Health Physics Surveys in Uranium Recovery Facilities.

SECTION 5.7.9.7-COMPLIANCE TO DOSE LIMITS OF THE PUBLIC

INTERROGATORY STATEMENT 5.7.9.7(1):

Update the Analysis of Radiological Pathway Exposures. Use actual data that has been collected since the 11e.(2) operations began in 1993. Adjust analysis to include the changes to Section 32 since the analysis was originally done in 1993. Show the mathematical formulas used and example calculations in addition to data tables.

BASIS FOR INTERROGATORY:

Appendices A and A-1 that were referenced in the 11e.(2) renewal application are dated 1993 with some revisions dated 1994. A lot of things have changed at the facility, including the size of the 11e.(2) embankment and newer facilities and SOPs.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-302 Compliance with Dose Limits for Individual Members of the Public.

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.30: Health Physics Surveys in Uranium Recovery Facilities.

SECTION 5.7.10-BIOASSAY PROGRAM (i.e. URINALYSIS, BODY COUNTS AND ETC.)

INTERROGATORY STATEMENT 5.7.10(1):

Identify specific SOPs used in the Bioassay Program. Include how it is determined which method (Urinalysis or Lung count) is used.

BASIS FOR INTERROGATORY:

The 11e.(2) RML License Condition 9.6 Paragraph (a) requires SOPs for all operational activities.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-15-201 Occupational Dose Limits for Adults

R313-15-202 Compliance with Requirements for Summation of External and Internal Doses

R313-15-204 Determination of Internal Exposure

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.8 *Bioassay Procedures*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.22: Bioassay at Uranium Mills.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.9: Acceptable Concepts, Models, Equations, and Assumptions for a Bioassay Program.

INTERROGATORY STATEMENT 5.7.10(2):

Provide the formulas used in the Bioassay Program. Show example calculations of the formulas to demonstrate proper use.

BASIS FOR INTERROGATORY:

The Licensee's 11e.(2) renewal application states "EnergySolutions evaluates laboratory bioassay analysis results in accordance with NRC Regulatory Guide 8.9" but the Licensee did not demonstrate how they follow NRC Regulatory Guide 8.9.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-15-201 Occupational Dose Limits for Adults
R313-15-204 Determination of Internal Exposure
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.22: Bioassay at Uranium Mills.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.9: Acceptable Concepts, Models, Equations, and Assumptions for a Bioassay Program.

INTERROGATORY STATEMENT 5.7.10(3):

Please provide the documentation of the training that the employees assigned to work in the Bioassay Program are qualified for those positions. Documentation should include but not limited to Qualification Cards, example exams and a list of study materials.

BASIS FOR INTERROGATORY:

DRC Form (DRC-01), *Application for Radioactive Material License*, Section 7 requires the applicant for a license renewal to identify the “Individual(s) Responsible for Radiation Safety Program and their training and experience.” RML UT2300478 License Condition 9.10 states “The DHP or their designate(s) shall be qualified as specified in Section 1.2 and 2.4 of NRC Regulatory Guide 8.31.” RML UT2300249 Application Appendix I (current revision) Section I.1.6 *Radiation Safety* states “The ASRSO(s) can serve as acting DHP.” These positions were not identified in the renewal application.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-1(3) Purpose and Authority
R313-15-101 Radiation Protection Programs
R313-15-204 Determination of Internal Exposure
R313-22-33(1)(a) General Requirements for Issuance of Specific License

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable, Section 2.8 *Bioassay Procedures*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.22: Bioassay for Uranium Mills.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.9: Acceptable Concepts, Models, Equations, and Assumptions for a Bioassay Program.

Utah Department of Environmental Quality, Division of Radiation Control, Form DRC-01 APPLICATION FOR RADIOACTIVE MATERIAL LICENSE, Section 7 *INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE*.

SECTION 5.7.11-CONTAMINATION CONTROL PROGRAM

INTERROGATORY STATEMENT 5.7.11(1):

Specify SOPs related to the Contamination Control Program.

BASIS FOR INTERROGATORY:

The 11e.(2) RML License Condition 9.6 Paragraph (a) requires SOPs for all operational activities.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-301 Dose Limits for Individual Members of the Public

R313-15-406 Minimization of Contamination

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5: *Radiation Safety*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable.

INTERROGATORY STATEMENT 5.7.11(2):

Identify radiological contamination limits both inside and outside the restricted area. Discuss what happens when contamination limits are exceeded.

BASIS FOR INTERROGATORY:

If there are no limits then there is no need to do the surveys.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-301 Dose Limits for Individual Members of the Public

R313-15-406 Minimization of Contamination

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5: *Radiation Safety*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable.

INTERROGATORY STATEMENT 5.7.11(3):

Identify areas within the restricted area that contamination surveys are done. Discuss the need for these surveys and when they are done.

BASIS FOR INTERROGATORY:

Daily and weekly surveys are performed inside the restricted area. Contamination surveys are done as part of those surveys. Table 5-8 does not provide a complete list of areas.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-301 Dose Limits for Individual Members of the Public

R313-15-406 Minimization of Contamination

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5: *Radiation Safety*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable.

INTERROGATORY STATEMENT 5.7.11(4):

List the current radiological instrumentation used at the Clive facility and calculate the MDA (MDC) for each model of meter/probe to demonstrate that they are sensitive enough to show compliance with the different radiological limits (work place, conveyance release, public etc.).

BASIS FOR INTERROGATORY:

Radiological meters identified in this section are not currently used at the Clive facility. Even though the text identifies meters and then say “or equivalent”, the radiological meters identified should be the current meters being used at the time of the application.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-301 Dose Limits for Individual Members of the Public
R313-15-406 Minimization of Contamination
R313-24-4 Clarifications or Exceptions
10 CFR 40 Appendix A Criterion 7

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5: *Radiation Safety*.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.31: Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities will be As Low As is Reasonably Achievable.

SECTION 5.7.12-AIRBORNE EFFLUENT AND ENVIRONMENTAL MONITORING PROGRAM

INTERROGATORY STATEMENT 5.7.12(1):

Provide a table of data collected from the airborne effluent monitoring program since receiving the 11e.(2) RML.

BASIS FOR INTERROGATORY:

The Licensee needs to demonstrate that the Clive facilities airborne effluents meet regulatory requirements.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-15-301 Dose Limits for Individual Members of the Public

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 8

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5: *Radiation Safety*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: Radiological Effluent and Environmental Monitoring at Uranium Mills.

INTERROGATORY STATEMENT 5.7.12(2):

Provide map and a justification of the locations of monitoring stations.

BASIS FOR INTERROGATORY:

The Licensee needs to demonstrate that the airborne effluent monitoring stations are located properly. Environmental monitoring system shall be capable of providing early warning of releases of waste from the disposal site before they leave the site boundary. Additional description and justification should be provided to support the location.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program

R313-15-301 Dose Limits for Individual Members of the Public

R313-24-4 Clarifications or Exceptions

10 CFR 40 Appendix A Criterion 8

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5: *Radiation Safety*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: Radiological Effluent and Environmental Monitoring at Uranium Mills.

SECTION 5.7.13-GROUNDWATER AND SURFACE-WATER MONITORING PROGRAM

INTERROGATORY STATEMENT 5.7.13(1):

The Ground-Water Quality Discharge Permit (GWQDP) is now issued and approved by the DRC. Information provided in the 11e.(2) LRA does not discuss what the results of ground-water monitoring at the 11e.(2) embankment have shown, or the impact the 11e.(2) embankment has had, if any, on ground water. Please provide data on sampled constituents (ground water protection parameters), and justification of these parameters, protection levels, and support the sampling frequency of the wells as adequate. Provide a technical basis for the location of the monitoring wells. Please also discuss the boundary situation. Identify any corrective action to clean up ground water due to impacts at the 11e.(2) embankment, or exceedance of the ground-water protection levels. Discuss mounding of the groundwater beneath the 11e.(2) embankment and its effect on the shallow aquifer thickness, and local ground water flow gradients and directions.

BASIS FOR INTERROGATORY:

UAC R313-24-3(1)(b), *Environmental Analysis* requires an assessment of any impact on waterways and ground water resulting from the activities conducted pursuant to the license or amendments. The sampled constituents are used to establish water quality, in detection monitoring, and in evaluation corrective actions. Ground water data are used to evaluate whether the 11e.(2) embankment is confined and operating safely. The ground water monitoring program should ensure any leakage of contaminants from the 11e.(2) embankment is detected before leaving the facility boundary. In addition, License Condition 11.1 requires the licensee to fulfill and maintain compliance with all conditions and all compliance schedules stipulated in the GWQDP. Early detection of leakage of contaminants, by the 11e.(2) embankment monitoring network, is influenced by mounding due to accidental recharge from site operations

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a)(b) Environmental Analysis
R313-24-4 Clarifications or Exceptions
R317-6 Administrative Rules for Ground Water Quality Protection
10 CFR 40.31(h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 1, 4e, 5B & 7

REFERENCES:

Radioactive Material License UT 2300478, License Conditions 10.3 and 11.1.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: *Standard Format and Content of License Applications for Uranium Mills*, Section 2.4, *Geology and Seismology*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: *Preparation of Environmental Reports for Uranium Mills*, Chapter 6 Section 6.1.1, *Surface Water* and Section 6.1.2 *Ground Water*, 1982.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*, Rev 1, 1980

U.S. Nuclear Regulatory Commission NUREG 1620: *Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Revision 1*, Section 1.0 *Geology and Seismology*, 2003.

