

MEETING MINUTES APPROVED JULY 13, 2023

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
June 8, 2023
1:30 p.m.

Board Members Participating at Anchor Location: Brett Mickelson (Chair), Dennis Riding (Vice-Chair),
Mark Franc, Jeremy Hawk, Nathan Rich,
Vern Rogers, Shane Whitney

Board Members Participating Virtually: Dr. Richard Codell

Board Members Excused: Danielle Endres, Dr. Steve McIff, Kim Shelley, Scott Wardle

UDEQ Staff Members Participating at Anchor Location:

Brent Everett, Dr. Stevie Norcross, Tom Ball, Nicole Chavez, Tyler Hegburg, Avery Holyoak, Jalynn Knudsen, Arlene Lovato, Mike Pecorelli, Elisa Smith, Otis Willoughby

Others Attending at Anchor Location: Steve Gurr and Tim Orton

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. Declaration of Conflict of Interest.

Vern Rogers recused himself from discussion and voting on Board action agenda items (VIII. A. & B.) regarding EnergySolutions.

IV. Introduction of new Board member Jeremy Hawk.

Dr. Norcross, Assistant Division Director in the Division of Waste Management and Radiation Control, welcomed and introduced Mr. Jeremy Hawk.

Mr. Hawk fills the last vacant Board seat as a representative who is a professional employed in the field of radiation safety. Mr. Hawk has previously served on this Board and was first appointed in 2015, but his term was shortened as he left for a military assignment. Mr. Hawk has been reappointed by the Governor and confirmed by the Senate and has completed his Board member training with the Division of Environmental Response and Remediation, the Division of Waste Management and Radiation Control, and the Office of the Attorney General. Training topics included conflicts of interest and ethics. Mr. Hawk's new term will expire in 2027.

Mr. Hawk informed the Board that he is a certified health physicist and has been a hospital Radiation Safety Officer for the last 20 years and is happy to be reappointed to serve on the Board.

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V. Approval of meeting minutes for the May 11, 2023, Board meeting (Board Action Item).

It was moved by Mark Franc and seconded by Shane Whitney and UNANIMOUSLY CARRIED to approve the May 11, 2023 Board meeting minutes.

VI. 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 Fund for the end of May 2023, is \$30,105,505.00. Mr. Everett also reported that June 30, 2023, is the deadline for aboveground petroleum storage tanks (APSTs) to meet the financial assurance requirement and obtain a certificate of compliance. The DERR has been conducting outreach and education to owners and operators of the regulated APSTs. The DERR is extending enforcement discretion to facilities who are working in good faith to obtain the required testing necessary for compliance. There were no comments or questions.

VII. X-Ray Program.

A. Approval of an exemption from Utah Administrative Code R313-28-31(5) requiring portable or mobile X-ray equipment to be used only if it is impractical to transfer the patient to a stationary radiographic installation (Board Action Item).

Tom Ball, Planning and Technical Support Section Manager in the Division of Waste Management and Radiation Control (Division), reviewed the request for the Board's approval of an exemption from Radiation Control Rules Utah Administrative Code (UAC) R313-28-31(5), which restricts the use of portable or mobile equipment only for examinations if it is impractical to transfer a patient to a stationary radiographic installation. This rule exists because a normal patient room in a hospital or clinic is typically not shielded, like an X-ray room would be where a fixed unit would be located. This rule is in place to ensure that the mobile units are only used in uncommon cases where there is no way to move a patient and take other precautions to ensure others that are not subject to the X-ray are not exposed.

This exemption request comes from Main Street Family Medicine. This is a small practice located in the rural town of Enterprise, Utah. The facility has one general purpose mobile X-ray unit.

The reasons for the exemption are as follows: 1) The nearest hospitals with stationary installations are 45 miles away in Cedar City or 50 miles away in St. George. 2) This facility frequently triages and treats patients for which it is not practical or necessary for them to travel the long distance to the nearest facility with a fixed/stationary installation. 3) Because the facility is in a rural part of the state, it is cost prohibitive to install fixed equipment; and essentially, the cost of fixed equipment would have been the same as the cost of their building, thus doubling the cost to build their facility. 4) However, unlike the typical situation in a normal hospital or clinic, the room where they use their mobile X-ray unit has been shielded. The shielding design was performed by a registered Utah Qualified Expert and has been reviewed by Division staff.

This is a Board Action. In accordance with UAC R313-12-55, the Board may grant exemptions or exceptions from the requirements of the Radiation Control Rules if the exemption will not result in undue hazards to public health and safety or the environment.

Based on the Division's review of this request, the Director of the Division of Waste Management and Radiation Control believes that the use of a mobile X-ray unit by Main Street Family Medicine will not result in undue hazards to public health and safety or the environment and recommends that the Board issue an exemption from UAC R313-28-31(5) to Main Street Family Medicine.

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Mark Franc stated that his question is related to the need for an exemption. As the rules allow for the use of the mobile equipment if it is impractical to transfer the patient, and it sounds like just the facilities location and conditions make it somewhat impractical, he is wondering why this situation would require an exception to the rule.

