



State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF WASTE MANAGEMENT
AND RADIATION CONTROL

Douglas J. Hansen
Director

March 16, 2022

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

RE: **Conditional Approval:** Revised Amendment and Modification Request, Capacity and Disposal Footprint 11e.(2) License, February 26, 2021 (CD-2021-030), Amendment and Modification Request to Reduce Capacity and Disposal Footprint, October 19, 2020 (CD-2020-157), EnergySolutions (ES) Response to wells remaining and abandonment regarding the 11e.(2) embankment only, April 9, 2021 (CD-2020-052), Public Notice, July 21, 2021 (DRC-2021-006545)
EnergySolutions Radioactive Material License UT2300478

Dear Mr. Rogers:

In letters dated February 26, 2021 (CD 2021-030), October 19, 2020 (CD-2020-157), and April 9, 2021 (CD-2020-052), EnergySolutions requested approval for Revised Amendment 3 and Modification Request Capacity and Disposal Footprint, and the surety update to 11e.(2) Radioactive Material License UT2300478. In conjunction EnergySolutions requested that the Groundwater Quality Discharge Permit GWQDP, No. UGW450005 be modified to abandon several monitoring wells.

The Division of Waste Management and Radiation Control (DWMRC) held a public hearing regarding this matter on September 8, 2021. Comments received during the public comment period are documented in the Public Participation Document (DRC-2022-002682) created by the Division. The Division considers the administrative record relating to this amendment request to now be complete and adequate to support the Director's final agency action.

(Over)

After reviewing the complete administrative record, the Director hereby approves *EnergySolutions*' Radioactive Material License UT2300478 Amendment 3, modification of GWQDP, No. UGW450005 and the associated engineering drawings submitted on February 26, 2021 (CD-2021-030), subject to the following conditions:

1. Groundwater monitoring well GW-36 shall remain in service as a down gradient monitoring well for the 2000 evaporation pond.
2. Wells GW-37 and GW-38 may be abandoned because the wells will no longer be compliance monitoring points in an upcoming modification of GWQDP, No. UGW450005. Well abandonment will be performed in accordance with requirements in Utah Administrative Code (UAC) R655-4-12 including:
 - a. Any groundwater monitoring well that is to be permanently abandoned shall be done in accordance with the provisions of UAC R655-4-14.
 - b. Permanently abandoned wells shall be completely filled in such a manner as to prevent vertical movement of water within the borehole as well as preventing the annular space surrounding the well casing from becoming a conduit for possible contamination of the groundwater.
 - c. The well closure shall be completed under the direct supervision of a currently licensed water well driller who shall be responsible for verification of procedures and materials used.
 - d. *EnergySolutions* will meet the requirements of Part II.M. of GWQDP, No. UGW450005.
3. This approval is limited to *EnergySolutions*' Radioactive Material License UT2300478 and GWQDP, No. UGW450005.

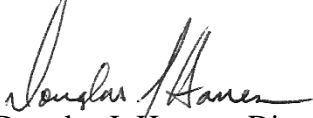
The basis for the Director's conditional approval is set forth in the Administrative Record, including the Statement of Basis (DRC-2022-002684) and the Public Participation Summary (DRC-2022-002682). Based on the Administrative Record, the Director has determined that the foregoing conditions are appropriate.

NOTICE OF RIGHT TO APPEAL

NOTICE is hereby given that any person may file a Petition for Review regarding the above-referenced docket, pursuant to Utah Code Section 19-1-301.5 and Utah Admin. Code R305-7, within 30 days of the date that this agency action is signed.

If you have any questions, please call David Esser at (801) 536-0079 or Otis Willoughby at (801) 536-0220.

