



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

A meeting of the Waste Management and Radiation Control Board has been scheduled for May 11, 2023, at 1:30 pm at the Utah Department of Environmental Quality, (Multi-Agency State Office Building) Conference Room #1015, 195 North 1950 West, SLC.

Board members and interested persons may participate electronically/telephonically.  
Join via the Internet: [meet.google.com/gad-sxsd-uvs](https://meet.google.com/gad-sxsd-uvs)  
Join via the Phone: (US) +1 978-593-3748 PIN: 902 672 356#

AGENDA

- I. Call to Order and Roll Call.
- II. Public Comments on Agenda Items.
- III. Declarations of Conflict of Interest.
- IV. Introduction of new Board member Jeremy Hawk.
- V. Approval of the meeting minutes for the April 13, 2023, Board meeting ..... Tab 1  
**(Board Action Item).**
- VI. Petroleum Storage Tanks Update ..... Tab 2
- VII. X-Ray Program ..... Tab 3
  - A. Approval of a Mammography Imaging Medical Physicist (MIMP) in accordance with UCA 19-3-103.1 (2)(c) of the Utah Code Annotated **(Board Action Item).**
- VIII. Low-Level Radioactive Waste ..... Tab 4
  - A. EnergySolutions request for a site-specific treatment variance from the Hazardous Waste Management Rules. EnergySolutions seeks authorization to receive uranium extraction process residuals encased in cement for macroencapsulation (Information Item).
  - B. EnergySolutions request for a site-specific treatment variance from the Hazardous Waste Management Rules. EnergySolutions seeks authorization to receive lithium and lithium-ion batteries for direct macroencapsulation treatment (Information Item).

(Over)

- IX. Informational Highlight.
  - A. A presentation on Used Oil Collection Centers in Utah.
- X. Director's Report.
- XI. Other Business.
  - A. Miscellaneous Information Items.
  - B. Scheduling of next Board meeting (June 8, 2023).
- XII. Adjourn.

In compliance with the Americans with Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Larene Wyss, Office of Human Resources at (801) 536-4284, Telecommunications Relay Service 711, or by email at "lwys@utah.gov".

**Waste Management and Radiation Control Board Meeting Minutes**  
**Utah Department of Environmental Quality**  
**Multi-Agency State Office Building (Conf. Room #1015)**  
**195 North 1950 West, SLC**  
**April 13, 2023**  
**1:30 p.m.**

**Board Members Participating at Anchor Location:** Brett Mickelson (Chair), Dennis Riding (Vice-Chair), Dr. Steve McIff, Nathan Rich, Vern Rogers, Scott Wardle, Shane Whitney

**Board Members Participating Virtually:** Dr. Richard Codell and Danielle Endres

**Board Members Excused:** Mark Franc and Kim Shelley

**UDEQ Staff Members Participating at Anchor Location:** Brent Everett, Doug Hansen, Morgan Atkinson, Tom Ball, Arlene Lovato, Bret Randall, Elisa Smith, Otis Willoughby

**Others Attending at Anchor Location:** Chris Root

**Other UDEQ employees and interested members of the public also participated either electronically or telephonically.**

**I. Call to Order and Roll Call.**

Chairman Mickelson called the meeting to order at 1:30 pm. Roll call of Board members was conducted, see above.

**II. Public Comments on Agenda Items – None.**

**III. Declarations of Conflict of Interest – None.**

**IV. Approval of the meeting minutes for the March 9, 2023 Board meeting (Board Action Item).**

**It was moved by Dennis Riding and seconded by Shane Whitney and UNANIMOUSLY CARRIED to approve the March 9, 2023 Board meeting minutes.**

**V. Petroleum Storage Tanks Update.**

Brent Everett, Director of the Division of Environmental Response and Remediation (DERR), informed the Board that the preliminary estimate of the cash balance of the Petroleum Storage Tank (PST) Fund for the end of March 2023, is \$29,395,417.00. The actual cash balance of the PST Fund at the end of February 2023, is \$29,445,217.00. The DERR continues to watch the balance of the PST Fund closely to ensure sufficient cash is available to cover qualified claims for releases. The DERR will monitor the impact of adding aboveground petroleum storage tanks (APSTs) on the Fund for their financial responsibility for future releases. APSTs are required to provide financial assurance information to the DERR by July 1, 2023.

There were no comments or questions.

## VI. Petroleum Storage Tank Rules (Board Action Item).

### A. Final adoption of proposed changes to Petroleum Storage Tank Rules R311-200, 202, and 206 (Board Action Item).

Morgan Atkinson, Section Manager of the PST Release Prevention and Compliance Section of the DERR, requested the Board approve the proposed rules changes to R311, Utah Petroleum Storage Tank Rules. The rules to be amended are:

- R311-200 Petroleum Storage Tanks: Definitions.
- R311-202 Federal Underground Storage Tank Regulations.
- R311-206 Petroleum Storage Tanks: Certificate of Compliance and Financial Assurance Mechanisms.