Mr. Ball stated that he felt it was appropriate to request the exemption to cover all the bases if in the future there is any concern regarding why this facility was allowed to use a mobile unit, where they do not have a fixed unit. Specifically, this request is more of a formality to ensure transparency of this matter.

Shane Whitney requested clarification as information provided indicated this is a portable unit, but the room it is utilized in has all the shielding protection a fixed unit would require and asked if that was correct.

Mr. Ball stated that Mr. Whitney's assessment is correct, as the room where the facility uses their mobile X-ray unit has been shielded.

Dr. Codell stated he had the same opinions that Mr. Franc had that it ought to be clear in the rule because the reason for this exemption is that the closest installations are 45 miles away and it seems like just to reduce the burden on the user, the rule itself makes that clear/justifies it.

Nathan Rich stated that it seems like the issue is less about it being regulated as a mobile unit but it is in a fully shielded room and asked if there is something in the exemption that it is a requirement that the unit is only to be used in a shielded room? Mr. Rich asked if the unit could be removed and utilized elsewhere appropriately as a mobile unit if required and thinks more about the regulation as any machine either mobile or fixed should be allowed to operate without exemption in a shielded room.

Mr. Ball stated that the facility can move the equipment, but the Board could impose the restriction on the facility that the equipment would have to be utilized only in that shielded room. That restriction could be incorporated into the approval of the exemption.

Mr. Rich stated that he would not make that recommendation because there may be times when the facility may opt to use it as mobile unit and is comfortable with the exemption without further restrictions.

It was moved by Mark Franc and seconded by Nathan Rich and UNANIMOUSLY CARRIED to approve Main Street Family Medicine's request for an exemption from Utah Administrative Code R313-28-31(5) requiring portable or mobile X-ray equipment to be used only if it is impractical to transfer the patient to a stationary radiographic installation.

VIII. Low-Level Radioactive Waste.

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 (Board Action Item).***

Tyler Hegburg, Environmental Scientist, Low-Level Radioactive Section, Division of Waste Management and Radiation Control, reviewed 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.

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Mr. Hegburg reminded the Board that during the May 11, 2023 Board meeting, *EnergySolutions* presented to the Board, as an informational item, a request for an exemption from the treatment standards in Utah Administrative Code (UAC) R315-268-40(a)(2) for macroencapsulation of approximately 2,100 cubic feet of cemented uranium extraction process residuals that contain several hazardous waste codes including arsenic, barium, cadmium, chromium, lead, selenium, silver, and others including spent solvents for F001, F002, and F005. All other required treatment standards associated with the waste will be met prior to disposal. The exemption is requested for the purposes of safety, security, and transportation of the radioactive waste.

Mr. Hegburg informed the Board that the generator has three different points of generation for this waste and the generators facility this processes include: 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. This is an ongoing process where approximately 2,100 cans of process residues were collected and stored by the generator. The process is ongoing and additional 2 ½-gallon cans are being generated every year.

The 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, cadmium, chromium and lead. Based on these elevated metal concentrations, the appropriate characteristic waste codes were applied to the process residues. Slightly elevated concentrations of arsenic, selenium, silver, 2,4-dinitrotoluene, hexachlorobenzene and hexachlorobutadiene were also detected in separate analyses.

The uranium content within the process residues is enriched in nature. 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 will be utilized.

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 had assessed other options, which included treatment for the hazardous constituents; however, additional processing introduced unacceptable hazards from a health and safety and security standpoint. In addition, the waste within the cans is inherently safe from a criticality aspect and the generator concluded that it is unwise to conduct extra processing that could potentially change this aspect. The waste material packaged within the 16-gallon monolithic forms is inherently safe and is the form that the material 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

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contamination, increasing the potential for releases to the environment as well as the potential for personnel exposure.

Furthermore, the shredding process of the solidified uranium ash results in a more accessible form of enriched uranium with potential security risks and ramifications.

EnergySolutions proposes to macroencapsulate the waste, which is a permitted process that would significantly decrease the leaching of the waste that requires less handling and keeps the uranium in monolith form encased in additional material, further restricting access to the enriched uranium, and creates a waste form that is protective of human health and the environment.

Final disposal of the waste will occur in the Mixed Waste Disposal Cell at the *EnergySolutions* Mixed Waste Facility.

A notice for public comment was published in the *Salt Lake Tribune*, the *Deseret News*, and the *Tooele Transcript Bulletin* on April 26, 2023. The comment period began April 27, 2023 and ended May 26, 2023. No comments were received.

This is an action item before the Board. The Director recommends approval of this variance request. The Director's recommendation is based on the following findings: the proposed alternative treatment method meets the regulatory basis for a variance and will be as safe to human health and the environment as the required method. There were no comments or questions.

It was moved by Dennis Riding and seconded by Shane Whitney and UNANIMOUSLY CARRIED to approve *EnergySolutions, LLC* request for a site-specific treatment variance from the Hazardous Waste Management Rules to receive uranium extraction process residuals encased in cement for macroencapsulation. Vern Rogers abstained from voting.