Sincerely,



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

Enclosure: Radioactive Material License #2300478 (DRC-2022-003082)

DJH/DKE/wa

- c: Jeff Coombs, EHS, Health Officer, Tooele County Health Department
- Bryan Slade, Environmental Health Director, Tooele County Health Department
- EnergySolutions General Correspondence (Email)
- LLRW General Correspondence (Email)
- Douglas Tonkay, USDOE (Email)
- Lexi Tuddenham, HEAL Utah (Email)
- Ty L. Howard, Deputy Director, Utah Department of Environmental Quality
- Kimberly D. Shelley, Executive Director, Utah Department of Environmental Quality

**UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WASTE MANAGEMENT AND RADIATION CONTROL
RADIOACTIVE MATERIAL LICENSE**

Pursuant to the Utah Code Annotated (UCA), Title 19, Chapter 3 and R313 of the Utah Administrative Code and in reliance on statements and representations heretofore made by the Licensee designated below, a license is hereby issued authorizing such Licensee to transfer, receive, possess and use the radioactive material designated below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This Licensee is subject to all applicable rules, and orders now or hereafter in effect and to any conditions specified below.

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          LICENSEE                ) 3. License Number: UT 2300478
                                ) Amendment #3
1. Name EnergySolutions, LLC    ) *****
                                ) 4. Expiration Date
2. Address 299 S. Main St., Suite 1700 ) November 13, 2027
    Salt Lake City, UT 84111      ) *****
                                ) 5. License Category 2-c
*****
6. Radioactive material          7. Chemical and/or          8. Maximum quantity
   (element and mass            physical form             Licensee may possess at
   number)                      )                               any one time
                                )
11e.(2) Byproduct              Packaged or Bulk          1,629,255 Cubic Yards
Material                        Radioactive Waste
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SECTION 9.0. ADMINISTRATIVE CONDITIONS

- 9.1 All notices to the Division of Waste Management and Radiation Control required under this license shall be addressed to the Director of the Division of Waste Management and Radiation Control (Director), Department of Environmental Quality, 195 North 1950 West, P.O. Box 144880, Salt Lake City, UT 84114-4880.
- 9.2 Authorized place for use shall be the Licensee's facility located in Section 32 of Township 1 S, Range 11 W, Tooele County, Utah, near Clive.
- 9.3 Authorized use is for the receipt, storage and disposal of 11e.(2) byproduct material in accordance with statements, descriptions, and representations contained in the Licensee's application, including appendices.
- 9.4 In order to ensure that no disturbance of cultural resources occurs, the Licensee shall cease any work resulting in the discovery of previously unknown cultural or historical artifacts and report the discovery, in writing, to the Director and the State Historic Preservation Office (SHPO). The artifacts shall be inventoried and evaluated in accordance with UCA 9-8-404, and no disturbance shall occur until the Licensee has received written authorization from the Director and SHPO to proceed.
- 9.5 The Licensee shall:

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- a) Establish, implement and comply with standard operating procedures (SOPs) for all operational activities involving the handling, storing or disposal of radioactive materials. SOPs for operational activities shall enumerate pertinent radiation safety practices to be followed. In addition, SOPs shall be established and implemented for non-operational activities to include environmental monitoring, bioassay analysis and instrument calibration. An up-to-date copy of each written SOP, as controlled under the quality assurance (QA) procedures, shall be kept in each area where it is used.
 - b) Design, implement and comply with an effective air sampling program in the workplace based on Revision 1 to Nuclear Regulatory Commission (NRC) Regulatory Guide 8.25 (June 1992), "Air Sampling in the Workplace" or an equivalent program.
- 9.6 The Licensee shall have all written SOPs reviewed and approved by the Radiation Safety Officer (RSO), or designee, qualified by way of specialized radiation protection training equivalent to that required for the RSO as defined in License Condition 9.8, before being implemented and whenever a change in a procedure is proposed. All existing facility SOPs related to operational and non-operational activities shall be reviewed and documented by the RSO on an annual basis in the 11e.(2) Annual Report, to be submitted to the Director by April 30.
- 9.7 Any change to the Licensee's corporate organizational structure, as presented in the license application, affecting the assignment or reporting responsibility of the radiation staff shall conform to the NRC's Regulatory Guide 8.31, "Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Mills Will Be As Low As Is Reasonably Achievable" as amended.
- 9.8 The Licensee's staff shall meet the qualifications as described in the currently approved *Organization Layout* of Condition 32.A of Radioactive Material License UT 2300249. In addition to the responsibilities and qualifications specified in the Licensee's application, the RSO or designee shall be qualified as specified in Sections 1.2 and 2.4 of the NRC Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills will be As Low As Reasonably Achievable," as amended. In addition, the RSO shall also receive 40 hours of related health and safety refresher training every two years.
- 9.9 For the purposes of this License Condition, reference to "uranium mill" or "milling" in the NRC Regulatory Guide 8.31, as amended, shall mean the Licensee's facility and authorized activities.
- 9.10 The Licensee shall conduct:
- a) Annual training for its facility inspectors that covers all areas included in the daily inspections of the 11e.(2) byproduct material and the disposal area.
 - b) Annual operational training that covers all aspects of operational safety and emergency procedures for all employees. The SOPs shall be used to conduct operations training to assure consistency and thoroughness.