SECTION 5.7.14-QUALITY ASSURANCE

INTERROGATORY STATEMENT 5.7.14(1):

Explain how the Clive facility's Quality Assurance Program addresses the requirement of RML 2300478 License Condition 9.6(e), specifically ANSI Z-88.2.

BASIS FOR INTERROGATORY:

The requirements in the 11e.(2) RML License Condition 9.6(e) were not discussed in the renewal application.

APPLICABLE RULE(S) OR REGULATION(S):

R313-15-101 Radiation Protection Program
R313-24-4 Clarifications or Exceptions
10 CFR 40.31(h) Application for Specific Licenses

REFERENCES:

Radioactive Material License UT 2300478, License Conditions 9.6(e) and 10.5.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 5.5: *Quality Assurance*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.15: Quality Assurance for Radiological Monitoring Programs (Normal Operations)—Effluent Streams and the Environment.

U.S. Nuclear Regulatory Commission Regulatory Guide 8.30: Health Physics Surveys in Uranium Recovery facilities, Section 10.0 *Quality Assurance Program*.

SECTION 6.0-GROUNDWATER QUALITY RESTORATION, SURFACE RECLAMATION, PLANT DECOMMISSIONING (aka RECLAMATION/DECOMMISSIONING PLAN)

INTERROGATORY STATEMENT 6.0(1):

Provide a Reclamation, Decontamination and Decommissioning Plan for the 11e.(2) embankment, supporting facilities and surrounding lands. Surrounding lands include borrow pits used for clay and rock mining. Include a timeline/schedule of events for reclamation, decontamination and decommissioning of the 11e.(2) embankment, supporting facilities and surrounding lands.

BASIS FOR INTERROGATORY:

10 CFR 40 Appendix A Criteria 1 and 9 requires that an 11e.(2) RML have a standalone Reclamation, Decontamination and Decommissioning Plan submitted and approved by the DRC. The Decontamination and Decommissioning Plan provided in Appendix C of the RML renewal application did not provide detailed information on the reclamation, decontamination and decommissioning of the 11e.(2) embankment, supporting facilities and surrounding lands. This information is used to determine an appropriate surety.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis

R313-24-4 Clarifications or Exceptions

10 CFR 40 Criteria 1 and 9

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

INTERROGATORY STATEMENT 6.0(2):

Information provided in the 11e.(2) renewal application does not discuss the long-term compliance, or impacts at the point-of-compliance (POC) wells for the 11e.(2) embankment. What is the present status at the various POCs wells for the 11e.(2) embankment, and what will their status be after closure? During facility operation, efforts are center on minimizing any off site impacts to ground water from the operations; with the conclusion of operations what reclamation practices will be employed to reconstruct a semblance of the original site conditions. What site characteristics aide in the long-term stability of the site? Are their known impacts on the hydrologic system and background water quality, and has there been any corrective action programs in the area of the 11e.(2) embankment, and if yes, what are their status? What will be the objectives of the ground water monitoring program after closure? What wells will remain and/ or be removed at the time of decommissioning at the 11e.(2) embankment? An elevated groundwater levels expressed as a localized site wide groundwater mound has been document at the facility; what is its effect in the long-term impacts?

BASIS FOR INTERROGATORY:

Ground water protection relies on the licensee ensuring that operation at the facility is conducted as to minimize threats to ground water, and to mitigate any contamination that has occurred as a result of the facility operations. The objectives of the current ground-water monitoring program are to meet regulatory requirements, and to obtain ground-water samples that are as representative of the actual ground water as possible. The data obtained from the ground-water sampling program is used to evaluate whether the 11e.(2) embankment, including the 2000 pound, is operating safely. This is demonstrated by the analysis of ground-water sampling from compliance monitoring wells for analytes and concentrations listed in table 4-1 of the application (table 1a of the permit); however, six wells have exception status, with different concentration status, and are listed in table 1d of the permit. A corrective action program is designed to return the water quality to the ground-water protection standards, than a purpose of the ground-water monitoring network monitors the effectiveness of the corrective action. the general objective in siting and design decisions is permanent isolation of the tailings and associated contaminants by minimizing disturbance and dispersion by natural forces, and to do so without ongoing maintenance. Primary emphasis must be given to isolation of the waste, a matter having long-term impacts.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a and d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40.31 (h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 1, 4e & 7

REFERENCES:

Radioactive Material License UT 2300478, License Conditions 12.7.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 2.4 *Geology and Seismology*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 2.5 *Geology and Soils* and Section 2.6 *Seismology*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Revision 1, Section 1.0 *Geology and Seismology*, 2003.

SECTION 6.1-PLANS AND SCHEDULES FOR GROUNDWATER QUALITY RESTORATION

INTERROGATORY STATEMENT 6.1(1):

Provide additional information on conditions, natural and man-made, that contribute to continued immobilization and/isolation of contaminants. Provide the ground water protection levels that will apply after closure. If the groundwater quality standards will apply after closure evaluate the potential for degradation of water quality.

BASIS FOR INTERROGATORY:

At the facility, the licensee maintains an environmental monitoring program, where measurements and observation are made and recorded, to evaluate the potential health and environmental impacts of the on-going operations. The monitoring system is capable of providing early warning of releases of waste from an embankment before they leave the site boundary.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a and d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40.31 (h) Application for Specific Licenses
10 CFR 40 Appendix A Criterion 1, 4e & 7

REFERENCES:

Radioactive Material License UT 2300478, License Conditions 10.3, 10.4 and 11.1.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 2.4 *Geology and Seismology*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2 Section 2.5 *Geology and Soils* and Section 2.6 *Seismology*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, Revision 1, Section 1.0 *Geology and Seismology*, 2003.

SECTION 6.2-PLANS AND SCHEDULES FOR RECLAIMING DISTURBED LANDS

INTERROGATORY STATEMENT 6.2(1):

Provide information in the requested Reclamation, Decontamination and Decommissioning Plan for the 11e.(2) embankment, supporting facilities and surrounding lands found in Interrogatory 6.0(1). Surrounding lands include borrow pits used for clay harvesting. Include a timeline/schedule of events for reclaiming disturbed lands.

BASIS FOR INTERROGATORY:

Plan provided in Appendix C of the RML renewal application did not provide detailed information on the reclamation, decontamination and decommissioning of the 11e.(2) embankment, supporting facilities and surrounding lands. This information is used to determine an appropriate surety.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

SECTION 6.3-PROCEDURES FOR REMOVING AND DISPOSING OF STRUCTURES AND EQUIPMENT

INTERROGATORY STATEMENT 6.3(1):

Provide additional information of what will happen if the Class A embankment closes before the 11e.(2) embankment.

BASIS FOR INTERROGATORY:

It is stated in the Clive facility's surety documents that structures and equipment will be placed in the Class A embankment. It is assumed that the 11e.(2) embankment will close before the Class A embankments.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9

REFERENCES:

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

SECTION 6.4-COVER DESIGN, PLACEMENT AND PERFORMANCE

INTERROGATORY STATEMENT 6.4(1):

Provide a revised embankment cover design for the new volume of 11e.(2) waste to be accepted and disposed in the 11e.(2) embankment.

BASIS FOR INTERROGATORY:

During the CAW amendment of RML UT 2300249 the volume of the 11e.(2) embankment was reduced by 3.5 million cubic yards, leaving a total of 2 million cubic yards. This is based on the DRC's interpretation of the agreement between the State of Utah and EnergySolutions (Huntsman agreement) on the total volume of waste to be accepted in section 32 of the Clive facility. Therefore, a new cover design needs to be developed and submitted for DRC approval. This shall include new drawings and estimates of material.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9

REFERENCES:

State of Utah, *Agreement between Governor of the State of Utah Jon M. Huntsman, Jr. and EnergySolutions LLC.*, March 15, 2007.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

INTERROGATORY STATEMENT 6.4(2):

Update all subsection of section 6.4 to address changes in embankment and cover design.