Notice of the proposed changes and the public comment period was sent to PST owner/operators, certified individuals, and other persons interested in PST rulemaking and was posted on the DEQ Public Notice webpage. The proposed changes were published in the Utah State Bulletin on March 1, 2023. The public comment period ended on March 31, 2023, with a public hearing held on March 13, 2023. One response to the Notice of Rulemaking email was received. This response was not a comment on the proposed changes, but rather was a question. DERR staff responded with an answer to the question. Because this was not a comment on the proposed changes that are under consideration, no additional action is appropriate.

Dennis Riding asked if financial assurance would be the same for APSTs as for underground storage tanks (USTs). Mr. Atkinson confirmed that they will be required to have the same financial assurance as USTs.

**It was moved by Dennis Riding and seconded by Dr. McIff and UNANIMOUSLY CARRIED to approve for final adoption the proposed changes to Utah Administrative Code R311 as published in the March 1, 2023 issue of the Utah State Bulletin with an effective date of April 14, 2023.**

## VII. Administrative Rules.

### A. Final adoption of proposed changes to Radiation Control Rules UAC R313-16-230 to amend the process to apply for a registration of radiation machines to include an electronic form as well as a paper form (Board Action Item).

Tom Ball, Planning and Technical Support Section Manager in the Division of Waste Management and Radiation Control, reviewed the request for the Board's approval to proceed with final adoption of changes to Utah Administrative Code (UAC) R313-16-230 (Radiation Control Rules) to amend the process to apply for a registration of radiation machines to include an electronic form as well as a paper form.

At the Board meeting on February 9, 2023, the Board approved the proposed changes to UAC R313-16-230 to be filed with the Office of Administrative Rules for publication in the *Utah State Bulletin*. The proposed changes were published in the March 1, 2023, issue of the Utah State Bulletin (Vol. 2023, No. 05). The public comment period for this rulemaking ended on March 31, 2023. No comments were received.

This is a Board action item and the Director recommends the Board approve final adoption of the changes to UAC R313-16-230 as published in the March 1, 2023, *Utah State Bulletin* and set an effective date of April 17, 2023.

There were no comments or questions.

**It was moved by Scott Wardle and seconded by Vern Rogers and UNANIMOUSLY CARRIED to approve for final adoption the proposed rule changes to UAC R313-16-230 as published in the March 1, 2023, Utah State Bulletin and set an effective date of April 17, 2023.**

**VIII. Director's Report.**

Director Hansen reported to the Board that the vacant seat that has been unfilled for a long period has now been filled by the previous representative, Mr. Jeremy Hawk. Mr. Hawk had to end his term early due to a military deployment, and this position has remained vacant since. Mr. Hawk has successfully reapplied to the Board and has been confirmed by the Utah State Senate to again serve on the Board. Mr. Hawk will officially join the Board at the May Board meeting. (This Board seat representative is an individual who is: (A) a medical physicist or a health physicist; or (B) a professional employed in the field of radiation safety).

Director Hansen informed the Board that the Division anticipates receiving the approval of the Authorization Package for the Hazardous Waste Program submitted to the U.S. Environmental Protection Agency (U.S. EPA). The Hazardous Waste Program is a delegated program from the U.S. EPA and the Division is required to reapply to administer the program on their behalf for the State of Utah. Tom Ball has coordinated efforts in putting the Authorization Package together. The Authorization Package took a significant amount of time to complete as it contains over 400 pages. This document is public and will be available for public review. A Draft of the Authorization Package was previously submitted, and all comments have been addressed. There is not a deadline for the U.S. EPA to approve the Authorization Package, but it is anticipated that approval will occur soon. Director Hansen will report back to the Board once the Division has received confirmation that the Authorization Package for the Hazardous Waste Program has been approved.

**IX. Election of Board Chair and Vice Chair (Board Action Item).**

Chairman Mickelson informed the Board that each year (April timeframe) a Board Chairman and Board Vice-Chairman must be elected. Chairman Mickelson then conducted the elections.

Dr. McIff nominated Brett Mickelson to serve as Board Chairman. No other nominees were presented to serve as Board Chairman.

**It was moved by Scott Wardle and seconded by Shane Whitney and UNANIMOUSLY CARRIED that Brett Mickelson continue to serve as Board Chair.**

Shane Whitney nominated Dennis Riding to serve as Board Vice-Chairman. No other nominees were presented to serve as Board Vice-Chairman.

**It was moved by Shane Whitney and seconded by Dr. McIff and UNANIMOUSLY CARRIED that Dennis Riding continue to serve as Board Vice-Chair.**

**X. Other Business.**

- A. Miscellaneous Information Items – None.
- B. Scheduling of next Board meeting (May 11, 2023).