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 (Board Action Item).

Tyler Hegburg, Environmental Scientist, Low-Level Radioactive Section, Division of Waste Management and Radiation Control, reviewed *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.

Mr. Hegburg reminded the Board that during the May 11, 2023, Board meeting, *EnergySolutions* presented to the Board as an informational item a variance request to treat for disposal by direct macronencapsulation approximately 1200 lbs. of lithium and lithium-ion batteries.

Lithium and lithium-ion batteries typically exhibit the hazardous characteristics of ignitability (D001) and reactivity (D003). Regulations in UAC R315-268-40 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. 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."

For *EnergySolutions* 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)

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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 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. Final disposal of the waste will occur in the Mixed Waste Disposal Cell at the EnergySolutions Mixed Waste Facility.

A notice for public comment was published in the *Salt Lake Tribune*, the *Deseret News* and the *Tooele Transcript Bulletin* on April 26, 2023. The comment period began April 27, 2023 and ended May 26, 2023. No comments were received.

This is an action item before the Board. The Director recommends approval of this variance request. The Director's recommendation is based on the following findings: the proposed alternative treatment method meets the regulatory basis for a variance and will be as safe to human health and the environment as the required method.

Mark Franc stated that his inquiry is in regard to how the facility operates, as he can picture these containers coming into a nice concrete cell, forklift puts the containers in a cell, and concrete is poured over them into a well-maintained cell, but he realizes that is not normally the case at most landfills as most waste is just dumped and asked how the process is completed. Mr. Steve Gurr, EnergySolutions representative explained EnergySolutions process of macroencapsulation.

It was moved by Dennis Riding and seconded by Nathan Rich and UNANIMOUSLY CARRIED to approve EnergySolutions, LLC request for a site-specific treatment variance from the Hazardous Waste Management Rules to receive lithium and lithium-ion batteries for direct Macroencapsulation treatment. Vern Rogers abstained from voting.

IX. Other Business.

A. Miscellaneous Information Items

Mr. Hegburg stated that during the last variance presentation, Dr. Codell asked if there had been any research done in the potential reaction between the uranium and cement. Mr. Hegburg has reached out to EnergySolutions, and they have discovered that there have been some past studies done on depleted uranium chips encased in cement that were not coming to the Clive facility and came to the conclusion that routing the uranium waste in the cement was the safest way to manage it. Mr. Hegburg asked Dr. Codell if that was sufficient information or if he needed additional information on this matter.

Dr. Codell questioned if there were documents available for review that would confirm that it is a stable mixture and has low leachability, etc.

Mr. Hegburg stated that through EnergySolutions contacts with government facilities on the topic of uranium cement reactive, they have come to the conclusion that additional research into this topic is not necessary, even if the cans deteriorate to the point where the waste can contact the soil.

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Dr. Codell stated because he has not seen the findings, it does not satisfy his request and asked if there was any documentation on the findings that could be reviewed by the Board members or DEQ staff.

Mr. Hegburg stated he can request the studies found by *EnergySolutions* and provide additional information as needed.

Dr. Codell stated he would like to actually see it in print and have a chance to examine it – even a cursory examination would be better than nothing.

Mr. Hegburg stated that he will see what he can do to provide additional physical reading material and provide it at the next Board meeting.

Dr. Codell thanked Mr. Hegburg for all his efforts regarding this matter.

Dr Norcross stated that several board members terms will expire in September of this year. Those Board members include Chairman Mickelson, Dr. Richard Codell, Daniel Endres, Nathan Rich, Vern Rogers, and Shane Whitney. Dr. Norcross asked those who are interested in continuing on with the Board to please coordinate with Arlene Lovato and she will assist them through the reappointment process. Ms. Lovato has put together an instruction sheet on how to reapply and will reach out to these interested Board members in the next couple weeks.

Dr. Codell stated that he is interested in reapplying and requested the necessary paperwork; Arlene Lovato will provide him the necessary paperwork to reapply.

Dr. Norcross notified the Board that it is anticipated that there will not be any agenda items for the August Board meeting and anticipates it to be cancelled, pending any pressing agenda items.

Dr. Norcross announced that the Division of Waste Management and Radiation Control's, Corrective Action Section, is very close to completing a companion guide for the Risk Based Closure Rule under Utah Administrative Code (UAC) R315-101. This guide is titled "The Technical Guide for Risk Assessments" or "TGRA". This guide is intended to assist facilities in navigation of UAC R315-101 and how to perform risk assessments. This guide will be available within the next several weeks on the Division's website. Dr. Norcross stated that this is a large, detailed document and a significant amount of effort has been put into creating it and thinks it will be helpful for the public and primarily for the facilities that are performing these risk assessments to understand how that rule works.

Chairman Mickelson congratulated the Division for the completion of this guide.

B. Scheduling of next Board meeting (July 13, 2023).

The next meeting is scheduled for July 13, 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
Or by phone: (US) +1 978-593-3748 PIN: 902 672 356#

X. Adjourn.

The meeting adjourned at 2:05 pm.