BASIS FOR INTERROGATORY:

During the CAW amendment of RML UT 2300249 the volume of the 11e.(2) embankment was reduced by 3.5 million cubic yards, leaving a total of 2 million cubic yards. This is based on the DRC's interpretation of the Huntsman agreement which is an agreement between EnergySolutions and the State of Utah on the total volume of waste to be accepted in section 32 of the Clive facility. A new cover design needs to be developed and submitted for DRC approval. Therefore, all components of the embankment and cover design need to be revised. This shall include new drawings and estimates of material. These shall include the topics listed in subsections 6.4.1 through 6.4.8, including design of the rock erosion barrier, radon barrier, and the cover settlement analysis.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9

REFERENCES:

State of Utah, *Agreement between Governor of the State of Utah Jon M. Huntsman, Jr. and EnergySolutions LLC.*, March 15, 2007.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

INTERROGATORY STATEMENT 6.4(3):

Please demonstrate that the 11e.(2) embankment is not subject to liquefaction, given that, differing conditions exist at this embankment due to ground water mounding along the southern ditch area and throughout the cell footprint.

BASIS FOR INTERROGATORY:

In Section 6.4.3.3 “Geotechnical Stability” of the LRA, referring to the Vitro embankment, states that, “...*due to the short- and long-term unsaturated embankment conditions, ...and a depth to ground water in excess of 25 feet below existing grade, liquefaction in the embankment or foundation soils will not occur at the site due to MCE acceleration.*”

In a study conducted by AMEC for ES (AMEC, 2012), regarding the CAW license amendment, based on their analysis, “AMEC concluded that liquefaction in the embankment or foundation soils will not occur at the site due to an MCE-acceleration.”

Due to ground water mounding below the 11e.(2) embankment, the depth to ground water below the ground surface is about 20-feet, which is five feet closer to the surface than was analyzed for the CAW embankment. Therefore liquefaction for the 11e.(2) cell needs to be analyzed given these conditions. EnergySolutions needs to demonstrate that the site geological stratigraphy below the 11e.(2) cell does not differ from the Vitro and CAW cells enough to effect liquefaction analysis results.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9
R313-25-7 Specific Technical Information
R313-25-8 Technical Analysis

REFERENCES:

EnergySolutions (March 1, 2012) *2011 Annual 11e.(2) Ground Water Monitoring Report, Section 4.1.*

CAW Interrogatory R313-25-8(4)-15/1: Technical Analyses – Groundwater Depth in Geotechnical Stability Analysis

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

INTERROGATORY STATEMENT 6.4(4):

The estimated time for completing the actual 11e.(2) closure activities are not defined by the LRA. Please estimate the time to complete the actual closure activities using an independent contractor to perform the work. Demonstrate the time calculated by using acceptable methods such as PERT charting, etc.

Provide the corresponding estimated costs for environmental monitoring, the facility health and safety program, site security program, site radiation safety program, personnel training program and the quality assurance program during the estimated time to complete the actual closure activities. Include all the phased periods of closure, up to the beginning of the post closure period.

BASIS FOR INTERROGATORY:

In section 6.4.8 *Decontamination and Decommissioning* of the LRA, the closure period per se, differs from post closure period (PCP). Ground water monitoring, e.g., needs to be on-going, during the closure period. The 11e.(2) surety estimate shows only 1-year of ground water sample monitoring during the closure period. All environmental monitoring, and other concurrent closure monitoring work need to be on-going during the closure period, and the related costs included in the surety estimate, based on the estimated time for closure, for all the phases of 11e.(2) closure activity.

It is feasible that the decontamination, decommissioning (D&D) and reclamation of the 11e.(2) embankment could proceed independently of the LLRW facilities. There is currently no assurance that the actual closures will be simultaneous. The 11e.(2) and LORD facilities require separate licenses as well as sureties. Section 6.4.8 of the 11e.(2) LRA states that, “D&D of the facility will be in accordance with the D&D Plan (Appendix C of the LRA)...” Appendix C is titled, *Decontamination and Decommissioning*.

The current License Condition 9.12 states that, “The Licensee shall at all times maintain a Surety that satisfies the requirements of UAC R313-24-4...in an amount adequate to cover the estimated costs, if accomplished by a third party contractor, for completion of the Executive Secretary-approved reclamation/decommissioning plan of the Licensees’ grounds, equipment and facilities, including: above-ground decommissioning and decontamination, soil and water sample analyses, and ground water restoration associated with the site, as warranted.”

The D&D Plan states that, “...the Clive facility’s current, health and safety program, site security program, site radiation safety program, personnel training program and quality assurance program will be implemented throughout the decommissioning process.”

However, the D&D Plan or the recently approved surety for this facility does not differentiate between the actual closure period time and a post-closure period (PCP) of 100-years. A derived reasonable time estimate for the actual closure to occur, prior to the PCP, is not provided in the LRA.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis

R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9

REFERENCES:

Radioactive Material License UT 2300478, License Condition 9.12

EnergySolutions, State of Utah 11e.(2) Byproduct Material License Renewal Application (UT 2300478) Revision 5, Appendix C, *Decontamination and Decommissioning*, 2012.

DRC Letter, August 14, 2012, Annual Surety Approval (DRC-2012-002338)

EnergySolutions Letter, July 3, 2012, CD12-0156, 11e.(2) Surety Review: Response to RFI

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

SECTION 6.5-PROCEDURES FOR CONDUCTING POST-RECLAMATION AND DECOMMISSIONING RADIOLOGICAL SURVEYS

INTERROGATORY STATEMENT 6.5(1):

Explain why the findings of post-closure inspections will not be reported to the DRC but will be compiled in the site file and will be retained for review by the DRC.

BASIS FOR INTERROGATORY:

EnergySolutions commits to report all inspection findings within 60 days of the inspection. However inspections with no findings, the reports and supporting documentation will not be sent to the DRC but will be retained by EnergySolutions. It is more appropriate that all inspection reports to be submitted to the DRC within 60 days of the completed inspection. The inspection reports should include completed checklists, field notes, ground and aerial photographs, field measurements and field notations on base maps.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9

REFERENCES:

Radioactive Material License UT 2300478, License Condition 10.4

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

SECTION 6.6-FINANCIAL ASSESSMENT FOR GROUNDWATER RESTORATION, DECOMMISSIONING, RECLAMATION, WASTE DISPOSAL AND MONITORING

INTERROGATORY STATEMENT 6.6(1):

Provide a justified cost estimate to include surety to remove the large shallow double lobed ground water mound along the southern boundary of the 11e.(2) embankment, and restore the ground water to its normal vertically upward gradient.

BASIS FOR INTERROGATORY:

There exists a large shallow double lobed ground water mound that is recognized along the southern boundary of the 11e.(2) embankment. This ground water mound has caused a reversal of the vertical hydraulic gradient from upward to downward in the southwest corner of the facility. An upward vertical hydraulic gradient formed part of the basis of the ground water monitoring network at the Clive facility, which focused only on ground water quality sampling in the shallow aquifer.

The protection of the deeper ground water aquifer beneath the 11e.(2) cell is based on the deeper aquifer having artesian pressure. This pressure prevents infiltration of contaminants from the shallow aquifer into deeper aquifers. However, with increased pressure from the shallow ground water mounding, the vertical hydraulic gradient is towards the deeper aquifer, the upward artesian pressure has been overcome, and may allow contaminated infiltration into the deeper aquifer. Removal of the ground water mound removes the concern of ground water pollution into the deeper aquifer and the attendant regulations concerning ground water protection.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9
R317-6 Ground Water Protection Rules

REFERENCES:

ES (March 1, 2012) *2011 Annual 11e.(2) Ground Water Monitoring Report, Section 4.1.*

July 2009, Statement of Basis, ES Ground Water Discharge Permit No. UGW450005.

ES Letter July 3, 2012, 2012 Annual 11e.(2) Surety Review, CD12-0156.

Radioactive Material License UT 2300478, License Conditions 10.3 and 11.1.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

SECTION 6.6.1-SURETY

INTERROGATORY STATEMENT 6.6.1(1):

The estimated time for completing the actual 11e.(2) closure activities are not defined by the LRA. Please estimate the time to complete the actual closure activities using an independent contractor to perform the work. Demonstrate the time calculated by using acceptable methods such as PERT charting, etc.

Provide the corresponding estimated costs for environmental monitoring, the facility health and safety program, site security program, site radiation safety program, personnel training program and the quality assurance program during the estimated time to complete the actual closure activities. Include all the phased periods of closure, up to the beginning of the post closure period.

BASIS FOR INTERROGATORY:

The closure period differs from post closure period (PCP). Ground water monitoring, e.g., needs to be on-going, during the closure period. The 11e.(2) surety estimate shows only 1-year of ground water monitoring during the closure period. All environmental monitoring, and other concurrent closure monitoring work need to be on-going during the closure period, and the related costs included in the surety estimate, based on the estimated time for closure, for all phases of 11e.(2) closure activity.