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- 9.11 The Licensee shall, at all times, maintain a Surety that satisfies the requirements of R313-24-4 (10 CFR 40, Appendix A, Criterion 9 and 10 incorporated by reference), as defined by License Condition 9.13 (a) or 9.13 (b) (or more frequent, at the Licensee's sole discretion) and shall include closure and post-closure costs in all areas subject to the portions of the facility herein licensed.
- 9.12 Annually, by March 1, the Licensee shall submit proposed closure and post-closure costs in a Surety Report, upon which financial assurance amounts are based, including costs of potential remediation at the licensed facility, as if accomplished by a third party contractor, for completion of a Director-approved reclamation/decommissioning plan of the Licensee's licensed grounds, equipment and facilities including above-ground decommissioning and decontamination, soil and water sample analyses and groundwater restoration associated with the site, as warranted.
- 9.13 At its election, the Licensee's annual proposed closure and post-closure costs shall be based on either:
- a) a proposed annual cost estimate using unit rates from the current edition of RS Means Facilities Construction Cost Data and other site-specific processes, indirect costs based on the sum of applicable direct costs in accordance with the indirect cost multipliers in Table 9.13A or others mutually agreed to by the Licensee and the Director; or

Table 9.13A

Description	Percentage
Working Conditions	5.5%
Mobilization / Demobilization	4.0%
Contingency	11.0%
Engineering and Redesign	2.25%
Overhead and Profit	19.0%
Management Fee and Legal Expenses	4.0%
DEQ Oversight	4.0%

- b) an initial financial assurance determination and for each financial assurance determination every five years thereafter, a proposed competitive site-specific estimate for closure and post-closure care of the licensed facility shall be used; and for each year between this financial assurance determination, a proposed financial assurance estimate that accounts for current site conditions and that includes an annual inflation adjustment to the financial assurance determination using the Gross Domestic Product Implicit Price Deflator of the Bureau of Economic Analysis, United States Department of Commerce, calculated by dividing the latest annual deflator by the deflator for the previous year shall be used.