The next meeting is scheduled for May 11, 2023, at the Utah Department of Environmental Quality, Multi-Agency State Office Building.

Interested parties can join via the Internet: [meet.google.com/gad-sxsd-uvs](https://meet.google.com/gad-sxsd-uvs)  
Or by phone: (US) +1 978-593-3748 PIN: 902 672 356#

**XI. Adjourn.**

The meeting was adjourned at 1:45 p.m.

**PST STATISTICAL SUMMARY**  
**April 1, 2022 -- March 31, 2023**

<b>PROGRAM</b>													
	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>August</b>	<b>September</b>	<b>October</b>	<b>November</b>	<b>December</b>	<b>January</b>	<b>February</b>	<b>March</b>	<b>(+/-) OR Total</b>
<b>Regulated Tanks</b>	4,178	4,176	4,182	4,178	4,188	4,184	4,191	4,190	4,196	4,188	4,200	4,203	<b>25</b>
<b>Tanks with Certificate of Compliance</b>	4,057	4,057	4,071	4,061	4,065	4,072	4,073	4,085	4,083	4,089	4,088	4,093	<b>36</b>
<b>Tanks without COC</b>	121	119	111	117	123	112	118	105	113	99	112	110	<b>(11)</b>
<b>Cumulative Facilities with Registered A Operators</b>	1,288	1,286	1,286	1,288	1,285	1,279	1,278	1,276	1,282	1,280	1,279	1,276	<b>97.85%</b>
<b>Cumulative Facilities with Registered B Operators</b>	1,289	1,287	1,287	1,289	1,287	1,280	1,279	1,277	1,282	1,281	1,281	1,279	<b>98.08%</b>
<b>New LUST Sites</b>	7	6	7	9	11	5	10	8	9	9	9	4	<b>94</b>
<b>Closed LUST Sites</b>	14	13	9	2	12	7	3	14	3	7	8	17	<b>109</b>
<b>Cumulative Closed LUST Sites</b>	5447	5454	5455	5463	5474	5474	5491	5494	5501	5509	5524	5531	<b>84</b>
<b>FINANCIAL</b>													
	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>August</b>	<b>September</b>	<b>October</b>	<b>November</b>	<b>December</b>	<b>January</b>	<b>February</b>	<b>March</b>	<b>(+/-)</b>
<b>Tanks on PST Fund</b>	2,619	2,609	2,613	2,651	2,655	2,645	2,636	2,635	2,628	2,623	2,621	2,617	<b>(2)</b>
<b>PST Claims (Cumulative)</b>	706	705	710	710	711	711	711	711	711	711	711	710	<b>4</b>
<b>Equity Balance</b>	-\$1,634,540	-\$986,270	-\$639,953	-\$646,753	-\$295,722	-\$127,174	-\$281,835	\$80,750	\$274,341	\$739,913	\$1,273,567	\$1,223,767	<b>\$2,858,307</b>
<b>Cash Balance</b>	\$25,762,988	\$26,411,258	\$26,757,575	\$26,750,775	\$27,693,250	\$27,524,702	\$27,889,815	\$28,252,400	\$28,445,991	\$28,911,563	\$29,445,217	\$29,395,417	<b>\$3,632,429</b>
<b>Loans</b>	0	1	0	0	1	5	0	0	0	0	0	0	<b>0</b>
<b>Cumulative Loans</b>	121	122	122	122	123	128	128	128	128	128	128	128	<b>7</b>
<b>Cumulative Amount</b>	\$4,738,367	\$4,740,989	\$4,740,989	\$4,740,989	\$5,040,989	\$6,014,420	\$6,014,420	\$6,014,420	\$6,014,420	\$6,014,420	\$6,014,420	\$6,014,420	<b>\$1,276,053</b>
<b>Defaults/Amount</b>	0	0	0	0	1	0	0	0	0	0	0	0	<b>0</b>
	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>August</b>	<b>September</b>	<b>October</b>	<b>November</b>	<b>December</b>	<b>January</b>	<b>February</b>	<b>March</b>	<b>TOTAL</b>
<b>Speed Memos</b>	59	78	65	32	47	77	105	60	31	42	44	79	<b>719</b>
<b>Compliance Letters</b>	15	9	6	8	8	7	7	9	9	5	3	7	<b>93</b>
<b>Notice of Intent to Revoke</b>	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>Orders</b>	2	0	0	0	0	0	0	0	qq	0	0	1	<b>3</b>

WASTE MANAGEMENT AND RADIATION CONTROL BOARD  
 Executive Summary  
 Approval of Mammography Imaging Medical Physicists  
 May 11, 2023