It is feasible that the decontamination, decommissioning (D&D) and reclamation of the 11e.(2) embankment could proceed independently of the LLRW facilities. There is currently no assurance that the actual closures will be simultaneous. The 11e.(2) and LLRW facilities require separate licenses as well as sureties. Section 6.4.8 of the 11e.(2) LRA states that, “D&D of the facility will be in accordance with the D&D Plan (Appendix C of the LRA)...” Appendix C is titled, *Decontamination and Decommissioning*.

The current License Condition 9.12 states that, “The Licensee shall at all times maintain a Surety that satisfies the requirements of UAC R313-24-4...in an amount adequate to cover the estimated costs, if accomplished by a third party contractor, for completion of the Executive Secretary-approved reclamation/decommissioning plan of the Licensees’ grounds, equipment and facilities, including: above-ground decommissioning and decontamination, soil and water sample analyses, and ground water restoration associated with the site, as warranted.”

The D&D Plan states that, “...the Clive facility’s current, health and safety program, site security program, site radiation safety program, personnel training program and quality assurance program will be implemented throughout the decommissioning process.”

However, the D&D Plan or the recently approved surety for this facility does not differentiate between the actual closure period time and a post-closure period (PCP) of 100-years. A derived reasonable time estimate for the actual closure to occur, prior to the PCP, is not provided in the LRA.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(d) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9

REFERENCES:

Radioactive Material License UT 2300478, License Condition 9.12.

EnergySolutions, State of Utah 11e.(2) Byproduct Material License Renewal Application (UT 2300478) Revision 5, Appendix C, *Decontamination and Decommissioning*, 2012.

DRC Letter, August 14, 2012, Annual Surety Approval (DRC-2012-002338)

EnergySolutions Letter, July 3, 2012, CD12-0156, 11e.(2) Surety Review: Response to RFI License Condition 9.12

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Preparation of Environmental Reports for Uranium Mills, Section 5.5 *Radiation Safety*, 1977.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 9 *Decommissioning and Reclamation*, 1982.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1620: Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978, 2003.

U.S. Nuclear Regulatory Commission Regulatory NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 6.0 Ground-water Quality Restoration, Surface Reclamation, and Facility Decommissioning, 2003.

SECTION 7.0-ENVIRONMENTAL EFFECTS

INTERROGATORY STATEMENT 7.0(1):

Introductory information provided in this section of the 11e.(2) RML Renewal Application was sufficient because it is an introductory paragraph to the subsections 7.1 through 7.7.

BASIS FOR INTERROGATORY:

The requirements of this section and the associated interrogatories are discussed in the subsections 7.1 through 7.7 below. This information was not required to be provided because the paragraph in the RML renewal application was an introductory statement for the subsections.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.0: *Environmental Effects*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 5: *Environmental Effects of Mills and Mine Operation*.

SECTION 7.1-SITE PREPERATION AND CONSTRUCTION

INTERROGATORY STATEMENT 7.1(1):

Add discussion describing the non-radiological effects that occur during site preparation and construction of the 11e.(2) Embankment. Discuss RCRA constituents in incoming waste, effects from embankment construction on groundwater and surface water.

BASIS FOR INTERROGATORY:

This section gave a summary of the results from radiological monitoring but does not discuss the non-radiological effects. Construction activities should be evaluated in sufficient detail to determine the significance of potential impacts and to recommend how these impacts should be treated in the process (e.g., consideration of alternative designs or practices that would mitigate adverse environmental impacts)

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.1: *Site Preparation and Construction*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 5: *Environmental Effects of Mills and Mine Operation*.

SECTION 7.2-EFFECTS OF OPERATION

INTERROGATORY STATEMENT 7.2(1):

Add discussion describing the non-radiological effects that occur during site operations.

BASIS FOR INTERROGATORY:

This section gave a summary of the results from radiological monitoring but does not discuss the non-radiological effects. Operational activities should be evaluated in sufficient detail to determine the significance of potential impacts and to recommend how these impacts should be treated in the process (e.g., land use, transportation, noise, water resources, air quality and geology).

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.2: *Effects of Operation*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 5: *Environmental Effects of Mills and Mine Operation*.

SECTION 7.3-RADIOLOGICAL EFFECTS-EXPOSURE PATHWAYS

INTERROGATORY STATEMENT 7.3(1):

Reevaluate the radiological effects using current data. Add and address each subsection in the interrogatories below in 7.3.1 through 7.3.5. Include a schematic of potential exposure pathways and discuss why some pathways may not be considered as a receptor/complete.

BASIS FOR INTERROGATORY:

Need to use current data. The most current data is from 2005 and a lot of referenced material is from the DOE Vitro project and other UMTRA sites that are not affiliated with current conditions. This section does not clearly present or discuss all exposure pathways.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.3: *Radiological Effects*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 5: *Environmental Effects of Mills and Mine Operation*.

SECTION 7.3.1-EXPOSURES FROM WATER PATHWAYS (SURFACE AND GROUNDWATER)

INTERROGATORY STATEMENT 7.3.1(1):

Reevaluate the radiological effects using current data.

BASIS FOR INTERROGATORY:

Need to use current data. The most current data is from 2005 and a lot of referenced material is from the DOE Vitro project and other UMTRA sites that are not affiliated with current conditions.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.3.1.1: *Exposures from Water Pathways*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 6: *Accidents*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 11: *Environmental Effects of Accidents*.

SECTION 7.3.2-EXPOSURES FROM AIR PATHWAYS

INTERROGATORY STATEMENT 7.3.2(1):

Reevaluate the radiological effects using current data.

BASIS FOR INTERROGATORY:

Need to use current data. The most current data is from 2005 and a lot of referenced material is from the DOE Vitro project and other UMTRA sites that are not affiliated with current conditions.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.3.1.2: *Exposures from Air Pathways*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 5: *Environmental Effects of Mills and Mine Operation*.

SECTION 7.3.3-EXPOSURES FROM EXTERNAL RADIATION

INTERROGATORY STATEMENT 7.3.3(1):

Reevaluate the radiological effects using current data.

BASIS FOR INTERROGATORY:

Need to use current data. The most current data is from 2005 and a lot of referenced material is from the DOE Vitro project and other UMTRA sites that are not affiliated with current conditions.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.3.1.3: *Exposures from External Radiation*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 5: *Environmental Effects of Mills and Mine Operation*.

SECTION 7.3.4-TOTAL HUMAN EXPOSURE

INTERROGATORY STATEMENT 7.3.4(1):

Reevaluate the radiological effects using current data.

BASIS FOR INTERROGATORY:

Need to use current data. The most current data is from 2005 and a lot of referenced material is from the DOE Vitro project and other UMTRA sites that are not affiliated with current conditions.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.3.1.4: *Total Human Exposure*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 5: *Environmental Effects of Mills and Mine Operation*.

SECTION 7.3.5-EXPOSURE TO FLORA AND FAUNA

INTERROGATORY STATEMENT 7.3.5(1):

Reevaluate the radiological effects using current data.

BASIS FOR INTERROGATORY:

Need to use current data. The most current data is from 2005 and a lot of referenced material is from the DOE Vitro project and other UMTRA sites that are not affiliated with current conditions.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.3.1.5: *Exposures to Flora and Fauna*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 5: *Environmental Effects of Mills and Mine Operation*.

SECTION 7.4-NON-RADIOLOGICAL EFFECTS

INTERROGATORY STATEMENT 7.4(1):

The Industrial Health Incorporated (IHI) analysis mentioned in this section is based upon federal statistical data from 1989 and 1990. Please update the analyses in Appendix I-1 and H using current data. Please provide an updated copy of Appendix I-1 referred to in this section.

BASIS FOR INTERROGATORY:

The IHI analysis mentioned above is based on outdated data. According to this section the analysis is included in Appendix I-1 of ES, (2005b). This Appendix (I-1) is no longer readily available at the DRC, and therefore need to be updated per the above, as well as replaced.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis
R313-24-4 Clarifications or Exceptions
10 CFR 40 Criteria 1 and 9

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.4: *Non-Radiological Effects*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4.12.1: *Nonradiological Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 5.3: *Chemical Impacts on Humans*, 1982.

SECTION 7.5-EFFECTS OF ACCIDENTS

INTERROGATORY STATEMENT 7.5(1):

Provide information on the environmental effects when a fire occurs at the Clive facility.

BASIS FOR INTERROGATORY:

The Licensee provided information on other applicable accident scenarios but did not discuss fire. A discussion on the effects from fire needs to be included.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.5: *Effects of Accidents*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 6: *Accidents*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 7: *Environmental Effects of Accidents*.

SECTION 7.6-ECONOMIC AND SOCIAL EFFECTS OF CONSTRUCTION AND OPERATION

INTERROGATORY STATEMENT 7.6(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

EnergySolutions in Sections 4.6 and 7.0 with its subsection of the Environmental Assessment (Appendix H) discussed the economic and social effects. Therefore the requirements outlined in R313-22-33(1)(f) and R313-24-3(1)(c) of this section have been met.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses
R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.6: *Economic and Social Effects of Construction and Operation*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 8: *Economic and Social effects of Mill Construction and Operation*.