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- 9.14 The annual Surety Report shall be prepared under the direct supervision of and be certified by a professional with at least five years of construction cost estimation experience, who bears the seal of either a Professional Engineer or Professional Geologist currently licensed by the State of Utah. The Licensee shall provide the Surety Report in both paper and electronic formats. Within 60 days of the Director's approval of the Surety Report, the Licensee shall submit written evidence that the surety instruments have been adequately funded. The currently-approved Surety Report and instrument(s) shall be maintained as a Surety Appendix to the License.
- 9.15 The combined annual surety is \$82,460,030.51 with the 11e.(2) subtotal of \$10,805,563.27 as approved in the Director's letter dated June 23, 2020.
- 9.16 The Licensee shall require a radiation work permit (RWP) for work where the potential for significant exposure to radioactive materials exists and for which no SOP exists. Each RWP shall contain the information specified in Regulatory Guide 8.31, as amended.
- 9.17 The RSO, or designee, qualified by way of special radiation protection training equivalent to that required for the RSO as defined in License Condition 9.8, shall indicate by signature, the review and approval of each RWP, prior to the initiation of the work.
- 9.18 The Licensee shall provide SOPs for controlling internal contamination of workers from dust inhalation, which shall include the use of dust suppressants (c.g., magnesium chloride or water) on all operational roads, as necessary.
- 9.19 The Licensee shall have qualified individuals, designated by the RSO and Manager, Health and Safety, perform quantitative respirator fit tests on all employees required to wear respirators prior to the initial use of a respirator and annually thereafter. During the annual fit test, the qualified individual performing the test shall ensure that the employee is correctly performing negative pressure fit checks and shall instruct the employee that the fit test is to be performed each time a respirator is donned and prior to entering an area where respirators are required. The Licensee shall follow the guidance provided in the NRC Regulatory Guide 8.15 "Acceptable Programs for Respiratory Protection" as amended.
- 9.20 The Licensee shall complete "as built drawings" of the facility on an annual basis. The as built drawings shall be certified by a professional engineer.
- 9.21 The Licensee shall provide for an independent internal audit of facility operations to ensure compliance with applicable regulations and license conditions. The independent internal audit shall be conducted annually by a qualified health physicist knowledgeable of operations concerning radiation protection programs at milling/waste disposal facilities. The contractor report shall be submitted to the Director as part of the 11e.(2) Annual Report.
- 9.22 The operational environmental monitoring program shall be conducted in accordance with the current Environmental Monitoring Plan approved by the Director.

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SECTION 10.0. OPERATIONAL CONTROLS, LIMITS AND RESTRICTIONS

- 10.1 The Licensee shall restrict eating and drinking to the administrative offices and enclosed lunch areas that are separated from the disposal areas. With the exception of drinking from closeable containers, there shall be no eating, drinking, smoking, defecating or urinating in the restricted areas at any time.
- 10.2 The Licensee shall analyze and adequately characterize all incoming waste to identify any new hazardous constituents not listed in the Waste Characterization Plan referenced in Condition 58 of Radioactive Material License UT 2300249. The Licensee shall develop, implement and comply with methodologies and procedures for systematic characterization and analysis of the incoming waste so that any new hazardous constituents are identified. The Licensee shall assume that the baseline background concentrations for any new constituents are at their detection levels, unless the Licensee demonstrates to the Director's satisfaction that the constituents will not reach the water table in one year and proceeds to establish background based on direct monitoring of these constituents in the Point of Compliance (POC) wells for one full year.
- 10.3 The following key radon attenuation model parameter values shall be used during placement to verify that the values used in the Licensee's model (see Licensee's correspondence to the NRC dated August 30, 2000 and to the DRC dated October 31, 2007) have been achieved: (1) dry density and (2) moisture content (percent by dry weight) of the placed compacted radon barrier material and the upper ten feet of 11e.(2) byproduct material. Average values for each parameter by lift, for the upper ten feet of the 11e.(2) embankment only, per year shall be calculated and submitted to the Director in the 11e.(2) Annual Report.
- 10.4 The distribution of the Ra-226 and Th-230 concentrations in the 11e.(2) byproduct material in the upper 3.3 meters (10 feet) of the contaminated material shall be used to verify that the concentration in any lift does not exceed the values used in the radon attenuation model. The Licensee shall measure the Ra-226 and Th-230 concentrations using standard analytical procedures for every 2500 cubic yards of material placed for compaction and at least once per lift for lifts smaller than 2500 cubic yards. This sampling may be performed from the waste container/conveyance at receipt or on the lift during waste placement. In the case where sampling will be performed from the waste container/conveyance, proper tracking shall be performed to accurately identify disposal location (or lift number). In the case where sampling will be performed at the disposal lift, each sample shall be a composite sample consisting of ten aliquots from random locations on the lift. The data shall include the elevation (or lift number) of the sample location. The results shall be presented as average values for each lift and submitted to the Director in the 11e.(2) Annual Report.
- 10.5 The Licensee shall assume full responsibility for remediation of any groundwater contamination caused by hazardous constituents originating from the 11e.(2) disposal facility that have been detected at the Point of Compliance (POC) wells in concentrations exceeding the limits specified in Tables 1-C and 1-D of the Groundwater Discharge Quality Permit UGW450005. It shall be