<b>What is the issue before the Board?</b>	Approval of new, qualified, Mammography Imaging Medical Physicist
<b>What is the historical background or context for this issue?</b>	<p>Individuals referred to as Mammography Imaging Medical Physicists (MIMP) must submit an application for review of qualifications to be certified by the Board. These physicists perform radiation surveys and evaluate the quality control programs of the facilities in Utah providing mammography examinations.</p> <p>The Division has received a new application from Charlene Bremer, MS, DABR to be certified as a MIMP.</p> <p>Division staff have reviewed the applicant’s qualifications and the applicant has met the requirements detailed in Utah Administrative Code R313-28-140.</p>
<b>What is the governing statutory or regulatory citation?</b>	<p>In accordance with Subsection 19-3-103.1(2)(c) of the Utah Code Annotated, the Board shall review the qualifications of, and issue certificates of approval to, individuals who: (i) survey mammography equipment; or (ii) oversee quality assurance practices at mammography facilities.</p> <p>This statutory requirement was effective May 8, 2012.</p>
<b>Is Board action required?</b>	Yes.
<b>What is the Division Director’s recommendation?</b>	The Director of the Division of Waste Management and Radiation Control recommends the Board issue a certificate of approval for the applicant reviewed and presented to the Board.
<b>Where can more information be obtained?</b>	Please contact Lisa Mechem, DVM, at 385-454-5471.

WASTE MANAGEMENT AND RADIATION CONTROL BOARD  
 Executive Summary  
 REQUEST FOR A SITE-SPECIFIC TREATMENT VARIANCE  
 EnergySolutions, LLC  
 May 11, 2023

<p><b>What is the issue before the Board?</b></p>	<p>On April 18, 2023, EnergySolutions, LLC submitted a request to the Director of the Division of Waste Management and Radiation Control for a one-time site-specific treatment variance from the Utah Hazardous Waste Management Rules. EnergySolutions seeks authorization to receive an exemption from the treatment standards described in Utah Administrative Code (UAC) R315-40(a)(2) for uranium extraction process residuals encased in cement for macroencapsulation.</p>
<p><b>What is the historical background or context for this issue?</b></p>	<p>EnergySolutions requests approval to receive an exemption from the treatment standards described in Utah Administrative Code (UAC) R315-40(a)(2) for uranium extraction process residuals encased in cement that retain hazardous waste codes D004 (arsenic); D005 (barium); D006 (cadmium); D007 (chromium) D008 (Lead); D010 (Selenium); D011 (Silver); D030 (2,4-dinitrotolunene); D032 (hexachlorobenzene); D033 (hexachlorobutadiene) and F001, F002, and F005 (spent solvents) for macroencapsulation. All other required treatment standards associated with the waste will be met prior to disposal.</p> <p>This variance is being requested for approximately 2,100 cubic feet of cemented uranium extraction process residuals as part of uranium recovery processes at the generator’s facility. The residual waste from each of these processes is collected in small cans (~ 2 ½ gallons each) and stored at the generator’s facility. The process residuals within the cans have been characterized through a random sampling and analysis process. At the beginning of this campaign, approximately 2,000 cans of process residues were collected and stored by the generator.</p> <p>The process is ongoing and additional cans are being generated every year. Further, due to safety concerns, some of the cans are being split prior to the repackaging process described below; thereby generating more total material for disposal.</p> <p>F-listed solvent codes within this waste are derived from rags that are burned in a furnace to recover the uranium present within them. None of the F-listed constituents were present above their respective treatment standard concentrations within the random characterization samples of the process residues. The random characterization samples were also analyzed for metals using the Toxicity Characteristic Leaching Procedure (TCLP). These samples detected elevated concentrations of barium (up to 6,740 mg/L TCLP), cadmium (up to 16.4 mg/L TCLP), chromium (up to 15.2 mg/L TCLP), and lead (up to 10.5 mg/L TCLP). Based on these elevated metal concentrations, the characteristic waste codes D005, D006, D007, and D008 were applied to the process residues. Slightly elevated concentrations of arsenic (D004),</p>



selenium (D010), silver (D011), 2,4-dinitrotoluene (D030), hexachlorobenzene (D032) and hexachlorobutadiene (D033) were also detected in separate analyses. The residue may potentially contain these codes also.

The uranium content within the process residues is enriched. From a health and safety standpoint, the enrichment makes the waste more hazardous to employees managing the waste. Further, the enriched material has increased security concerns and must be managed appropriately. To ensure the enriched uranium concentration limits required for worker safety, security, and transportation of this waste are met, appropriate packaging procedures were created and are currently being utilized at the generator's facility. These packaging procedures include repackaging the cans into 16-gallon drums and filling the void spaces with cement; formal treatment for the elevated metals concentrations is not performed during this process. The generator has assessed other options, including treatment for the hazardous constituents; however, additional processing introduced unacceptable hazards from a health and safety and security viewpoint. Additionally, the waste within the cans is inherently safe from a criticality aspect and the generator concluded that it is unwise to perform extra processing that could potentially change this aspect. Furthermore, encasing enriched uranium within concrete is the preferred method of stabilization as recommended by the Nuclear Regulatory Commission (NRC). The waste material packaged in these 16-gallon monolithic forms is inherently safe and is the form that will be shipped and received at the *EnergySolutions* Clive facility.