SECTION 7.6.1-BENEFITS

INTERROGATORY STATEMENT 7.6.1(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

EnergySolutions in multiple sections of the Environmental Assessment (Appendix H) discussed the benefits of operation including economic and social effects. Therefore the requirements outlined in R313-22-33(1)(f) and R313-24-3(1)(c) of this section have been met.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.6.1: *Benefits*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 8.1: *Benefits*.

SECTION 7.6.2-SOCIOECONOMIC COSTS

INTERROGATORY STATEMENT 7.6.2(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

EnergySolutions in multiple sections of the Environmental Assessment (Appendix H) discussed the benefits of operation including economic and social effects. Therefore the requirements outlined in R313-22-33(1)(f) and R313-24-3(1)(c) of this section have been met.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses
R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.6.2: *Socioeconomic Costs*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 8.2: *Costs*.

SECTION 7.6.3-LONG TERM IMPACTS

INTERROGATORY STATEMENT 7.6.3(1):

Provide an assessment of long term impacts of the 11e.(2) disposal operations.

BASIS FOR INTERROGATORY:

This section was not addressed in the LRA or the referenced 11e.(2) Environmental Assessment (Appendix H).

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

R313-24-3(1)(a) Environmental Analysis

R313-24-4 Clarifications or Exceptions

10 CFR 40 Criterion 5b

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.6.2: *Socioeconomic Costs*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 8: *Economic and Social effects of Mill Construction and Operation*.

SECTION 7.7-PUBLIC AND OCCUPATIONAL HEALTH

INTERROGATORY STATEMENT 7.7(1):

Evaluate Public and Occupational health effects from construction and operation of the 11e.(2) embankment.

BASIS FOR INTERROGATORY:

Information provided referenced the Environmental Assessment in Appendix H and that information regarding the effects to Public and Occupational Health was not found by the DRC staff during its review.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(d) General Requirements for the Issuance of Specific Licenses
R313-24-3(1)(a) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.0: *Environmental Effects*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental*

SECTION 8.0-EMERGENCY RESPONSE PLAN

INTERROGATORY STATEMENT 8.0(1):

Reference specific documents to be used in the evaluation of section 8.0, “Emergency Response Plan.” Referencing all 25 documents in Appendix E is not specific enough nor are all 25 documents relevant. Include a summary of each document referenced.

BASIS FOR INTERROGATORY:

R313-22-32(5) states that an applicant may reference other documents in an application but the reference must be clear and specific.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-32(8) Filing Application for Specific Licenses.

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 7.5: *Effects of Accidents*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 6: *Accidents*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 7: *Environmental Effects of Accidents*.

SECTION 8.1-NOTIFICATIONS

INTERROGATORY STATEMENT 8.1(1):

Explain how notification requirements as required in RML UT2300478 License Conditions 12.5, 12.8 and Utah Rules R313-19-50, R313-15-1201 and R313-15-1202.

BASIS FOR INTERROGATORY:

This information was not addressed in the LRA.

APPLICABLE RULE(S) OR REGULATION(S):

R313-19-50 Reporting Requirements.

R313-15-1201 Reports of Stolen, Lost, or Missing Licensed or Registered Sources of Radiation.

R313-15-1202 Notification of Incidents.

REFERENCES:

Radioactive Material License UT 2300478, License Conditions 12.5 and 12.8

SECTION 8.2-LEAKING SHIPMENTS

INTERROGATORY STATEMENT 8.2(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

Energy *Solutions* stated that they would follow 11e.(2) RML License Condition 10.6. License Condition 10.6 is detailed enough on how leaking shipments are managed.

APPLICABLE RULE(S) OR REGULATION(S):

None this requirement is enforceable under License Condition 10.6

REFERENCES:

Radioactive Material License UT 2300478, License Condition 10.6

SECTION 9.0-ALTERNATIVES TO PROPOSED ACTION

INTERROGATORY STATEMENT 9.0(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The Clive facility is already sited, a discussion on alternate sites is no longer applicable. However, EnergySolutions in Section 2.0 and its subsections of the Environmental Assessment (Appendix H) of this submittal did discuss alternate disposal methods considered. Therefore, the requirements outlined in R313-22-33(1)(f) and R313-24-3(1)(c) of this section have been met.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

R313-24-3(1)(c) Environmental Analysis

R313-24-4 Clarifications or Exceptions

10 CFR 40 Criteria 3

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 8.0: *Alternatives to Proposed Action*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.2: *Alternatives*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.5: Standard Format and Content of License Applications for Uranium Mills, Section 8: *Evaluation of Alternatives*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 10: *Alternatives to the Proposed Action*.

SECTION 10.0-COST BENEFIT ANALYSIS

INTERROGATORY STATEMENT 10.0(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided in this section of the 11e.(2) RML Renewal application plus the information provided in the Environmental Assessment (Appendix H) met the requirements for R313-22-33(1)(f) and R313-24-3(1)(c) by discussing the cost and benefits of continued operation.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

R313-24-3(1)(c) Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 9.0: *Cost-Benefit Analysis*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.7: *Cost Benefit Analysis*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 11: *Benefit-Cost Analysis*.

SECTION 11.0-ENVIRONMENTAL APPROVALS AND CONSULTATIONS

INTERROGATORY STATEMENT 11.0(1):

Provide a list of professional consultants used and referenced in the preparation of the 11e.(2) LRA. Include the name of the consultant, work performed, credentials, professional licenses and qualifications.

BASIS FOR INTERROGATORY:

Applicable rules and regulations, other regulatory entities and other permits, licenses, orders and approvals that are associated with the Clive facility, were discussed. However, consultants used and referenced in the preparation of the LRA were not discussed.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 10.0: *Environmental Approvals and Consultations*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.1.3: *Applicable Regulatory Requirements, Permits and Required Consultations*..

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 12: *Environmental Approval and Consultations*.

SECTION 12.0-APPLICABLE REGULATIONS

INTERROGATORY STATEMENT 12.0(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

This section was added by EnergySolutions and it helps meet the requirement of Section 11. Applicable rules and regulations, other regulatory entities and other permits, licenses, orders and approvals that are associated with the Clive facility, were discussed.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 10.0: *Environmental Approvals and Consultations*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.1.3: *Applicable Regulatory Requirements, Permits and Required Consultations*..

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 12: *Environmental Approval and Consultations*.

SECTION 12.1-CONFORMANCE TO REGULATIONS AND REGULATORY GUIDES

INTERROGATORY STATEMENT 12.1(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

This section was added by EnergySolutions and supplements the requirement of Section 11. Applicable rules and regulations, other regulatory entities and other permits, licenses, orders and approvals that are associated with the Clive facility, were discussed.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 10.0: *Environmental Approvals and Consultations*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.1.3: *Applicable Regulatory Requirements, Permits and Required Consultations*..

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 12: *Environmental Approval and Consultations*.

SECTION 12.2-SUMMARY/STATUS OF FEDERAL, STATE, AND LOCAL PERMITS, LICENSES, APPROVALS, OTHER ENTITLEMENT AND REGIONAL AUTHORITIES

INTERROGATORY STATEMENT 12.2(1):

Information provided in this section of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

This section was added by EnergySolutions and it supplements the requirement of Section 11. Applicable rules and regulations, other regulatory entities and other permits, licenses, orders and approvals that are associated with the Clive facility, were discussed.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1569: Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Section 10.0: *Environmental Approvals and Consultations*.

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.1.3: *Applicable Regulatory Requirements, Permits and Required Consultations*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 12: *Environmental Approval and Consultations*.

OUTSTANDING URS INTERROGATORIES

APPENDIX G - PREVIOUS DRC-URS ROUND 2 INTERROGATORIES

INTERROGATORY STATEMENT-:

In general, many of the ES responses to the DRC-URS interrogatories found in Appendix G of the LRA are too brief to be considered adequate responses. Sufficient detail and justification must be provided for these replies to be considered responsive to these interrogatories.

BASIS FOR INTERROGATORY:

DRC-URS transmitted a set of interrogatories to ES regarding the 11e.(2) LRA about 2008. These interrogatories were not replied to until this 2012 11e.(2) LRA.

Responses such as, “The Division has accepted the approach...(since the 2000 Class B & C License...” are not adequate responses to the interrogatories. This type of response only marks time in history, rather than responding to the questions at hand. This type of response was given in Appendix G by ES for interrogatories nos. 1, 2, 6, 8, 12, 15, 16, 18, and 22.

Interrogatories nos. 10, 11, 13, 14, 17 and 27 are not answered by the responses.

Please review the interrogatories listed above, and provide a response in enough detail, to fully justify or demonstrate the issue is fully and correctly addressed. Many of the responses referred to previous licensing actions but did not always include updates in methodologies due to the CAW LRA. For example, the rock erosion barrier analysis, the transport and infiltration modeling, and the calculation of the PMP methodologies have been updated.

ENVIRONMENTAL ASSESSMENT REPORT INTERROGATORIES

In August 1993, the NRC released the “Final Environmental Impact Statement to Construct and Operate a Facility to Receive, Store and Dispose 11e.(2) Byproduct Material Near Clive, Utah” (NUREG-1476).

The following are the interrogatories developed by DRC staff from the review of the Environmental Assessment Report which is part of Energy *Solutions* 11e.(2) renewal application. To aid in and to document the review, the DRC created a topical outline of the information that needed to be addressed in an 11e.(2) RML renewal application from applicable NRC Regulatory Guides and NUREGs. This topical outline was adjusted to fit the specific licensed facility’s unique circumstances. This topical outline was provided to the Licensee, for them to follow in developing their renewal application. The DRC staff also used this topical outline to develop the outline of the Interrogatory document(s) and will use it to write the Technical Review and Environmental Assessment Report at the conclusion of the review process.

A description of the format of the interrogatories is as follows:

INTERROGATORY STATEMENT-:

The Interrogatory Statement identifies what additional information that the Licensee needs to provide for the topic of the section. If the information provided by the Licensee is complete by addressing the information required then this section will say that the information provided is sufficient.

BASIS FOR INTERROGATORY:

If additional information is required the DRC staff will provide the justification for the additional information. If the information provided by the Licensee is sufficient then the DRC staff will provide justification of why the information provided by the Licensee is complete.

APPLICABLE RULE(S) OR REGULATION(S):

The DRC will list the State of Utah Administrative Code Rules and the Federal Regulations that apply to the section topic.

REFERENCES:

The DRC Staff will list and reference any document(s) used in the review of the section. These include but not limited to NRC Regulatory Guides, NRC NUREGs, the 11e.(2) RML License Conditions, DRC Forms and etc.

SECTION 1- INTRODUCTION

INTERROGATORY STATEMENT- EA 1.0(1):

Provide an introduction that includes a description of the proposed action (renewal of the RML), a brief summary of pertinent statutes and regulations, and relevant background information (operational information). Key dates and deadlines should also be listed to establish the time frame for the proposed action (estimate operational life).

BASIS FOR INTERROGATORY:

According to NUREG 1748 the following information needs to be included: “The introduction should be brief, and should include a description of the proposed action, a brief summary of pertinent statutes and regulations, location of the proposed action and relevant background information. Key dates and deadlines should also be listed to establish the time frame for the proposed action.”

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.1: *Introduction of the Environmental Report*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 1: *Proposed Activities*.

SECTION 1.1-PURPOSE AND NEED FOR THE PROPOSED ACTION

INTERROGATORY STATEMENT- EA 1.1(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information summarized the overall environmental aspects of the proposed action, principal objectives of the EA, and the purpose of the action, renewing the 11e.(2) renewal.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.1.1: *Purpose and Need for the Proposed Action*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 1: *Proposed Activities*.

SECTION 1.2-THE PROPOSED ACTION

INTERROGATORY STATEMENT- EA 1.2(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided was sufficient by describing to the proposed action and the name of the applicant or licensee, as described in NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the proposed action of disposing of uranium and thorium byproduct material.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.1.2: *The Proposed Action*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 1: *Proposed Activities*.

SECTION 1.3-APPLICABLE REGULATORY REQUIREMENTS, PERMITS AND REQUIRED CONSULTATIONS

INTERROGATORY STATEMENT- EA 1.3(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The DRC is the regulatory authority over the RML, so it is appropriate to cite the applicable rule from the State of Utah, UAC as well as the Federal Regulation. However, the information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the applicable regulatory requirements, permits and required consultations.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.1.3: *Applicable Regulatory Requirements, Permits, and Required Consultation.*

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 12: *Environmental Approvals and Consultations.*

SECTION 2-ALTERNATIVES

INTERROGATORY STATEMENT- EA 2.0(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The Clive facility is already sited. Energy *Solutions* did in Section 2.0 and its subsections of the Environmental Assessment discuss the above grade or below grade alternate disposal methods. The DRC determined that the above and below grade disposal methods were relevant alternatives to discuss. The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing other alternatives to the proposed activities.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses
R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.2: *Alternatives*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 10: *Alternatives to the Proposed Action*.

SECTION 2.1-DETAILED DESCRIPTION OF ALTERNATIVES

INTERROGATORY STATEMENT- EA 2.1(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The Clive facility is already sited. Energy *Solutions* did in Section 2.0 and its subsections of the Environmental Assessment discuss the alternate disposal methods. The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing other alternatives to the proposed activities.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses
R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.2.1: *Detailed Description of the Alternatives*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 10: *Alternatives to the Proposed Action*.

SECTION 2.1.1-NO ACTION ALTERNATIVE

INTERROGATORY STATEMENT- EA 2.1.1(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the no action alternative to the proposed activities. The no action alternative would be if the requested license renewal was not granted and the 11e.(2) embankment was closed. All other current licensed and permitted activities would continue.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses
R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.2.1.1: *No-Action Alternatives*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 10: *Alternatives to the Proposed Action*.

SECTION 2.1.2-PROPOSED ACTION ALTERNATIVE

INTERROGATORY STATEMENT- EA 2.1.2(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the continued transport and disposal of 11e.(2) waste to the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.2.1.2: *Proposed Action*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 10: *Alternatives to the Proposed Action*.

SECTION 2.1.3-REASONABLE ALTERNATIVES

INTERROGATORY STATEMENT- EA 2.1.3(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The Clive facility is already sited. However, Energy *Solutions* did in Section 2.0 and its subsections of the Environmental Assessment discuss alternate disposal methods. Applicable discussion was on an alternate disposal site at the Skunk Ridge, and the difference between above-grade and below-grade disposal. The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing other alternatives to the proposed activities.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.2.3: *Reasonable Alternatives*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 10: *Alternatives to the Proposed Action*.

SECTION 2.2-ALTERNATIVES CONSIDERED BUT ELIMINATED

INTERROGATORY STATEMENT- EA 2.2(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided a summary of alternatives not considered to be reasonable, and a summary of why these alternatives were eliminated from further study. The DRC concluded the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 were met by discussing other alternatives to the proposed activities.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses
R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.2.2: *Alternatives Considered but Eliminated*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 10: *Alternatives to the Proposed Action*.

SECTION 2.3-CUMULATIVE EFFECTS

INTERROGATORY STATEMENT- EA 2.3(1):

Provide a discussion on the other licensed activities that may cause a cumulative effect in and adjacent to section 32.

BASIS FOR INTERROGATORY:

NUREG 1748 requires a discussion of any past, present or reasonably foreseeable future actions which could result in cumulative impacts of the proposed action. Continuing to dispose 11e.(2) byproduct material and LLW at the same facility will have cumulative effects on section 32 and adjacent properties.

APPLICABLE RULE(S) OR REGULATION(S):

R313-22-33(1)(f) General Requirements for the Issuance of Specific Licenses
R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.2.3: *Cumulative Effects*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 10: *Alternatives to the Proposed Action*.

SECTION 3-DESCRIPTION OF AFFECTED ENVIRONMENT

INTERROGATORY STATEMENT- EA 3.0(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

This section of the EA described the current condition of section 32, and also provided information on other activities associated within section 32 of the Clive facility. Therefore, the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 were met. Additional discussion is provided in subsections 3.1 through 3.11 of the EA.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3: *Description of the Affected Environment*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 2: *The Site*.

SECTION 3.1-LAND USE

INTERROGATORY STATEMENT- EA 3.1(1):

See interrogatory for Section 2.2 (pages 6 and 7) of the License Renewal Application.

BASIS FOR INTERROGATORY:

See the Basis for the interrogatory for Section 2.2 of the License Renewal Application. The licensee did not accurately describe land uses near the site so that impacts associated with the operation of the 11e.(2) embankment cannot be evaluated in section 4.1 until the information is provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.1: *Land Use*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.2: *Uses of Adjacent Lands and Waters*.

SECTION 3.2-TRANSPORTATION

INTERROGATORY STATEMENT- EA 3.2(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the transportation routes to the Clive facility. It also provided sufficient information on the environmental impacts of the Clive facility that a separate section for transportation under Section 4.0 “Environmental Impacts” was not necessary.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.2: *Transportation*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 7.3: *Transportation Accidents*.

SECTION 3.3-GEOLOGY AND SOILS

INTERROGATORY STATEMENT- EA 3.3(1):

Update information based on seismic analysis from the CAW license amendment.

BASIS FOR INTERROGATORY:

Environmental Assessment needs to include most recent information and data.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.3: *Geology and Soils*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.5: *Geology and Soils*.