The characteristic hazardous waste codes associated with the process residues have numerical concentration-based treatment standards based upon the leachability of the contaminants. Treatment of the monolithic form for these concentration-based treatment standards would entail a process that includes shredding of the monolith followed by mixing with a stabilizing reagent in a permitted mixer. Both steps could mobilize the enriched uranium and possibly cause airborne contamination, increasing the potential for releases to the environment as well as the potential for personnel exposure; thereby violating radiation protection (ALARA - As Low as Reasonably Achievable) principles. Also, the shredding of the solidified uranium ash results in a more accessible form of enriched uranium with potential security ramifications.

*EnergySolutions'* proposes to macroencapsulate the waste, thereby isolating the waste from potential leaching media. Macroencapsulation is a permitted process utilized at the Clive facility that significantly reduces the potential for migration (leaching) of waste.

Macroencapsulation requires less handling of the waste and creates a waste form for disposal that is protective of human health and the environment. Macroencapsulation also adds a further level of security restricting access to the enriched uranium.

	<p>EnergySolutions will manage this waste as debris and final disposal of the waste will occur in the Mixed Waste Disposal Cell at the EnergySolutions Mixed Waste Facility.</p> <p>A notice for public comment was published in the <i>Salt Lake Tribune</i>, the <i>Deseret News</i>, and the <i>Tooele Transcript Bulletin</i> on April 26, 2023. The comment period began April 27, 2023 and will end May 26, 2023.</p>
<b>What is the governing statutory or regulatory citation?</b>	<p>Variances are provided for in 19-6-111 of the Utah Solid and Hazardous Waste Act. This is a one-time site-specific variance from an applicable treatment standard as allowed by R315-268-44 of the Utah Administrative Code.</p>
<b>Is Board action required?</b>	<p>No. This is an informational item before the Board.</p>
<b>What is the Division/Director's recommendation?</b>	<p>The Director will provide a recommendation following the public comment period at the next Board meeting.</p>
<b>Where can more information be obtained?</b>	<p>For technical questions, please contact Tyler Hegburg (385) 622-1875. For legal questions, please contact Bret Randall at (801) 536-0284.</p>

DSHW-2023-003904  
Attachment: DSHW-2023-003881

April 18, 2023

CD-2023-088

Mr. Doug Hansen  
Director  
Division of Waste Management and Radiation Control  
195 North 1950 West  
Salt Lake City, UT 84114-4880

Subject: EPA ID Number UTD982598898 - Request for a Site-Specific Treatment  
Variance for Cemented Uranium Extraction Process Residues

Dear Mr. Hansen,

EnergySolutions herein requests an exemption from the treatment standards described in Utah Administrative Code (UAC) R315-40(a)(2) for uranium extraction process residuals encased in cement that retain the hazardous waste codes D004 (arsenic); D005 (barium); D006 (cadmium); D007 (chromium); D008 (lead); D010 (selenium); D011 (silver); D030 (2,4-dinitrotoluene); D032 (hexachlorobenzene); D033 (hexachlorobutadiene) and F001, F002, and F005 (spent solvents). This exemption is requested for the purposes of safety, security, and transportation of the radioactive waste. This request is submitted in accordance with the requirements of UAC R315-260-19.

The regulatory requirement authorizing this request is found in UAC R315-268-44 which allows a site-specific variance from an applicable treatment standard provided the following condition is met:

*UAC R315-268-44(h)(2) It is inappropriate to require the waste to be treated to the level specified in the treatment standard, or by the method specified as the treatment standard, even though such treatment is technically possible.*

This variance is being requested for approximately 2,100 cubic feet of cemented uranium extraction process residuals from EnergySolutions generator 9061-06. The waste is generated as part of uranium recovery processes at the generator's facility. The generator has three different points of generation for this waste: (1) an enriched uranium contaminated ash that has been thermally processed and then recovered through an organic solvent extraction process; (2) oxide powders and dried sludges associated with highly enriched uranium-thorium fuels; and (3) residue (sludge) from the bottom of salt baths used in the processing of uranium. The residual waste from each of these processes

is collected in small cans (~ 2 ½ gallons each) and stored at the generator's facility. The process residuals within the cans have been characterized through a random sampling and analysis process. At the beginning of this campaign, approximately 2,000 cans of process residues were collected and stored by the generator. The process is ongoing and additional cans are being generated every year. Further, due to safety concerns, some of the cans are being split prior to the repackaging process described below; thereby generating more total material for disposal.