SECTION 3.4-WATER RESOURCES

INTERROGATORY STATEMENT-EA 3.4(1):

Update the calculation for Peak Flow values. Use the Probable Maximum Flood from the Probable Maximum Precipitation based on the analysis for the CAW license amendment.

BASIS FOR INTERROGATORY:

Environmental Assessment needs to include most recent information and data.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.4: *Water Resources*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.7: *Hydrology*.

INTERROGATORY STATEMENT-EA 3.4(2):

Reference the report or studies for data presented.

BASIS FOR INTERROGATORY:

References were not provided.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.4: *Water Resources*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.7: *Hydrology*.

SECTION 3.5-ECOLOGICAL RESOURCES

INTERROGATORY STATEMENT- EA 3.5(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the ecological resources around the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.5: *Ecological Resources*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.9: *Ecology*.

SECTION 3.6-METEOROLOGY, CLIMATOLOGY AND AIR QUALITY

INTERROGATORY STATEMENT- EA 3.6(1):

Discuss the High Winds (over 35 mph) that occur at the Clive facility.

BASIS FOR INTERROGATORY:

High winds occur at the Clive facility. That is why in the facility's Class A RML (UT 2300249) License Condition 53D, waste management activities are required to cease when wind speeds are in excess of 35 mph.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.6: *Meteorology, Climatology, and Air Quality*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.8: *Meteorology*.

SECTION 3.7-NOISE

INTERROGATORY STATEMENT- EA 3.7(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 by discussing the potential noise impact from the Clive facility to neighboring facilities. It also provided sufficient information on the environmental impacts of the Clive facility that a separate section for noise under Section 4.0 “Environmental Impacts” was not necessary.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.7: *Noise*.

SECTION 3.8-HISTORIC AND CULTURAL RESOURCES

INTERROGATORY STATEMENT- EA 3.8(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the historic and cultural resources near the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.8: *Historic and Cultural Resources*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.4: *Regional, Historic, Archeological, Architectural, Scenic, Cultural, and Natural Landmarks*.

SECTION 3.9-VISUAL/SCENIC RESOURCES

INTERROGATORY STATEMENT- EA 3.9(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the visual and scenic resources of the surrounding area around the Clive facility. It also provided sufficient information on the environmental impacts of the Clive facility that a separate section for visual/scenic resources under Section 4.0 “Environmental Impacts” was not necessary.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.9: *Visual/Scenic Resources* and Section 6.4.9 *Visual/Scenic Resources Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.4: *Regional, Historic, Archeological, Architectural, Scenic, Cultural and Natural Landmarks*.

SECTION 3.10-SOCIOECONOMIC

INTERROGATORY STATEMENT- EA 3.10(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the socioeconomic characteristics of the area near the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.10: *Socioeconomic*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 8: *Economic and Social Effects of Mill Construction and Operation*.

Public and Occupational Health

INTERROGATORY STATEMENT-:

Add a section to the Environmental Assessment that describes the baseline conditions of the public and occupational health.

BASIS FOR INTERROGATORY:

Prior to submitting the 11e.(2) renewal the Licensee was instructed to use NUREG 1748 as a guide for an environmental assessment of the Clive facility. This section was not included in the submittal. The DRC has determined that this section needs to be included to do a proper assessment of the environmental impact of the Clive facility. It needs to include radiological and non-radiological information.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.11: *Public and Occupational Health*.

SECTION 3.11-WASTE MANAGEMENT

INTERROGATORY STATEMENT- EA 3.11(1):

Use data from 11e.(2) material that has been received.

BASIS FOR INTERROGATORY:

Need to use data that reflects current conditions. Most of the referenced material is from the DOE Vitro project and other UMTRA sites, most are not affiliated with current conditions.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.12: *Waste Management*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

SECTION 4.0-ENVIRONMENTAL IMPACTS

INTERROGATORY STATEMENT- EA 4.0(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided was an introduction paragraph. The specific requirements of NUREG 1748 and NRC Regulatory Guide 3.8 are discussed in the subsections 4.1 through 4.10 below.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

Impacts from Transportation

INTERROGATORY STATEMENT-:

Add a section to the Environmental Assessment that describes impacts from transportation.

BASIS FOR INTERROGATORY:

Prior to submitting the 11e.(2) renewal the Licensee was instructed to use NUREG 1748 as a guide for an environmental assessment of the Clive facility. This section was not included in the submittal. The DRC has determined that this section needs to be included to do a proper assessment of the environmental impact of the Clive facility. It needs to include radiological and non-radiological information.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.3.11: *Public and Occupational Health*.

SECTION 4.1-LAND USE

INTERROGATORY STATEMENT- EA 4.1(1):

Discuss how operation of the facility impacts surrounding land and land uses. Incorporate applicable environmental data. Applicable data includes a summary of soil, air and groundwater monitoring. It should also include radiological and non-radiological information as well. A discussion regarding activities such as clay mining and short and long term impacts from the facility.

BASIS FOR INTERROGATORY:

This section needs to be clearer on impacts to land use on section 32, adjacent to section 32 and the more general surrounding areas. This is due to different types of owners (private and public) and different zoning requirements (industrial, private and government).

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4.1: *Land Use Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.2: *Uses of Adjacent Lands and Waters*.

SECTION 4.2-GEOLOGY

INTERROGATORY STATEMENT- EA 4.2(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by summarizing the impact to the surrounding geology and soils of the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4.2: *Geology and Soils Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.5: *Geology and Soils*.

SECTION 4.3-AIR QUALITY

INTERROGATORY STATEMENT- EA 4.3(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the air quality impacts of the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4.6: *Air Quality Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 5.2: *Radiological Impact on Humans*.

SECTION 4.4-HYDROLOGY

INTERROGATORY STATEMENT- EA 4.4(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the impacts to the water resources from the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4.4: *Water Resources Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.7: *Hydrology*.

SECTION 4.5-ECOLOGY

INTERROGATORY STATEMENT- EA 4.5(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the ecological impacts of the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4.5: *Ecological Resources Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.9: *Ecology*.

SECTION 4.6-SOCIOECONOMIC IMPACTS

INTERROGATORY STATEMENT- EA 4.6(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the socioeconomic impacts of nearby communities of the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4.10: *Socioeconomic Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 5.5: *Other Effects*.

SECTION 4.7-RADIOLOGICAL AND NON-RADIOLOGICAL EFFECTS

INTERROGATORY STATEMENT- EA 4.7(1):

Refer to Interrogatories for Sections 7.3 and 7.4 of the 11e.(2) RML renewal application.

BASIS FOR INTERROGATORY:

The Licensee refers to the 11e.(2) RML renewal application. The Licensee discusses the Radiological and Non-Radiological effects of the operation in sections 7.3 and 7.4 of the 11e.(2) RML renewal application. The interrogatories associated with those sections/subsections are adequate to use for an assessment of the radiological and non-radiological effects for the environmental impacts of the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

SECTION 4.8-CULTURAL RESOURCES

INTERROGATORY STATEMENT- EA 4.8(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the cultural resources in the area of the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4.8: *Historic and Cultural Resources Impact*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 2.4: *Regional, Historic, Archeological, Architectural, Scenic, Cultural, and Natural Landmarks*.

SECTION 4.9-OTHER

INTERROGATORY STATEMENT- EA 4.9(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing other effects such as on recreational activities that the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 5.5: *Other Effects*

SECTION 4.10-RESOURCES COMMITTED

INTERROGATORY STATEMENT- EA 4.10(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 the resources that will be used or disturbed in the immediate region of the Clive Facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4: *Environmental Impacts*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 5.6: *Resources Committed*.

Waste Management

INTERROGATORY STATEMENT-:

Add a section to the Environmental Assessment that describes the environmental impacts of waste management activities at the Clive facility.

BASIS FOR INTERROGATORY:

Prior to submitting the 11e.(2) renewal the Licensee was instructed to use NUREG 1748 as a guide for an environmental assessment of the Clive facility. This section was not included in the submittal. The DRC has determined that this section needs to be included to do a proper assessment of the environmental impact of the Clive facility. It needs to include radiological and non-radiological information.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.4.13: *Waste Management Impacts*.

SECTION 5.0-MITIGATION MEASURES

SECTION 5.1-AIR QUALITY

INTERROGATORY STATEMENT- EA 5.1(1):

Discuss the mitigation measures that are done when High Winds (over 35 mph) that occur at the Clive facility.