F-listed solvent codes within this waste are derived from rags that are burned in a furnace in order to recover the uranium present within them. None of the F-listed constituents were present above their respective treatment standard concentrations within the random characterization samples of the process residues. The random characterization samples were also analyzed for metals using the Toxicity Characteristic Leaching Procedure (TCLP). These samples detected elevated concentrations of barium (up to 6,740 mg/L TCLP), cadmium (up to 16.4 mg/L TCLP), chromium (up to 15.2 mg/L TCLP), and lead (up to 10.5 mg/L TCLP). Based on these elevated metal concentrations, the characteristic waste codes D005, D006, D007, and D008 were applied to the process residues. Slightly elevated concentrations of arsenic (D004), selenium (D010), silver (D011), 2,4-dinitrotoluene (D030), hexachlorobenzene (D032) and hexachlorobutadiene (D033) were also detected in separate analyses. The residue may potentially contain these codes also.

The uranium content within the process residues is enriched. From a health and safety standpoint, the enrichment makes the waste more hazardous to employees managing the waste. Further, enriched material has increased security concerns and must be managed appropriately. To ensure the enriched uranium concentration limits required for worker safety, security, and transportation of this waste are met, appropriate packaging procedures were created and are currently being utilized at the generator's facility. These packaging procedures include repackaging the cans into 16-gallon drums and filling the void spaces with cement; formal treatment for the elevated metals concentrations is not performed during this process. The generator has assessed other options, including treatment for the hazardous constituents; however, additional processing introduced unacceptable hazards from a health and safety and security viewpoint. Additionally, the waste within the cans is inherently safe from a criticality aspect and the generator concluded that it is unwise to perform extra processing that could potentially change this aspect. Furthermore, encasing enriched uranium within concrete is the preferred method of stabilization as recommended by the Nuclear Regulatory Commission (NRC). The waste material packaged in these 16-gallon monolithic forms is inherently safe and is the form that will be shipped and received at the EnergySolutions Clive facility.

The characteristic hazardous waste codes associated with the process residues has numerical concentration-based treatment standards based upon the leachability of the contaminants. Treatment of the monolithic form for these concentration-based treatment standards would entail a process that includes shredding of the monolith followed by mixing with a stabilizing reagent in a permitted mixer. Both of these steps could mobilize the enriched uranium and possibly cause airborne contamination, increasing the potential for releases to the environment as well as the potential for personnel exposure; thereby violating radiation protection (ALARA – As Low As Reasonably Achievable) principles. Also, the shredding of the solidified uranium ash results in a more accessible form of enriched uranium with potential security ramifications.

EnergySolutions proposes to macroencapsulate the waste, thereby isolating the waste from potential leaching media. Macroencapsulation is a permitted process utilized at the Clive facility that significantly reduces the potential for migration (leaching) of waste. Macroencapsulation requires less handling of the waste and creates a waste form for disposal that is protective of human health and the environment. Macroencapsulation also adds a further level of security restricting access to the enriched uranium.

In summary, a variance should be granted based upon three considerations:

1. for both health and security reasons, the enriched uranium concentration within the waste precludes actual treatment of the waste;
2. processing this waste in preparation for stabilization treatment would increase worker exposures and the potential for releases to the environment; and
3. the leachability of the waste would be significantly reduced through macroencapsulation, thereby protecting human health and the environment.

EnergySolutions requested this same variance for this generator in letters dated July 20, 2007; July 28, 2008; July 15, 2009; July 15, 2010; July 28, 2011; August 13, 2012; July 15, 2013; July 25, 2015; November 4, 2015; October 27, 2016; November 20, 2018; December 9, 2019; January 11, 2021; and March 22, 2022. These previous requests were approved on September 13, 2007; September 13, 2008; September 10, 2009; September 9, 2010; September 8, 2011; September 13, 2012; September 12, 2013; August 14, 2014; December 10, 2015; November 9, 2017; January 10, 2019; March 12, 2020; April 8, 2021; and June 9, 2022 respectively.

Shipments began in April, 2008 and have been relatively continuous since that time. Since the last variance was approved, EnergySolutions has received approximately 2,084 cubic feet of this waste (the 16-gallon monoliths). EnergySolutions has received approximately 15,000 cubic feet of this waste since the first variance approval in 2008. This variance request is for the ongoing processing and disposal of additional uranium extraction process residues created by the generator.

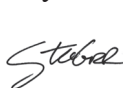
EnergySolutions requests that a variance be granted to allow the receipt, macroencapsulation treatment and disposal of approximately 2,100 cubic feet of cemented uranium extraction process residuals that retain hazardous waste codes. Upon approval of this variance, the monolithic waste will be managed as debris.

The name, phone number, and address of the person who should be contacted to notify EnergySolutions of decisions by the Director is:

Mr. Vern C. Rogers  
Director of Regulatory Affairs  
EnergySolutions LLC  
299 South Main Street, Suite 1700  
Salt Lake City, UT 84111  
(801) 649-2000

Should there be any questions to this request, please contact me at 801-649-2043.

Sincerely,



Digitally signed by Steve  
D. Gurr  
Date: 2023.04.18 15:41:27  
-06'00'

Steve D. Gurr  
Environmental Engineer

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

WASTE MANAGEMENT AND RADIATION CONTROL BOARD  
 Executive Summary  
 REQUEST FOR A SITE-SPECIFIC TREATMENT VARIANCE  
 EnergySolutions, LLC  
 May 11, 2023

<p><b>What is the issue before the Board?</b></p>	<p>On April 11, 2023, EnergySolutions, LLC submitted a request to the Director of the Division of Waste Management and Radiation Control for a one-time site-specific treatment variance from the Utah Hazardous Waste Management Rules. EnergySolutions seeks authorization to receive an exemption from Utah Administrative Code (UAC) R315-268-40 and R315-268-45 for the direct macroencapsulation treatment of approximately 1200 lbs. of lithium and lithium-ion batteries.</p>
<p><b>What is the historical background or context for this issue?</b></p>	<p>Lithium and lithium-ion batteries typically exhibit the hazardous characteristics of ignitability (D001) and reactivity (D003).</p> <p>Regulations in UAC R315-268-40 (40 CFR 268.40, 2015 Edition, incorporated by reference) require that these characteristic hazards be deactivated to remove the characteristic prior to land disposal. As an alternative, UAC R315-268-45 allows hazardous debris to be treated using an immobilization technology (e.g., macroencapsulation). However, the U.S. Environmental Protection Agency (USEPA) has ruled that intact batteries are containers and not considered debris. Furthermore, the definition of macroencapsulation in UAC R315-268-42 states that “Macroencapsulation specifically does not include any material that would be classified as a tank or container.”</p> <p>In order to meet the regulatory standards described above, lithium and lithium-ion batteries would need to be shredded and mixed with chemicals to deactivate them; or punctured (and then considered debris) to macroencapsulate them. Both activities (shredding and puncturing) severely agitate the waste and would expose the reactive portion of the waste to open air which could cause an adverse reaction or explosion. Although this type of waste management is possible, from a safety and health standpoint, it is inappropriate.</p> <p>EnergySolutions proposes to manage this waste by directly macroencapsulating the intact batteries. Macroencapsulation is a permitted treatment technology that isolates hazardous waste from the environment, eliminating the potential for harmful reactions from exposure to the environment. Macroencapsulation requires less handling of the waste and creates a waste form for disposal that is protective of human health and the environment.</p> <p>Final disposal of the waste will occur in the Mixed Waste Disposal Cell at the EnergySolutions Mixed Waste Facility.</p>

	<p>A notice for public comment was published in the <i>Salt Lake Tribune</i>, the <i>Deseret News</i>, and the <i>Tooele Transcript Bulletin</i> on April 26, 2023.</p> <p>The comment period began April 27, 2023 and will end May 26, 2023.</p>
<b>What is the governing statutory or regulatory citation?</b>	<p>Variances are provided for in 19-6-111 of the Utah Solid and Hazardous Waste Act. This is a one-time site-specific variance from an applicable treatment standard as allowed by R315-268-44 of the Utah Administrative Code.</p>
<b>Is Board action required?</b>	<p>No. This is an informational item before the Board.</p>
<b>What is the Division/Director's recommendation?</b>	<p>The Director will provide a recommendation following the public comment period at the next Board meeting.</p>
<b>Where can more information be obtained?</b>	<p>For technical questions, please contact Tyler Hegburg (385) 622-1875. For legal questions, please contact Bret Randall at (385) 414-0891.</p>

DSHW-2023-003860  
Attachment: DSHW-2023-003598



**DSHW-2023-003598**

April 11, 2023

CD-2023-081

Mr. Doug Hansen  
Director  
Division of Waste Management and Radiation Control  
195 North 1950 West  
Salt Lake City, UT 84114-4880

Subject: EPA ID Number UTD982598898  
Request for a Site-Specific Treatment Variance for the Macroencapsulation of  
Lithium and Lithium-Ion Batteries

Dear Mr. Hansen:

EnergySolutions herein requests an exemption from Utah Administrative Code (UAC) R315-268-40 and R315-268-45 for the direct macroencapsulation treatment of lithium and lithium-ion batteries. This request is being submitted in accordance with the requirements of UAC R315-260-19.