BASIS FOR INTERROGATORY:

High winds occur at the Clive facility. That is why in the facility's Class A RML (UT 2300249) License Condition 53D, waste management activities are required to cease when wind speeds are in excess of 35 mph. This practice contributes to maintaining air quality.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.5: *Mitigation Measures*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

SECTION 5.2-RADIOLOGICAL ENVIRONMENT

INTERROGATORY STATEMENT- EA 5.2(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the mitigation measures that are used to reduce radiological impacts at the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.5: *Mitigation Measures*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

SECTION 5.3-SURFACE WATER

INTERROGATORY STATEMENT- EA 5.3(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8. By describing that there are no naturally occurring sources of surface water at the facility and storm water is collected and used for dust suppression or allowed to evaporate.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.5: *Mitigation Measures*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

SECTION 5.4-GROUNDWATER

INTERROGATORY STATEMENT- EA 5.4(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8. All groundwater issues including mitigation of groundwater are done according to the State of Utah issued Groundwater Quality Discharge Permit for the facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.5: *Mitigation Measures*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

SECTION 5.5-BIOTA

INTERROGATORY STATEMENT- EA 5.5(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the biota found at the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.5: *Mitigation Measures*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

SECTION 6-ENVIRONMENTAL MEASUREMENTS AND MONITORING PROGRAM

INTERROGATORY STATEMENT-EA 6.0(1):

Provide the most recent version of the Environmental Monitoring Plan.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring program.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: *Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

INTERROGATORY STATEMENT-EA 6.0(2):

In addition to the Environmental Monitoring plan, provide tables showing the effluent and environmental monitoring data collected.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring plan. Part of the review of the Environmental Monitoring Plan, the plan effectiveness and doing an Environmental Assessment to satisfy the requirement in R313-24-3 is reviewing the effluent and environmental data.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: *Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

INTERROGATORY STATEMENT-EA 6.0(3):

Provide maps that identify all monitoring, sampling and effluent release locations.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring plan. Part of the review of the Environmental Monitoring Plan, the plan effectiveness and doing an Environmental Assessment to satisfy the requirement in R313-24-3 is reviewing the effluent and environmental data and location of data collection points.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: *Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

INTERROGATORY STATEMENT-EA 6.0(4):

In addition to the Environmental Monitoring plan, identify any additional SOPs that are used to collect, analyze and report effluent and environmental data.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring plan. Part of the review of the Environmental Monitoring Plan, the plan effectiveness and doing an Environmental Assessment to satisfy the requirement in R313-24-3 is reviewing the effluent and environmental data. This includes SOPs used to collect, analyze and report the effluent and environmental data.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: *Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

INTERROGATORY STATEMENT-EA 6.0(5):

In addition to the Environmental Monitoring plan, provide an explanation of any differences between monitoring and reporting requirements that may exist between the Environmental Monitoring plan and NRC Regulatory Guide 4.14.

BASIS FOR INTERROGATORY:

An example of this is NRC Regulatory Guide 4.14 requires vegetation sampling and EnergySolutions no longer collects vegetation samples at the Clive facility.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: *Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2: *Applicant's Proposed Operational Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

SECTION 6.1-RADIOLOGICAL MONITORING

INTERROGATORY STATEMENT- EA 6.1(1):

Provide the most recent version of the Environmental Monitoring Plan. Must include all data of radiological monitoring from 11e.(2) operations.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring program.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6.1: *Radiological Monitoring*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2.1: *Radiological Monitoring*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

SECTION 6.2-SOIL SAMPLING

INTERROGATORY STATEMENT-EA 6.2(1):

Provide the most recent version of the Environmental Monitoring Plan. Also include all soil sampling data.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring program.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6.2: *Physiochemical Monitoring*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 6.0: *Effluent and Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

INTERROGATORY STATEMENT- EA 6.2(2):

Discuss where the soil samples are taken and why those locations were chosen.

BASIS FOR INTERROGATORY:

The Environmental Assessment for the 11e.(2) RML renewal discuss how a soil sample is taken. However it does not discuss why the soil samples are taken where they are sampled, what is done with the soil samples once they are collected and what is done with the results.

APPLICABLE RULE(S) OR REGULATION(S):

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REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6.2: *Physiochemical Monitoring*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 6.0: *Effluent and Environmental Measurements and Monitoring Programs*.

INTERROGATORY STATEMENT- EA 6.2(3):

Discuss the action levels for the soils samples and what corrective action requirements the Clive facility has when the action levels are exceeded.

BASIS FOR INTERROGATORY:

The Environmental Assessment for the 11e.(2) RML renewal discuss how a soil sample is taken. However it does not discuss why the soil samples are taken where they are sampled, what is done with the soil samples once they are collected and what is done with the results.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6.2: *Physiochemical Monitoring*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 6.0: *Effluent and Environmental Measurements and Monitoring Programs*.

SECTION 6.3-GROUNDWATER MONITORING

INTERROGATORY STATEMENT- EA 6.3(1):

Provide the most recent version of the Environmental Monitoring Plan.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring program.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: *Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 6.0: *Effluent and Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

SECTION 6.4-METEOROLOGY MONITORING

INTERROGATORY STATEMENT- EA 6.4(1):

Provide the most recent version of the Environmental Monitoring Plan and the Meteorology Monitoring Plan.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring program and the Meteorology Monitoring Plan.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: *Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2.3: *Meteorological Monitoring*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

INTERROGATORY STATEMENT- EA 6.4(2):

Provide or reference the most recent Meteorological Monitoring Report.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring program and the Meteorology Monitoring Plan.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6: *Environmental Measurements and Monitoring Programs*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2.3: *Meteorological Monitoring*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

SECTION 6.5-ECOLOGICAL MONITORING

INTERROGATORY STATEMENT- EA 6.5(1):

Provide the most recent version of the Environmental Monitoring Plan.

BASIS FOR INTERROGATORY:

The renewal application needs to have the full plan and not just a summary in order to do a proper review of the Environmental Monitoring program.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.6.3: *Ecological Monitoring*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Section 6.2.4: *Ecological Monitoring*.

U.S. Nuclear Regulatory Commission Regulatory Guide 4.14: *Radiological Effluent and Environmental Monitoring at Uranium Mills*.

SECTION 7-COST BENEFIT ANALYSIS

INTERROGATORY STATEMENT- EA 7.0(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the cost benefit analysis in section 7.0 through 7.2 of the 11e.(2) RML Environmental Assessment.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.7: *Cost Benefit Analysis*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 11: *Benefit-Cost Analysis*.

SECTION 7.1-QUANTIFIABLE SOCIOECONOMIC IMPACTS

INTERROGATORY STATEMENT- EA 7.1(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the quantifiable socioeconomic impacts of the 11e.(2) RML Environmental Assessment.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.7: *Cost Benefit Analysis*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 11: *Benefit-Cost Analysis*.

SECTION 7.2-THE BENEFIT-COST SUMMARY

INTERROGATORY STATEMENT- EA 7.2(1):

Information provided in this section of the Environmental Assessment Report of the 11e.(2) RML Renewal Application was sufficient to demonstrate that the requirement was met.

BASIS FOR INTERROGATORY:

The information provided met the requirements of NUREG 1748 and NRC Regulatory Guide 3.8 by discussing the benefit-cost summary of the 11e.(2) RML Environmental Assessment.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.7: *Cost Benefit Analysis*.

U.S. Nuclear Regulatory Commission Regulatory Guide 3.8: Preparation of Environmental Reports for Uranium Mills, Chapter 11: *Benefit-Cost Analysis*.

SECTION 8-SUMMARY OF ENVIRONMENTAL CONSEQUENCES

INTERROGATORY STATEMENT-EA 8.0(1):

Please update using current information. Provide environmental monitoring data to demonstrate the current impacts on the environment from 11e.(2) operations.

BASIS FOR INTERROGATORY:

Citing a document from 1992 on environmental impacts and consequences from operations does not demonstrate current conditions.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.8: *Summary of Environmental Consequences*.

SECTION 8.2-CLOSURE

INTERROGATORY STATEMENT-EA 8.2(1):

Information was insufficient. However, providing a Reclamation Plan to address the interrogatories in section 6.0 of the 11e.(2) LRA could address this section as well. NUREG 1748 is specific in requiring information on:

- Unavoidable adverse environmental impacts;
- Irreversible and irretrievable commitments of resources used in project construction, operation, and decommissioning (i.e. clay and rock mining);
- Short-term and long-term impacts; and
- Short-term uses of the environment and the maintenance and enhancement of long-term productivity.

BASIS FOR INTERROGATORY:

10 CFR 40 Appendix A Criteria 1 and 9 requires that an 11e.(2) RML have a standalone Reclamation, Decontamination and Decommissioning Plan submitted and approved by the DRC. The Decontamination and Decommissioning Plan provided in Appendix C of the RML renewal application did not provide detailed information on the reclamation, decontamination and decommissioning of the 11e.(2) embankment, supporting facilities and surrounding lands. This information is used to determine an appropriate surety.

APPLICABLE RULE(S) OR REGULATION(S):

R313-24-3 Environmental Analysis

REFERENCES:

U.S. Nuclear Regulatory Commission NUREG 1748: Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Section 6.8: *Summary of Environmental Consequences*.