The regulatory requirement authorizing this request is found in UAC R315-268-44 which allows a site-specific variance from an applicable treatment standard provided that the following condition is met:

*UAC R315-268-44(h)(2) It is inappropriate to require the waste to be treated to the level specified in the treatment standard or by the method specified as the treatment standard, even though such treatment is technically possible.*

Lithium and lithium-ion batteries typically exhibit the hazardous characteristics of ignitability (D001) and reactivity (D003). Regulations in UAC R315-268-40 (40 CFR 268.40, 2015 Edition, incorporated by reference) require that these characteristic hazards be deactivated to remove the characteristic prior to land disposal. As an alternative, UAC R315-268-45 allows hazardous debris to be treated using an immobilization technology (e.g., macroencapsulation). However, the Environmental Protection Agency (EPA) has ruled that intact batteries are containers and not considered debris (see attached letter dated November 10, 1993). Furthermore, the definition of macroencapsulation in R315-268-42 states that “[M]acroencapsulation specifically does not include any material that would be classified as a tank or container.”

In order to meet the regulatory standards described above, lithium and lithium-ion batteries would need to be shredded and mixed with chemicals to deactivate them; or punctured (and then considered debris) to macroencapsulate them. Both of these activities (shredding and puncturing) severely agitate the waste and would expose the reactive portion of the waste to open air which

could cause an adverse reaction or explosion. Although this type of waste management is possible, from a safety and health standpoint, it is inappropriate.

EnergySolutions proposes to manage this waste by directly macroencapsulating the intact batteries. Macroencapsulation is a permitted treatment technology that isolates hazardous waste from the environment, eliminating the potential for harmful reactions from exposure to the environment. Macroencapsulation requires less handling of the waste and creates a waste form for disposal that is protective of human health and the environment.

EnergySolutions requested this same variance previously in letters dated March 17, 2021 (CD-2021-039) and March 22, 2022 (CD-2022-062). This request was approved on May 13, 2021 (DSHW-2021-007602) and June 9, 2022 (DSHW-2022-015603). EnergySolutions has received approximately 900 lbs. of this waste since the variance was approved in 2022. This variance request is for the ongoing processing and disposal of additional lithium and lithium-ion batteries.

EnergySolutions requests that a variance be granted to allow the receipt, macroencapsulation treatment and disposal of approximately 1200 lbs. of lithium and lithium-ion batteries.

The name, phone number, and address of the person who should be contacted to notify EnergySolutions of decisions by the Director is

Mr. Vern Rogers  
Director of Regulatory Affairs  
EnergySolutions LLC  
299 South Main Street, Suite 1700  
Salt Lake City, UT 84111  
(801) 649-2000

Should there be any questions to this request, please contact me at (801) 649-2043.

Sincerely,



Digitally signed by Steve D.  
Gurr  
Date: 2023.04.11 14:33:02  
-06'00'

Steve D. Gurr  
Environmental Engineer and Manager

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

9441.1993(23)

## REGULATORY STATUS OF BATTERY CARCASSES

United States Environmental Protection Agency  
Washington, D.C. 20460  
Office of Solid Waste and Emergency Response

November 10, 1993

Mr. Christopher L. Freed  
Chemical Waste Management, Inc.  
Manager - Environmental Regulations  
3001 Butterfield Road  
Oak Brook, Illinois 60521

Dear Mr. Freed:

Thank you for your letter of April 30, 1993 summarizing your meeting of April 29, 1993 with Richard Kinch of my staff. Upon further investigation of this issue since the receipt of your letter, however, it is clear that battery carcasses do not qualify as debris. They are considered to be containers, as explained below.

As discussed in detail in the preamble to the final rule establishing alternate treatment standards for hazardous debris, intact containers are not debris, and hence are not subject to the treatment standards for debris. 57 FR 37225 (August 18, 1992). In addition, in previous rulemakings EPA has stated that battery casings designed to hold free liquids for use other than storage are containers. I refer you specifically to 40 CFR 264.314(d)(3); 265.314(c)(3); and 55 FR 22637/2 (June 1, 1990). Thus, such intact battery casings are not debris.

In your letter, you state that EPA suggested, elsewhere in the preamble to the final debris rule, that batteries could be debris unless they are subject to a specific treatment standard. I believe you have based this statement on the discussion at 57 FR 37222 and footnote 10, which gives "lead acid or cadmium batteries" as an example of a debris subject to a specific treatment standard. Unfortunately, you then draw the inference that because mercury batteries are not mentioned in this footnote, they are therefore debris.

This is an incorrect conclusion. First, please note that the actual regulatory language does not contain the example of the lead acid battery. 57 FR at 37270. More important, as explained above, intact containers are never classified as debris. Consequently, the example in footnote 10 refers only to lead acid or cadmium batteries that are not intact. Such batteries would still not be subject to the treatment standards for debris because there is a more specific treatment standard for lead acid or cadmium batteries. The footnote does not, however, in any way vitiate the general principle that intact containers are not debris and that batteries are types of containers.

I hope this response, based on a thorough examination of the issue of concern, is helpful. If you need further information, please contact Richard Kinch, Chief of the Waste Treatment Branch in our Waste Management Division at (703) 308-8434.

Sincerely,  
Bruce R. Weddle  
Acting Director  
Office of Solid Waste