

Waste Management and Radiation Control Board Meeting
Utah Department of Environmental Quality
195 North 1950 West (Conference Room #1015) SLC, Utah
September 13, 2018
1:30 p.m.

- Board Members Present:** Brett Mickelson (Chair), Dennis Riding (Vice-Chair), Richard Codell, Danielle Endres, Marc Franc, Jeremy Hawk, Alan Matheson, Steve McIff, Shawn Milne, Nathan Rich, Vern Rogers and Shane Whitney
- Board Members Absent:** None
- Staff Members Present:** Rusty Lundberg, Rick Saathoff, Tom Ball, Carlee Christoffersen, Ed Costomiris, David Esser, Arlene Lovato, Kacie McNeil, Allan Moore, Deborah Ng, Bret Randall, Elisa Smith, Don Verbica, Otis Willoughby, Raymond Wixom
- Others Present:** Thomas Brown, George Chapman, Ben Clayton, Steve Erickson, Jeff W. Green, Jeff Havlicak, Steve Jensen, Art King, Cindy King, Reid Lewis, Gary Merrell, Tim Orton, Adam Packard, Jessica Reimer, Dan Shrum, Ashley Soltysiak, Brent Stephens, Scott Williams

I. Call to Order.

Brett Mickelson (Chair) welcomed all in attendance and called the meeting to order at 1:30 p.m. All Board members were present.

II. Approval of the Meeting Minutes for the July 12, 2018 Board meeting (Board Action Item).

It was moved by Danielle Endres and seconded by Shane Whitney and UNANIMOUSLY CARRIED to approve the July 12, 2018 Board Meeting minutes.

III. Approval of the Meeting Minutes for the August 30, 2018 Emergency Board meeting (Board Action Item).

It was moved by Mark Franc and seconded by Shawn Milne and UNANIMOUSLY CARRIED to approve the August 30, 2018 Emergency Board Meeting minutes.

IV. Presentation by Attorney General's Office on Conflict of Interest.

Raymond Wixom, Attorney General's Office, made a presentation to the Board regarding conflicts of interest under the Utah Public Officers and Public Employees' Ethics Act at the Board Chair's request. Mr. Wixom explained that, in making his presentation, he was acting as counsel to the Board. Later in the meeting, he will be before the Board as counsel to the Director of the Division of Waste Management and Radiation Control.

Mr. Wixom informed that Board that neither he nor any other representative of the Attorney General's Office can represent any of the Board members in their individually capacities. They cannot advise Board members individually on potential conflicts of interest. The Board members must talk to their own attorney to get legal advice concerning conflicts of interest.

Members of the Waste Management and Radiation Control Board are Public Officers under the Utah Public Officers' and Employees' Ethics Act, Utah Code 67-16. A public officer who is an officer, agent, employee, or owner of a substantial interest in any business entity that is subject to regulation by the agency (Department of Environmental Quality) must disclose his position with that entity and the precise nature and value of his interest. Utah Code Ann. 67-16-7. Board members disclosed this information when they became members of the Board.

Section 19-6-103 of the Solid and Hazardous Waste Act requires that the Board be composed of members who may, and probably do, have conflicts of interest as defined in the Ethics Act. The Legislature wanted the Board to include

people who have expertise in such areas as mining, hazardous waste management, and radioactive waste management. The Legislature also wanted the Board to include someone who has expertise in public health, someone who is not connected with industry, and someone who is a professional engineer.

R305-9 of the Utah Administrative Code (Recusal of a Board Member for Conflict of Interest) addresses how Board members with conflicts of interest comply with the Ethics Act. Mr. Wixom requested that each Board member receive a copy of this rule. Mr. Wixom reviewed the rule.

Nathan Rich asked if Board counsel could provide a legal opinion to the Board. Mr. Wixom stated that the Board can ask him for his legal opinion, but one thing he will not do is try to substitute his judgment for the Board's judgment. He will inform the Board of what the law states and provide them with the reasonable choices available to them, but will not tell them how they need to act or proceed on any matter before them.

V. Underground Storage Tanks Update.

Rick Saathoff, Environmental Scientist with the Underground Storage Tank Branch of the Division of Environmental Response and Remediation (DERR) informed the Board that the cash balance of the Petroleum Storage Tank (PST) Trust Fund at the end of July 2018 was \$13,640,164.00. The preliminary estimate for the cash balance of the PST Trust Fund for the end of August 2018 is \$14,122,270.00. The PST Trust Fund is managed on a cash balance basis to ensure sufficient coverage for known claims that have been reported. The balance of the PST Trust Fund is watched closely to ensure sufficient coverage for covered releases.

Mr. Saathoff informed the Board that the DERR has submitted data for the annual PST Trust Fund actuarial report. A final report should be received by the end of September or early October 2018. There were no questions or comments on the PST Trust Fund balance or actuarial report.

VI. Administrative Rules.

A. Final adoption of proposed changes to the Used Oil Rules R315-15-16, Grants, to provide additional clarity and more detailed direction regarding the grant application, grant issuance, implementation and reimbursement processes (**Board Action Item**).

Deborah Ng, Hazardous Waste Section Manager, reviewed the request for the Board to approve for final adoption changes to R315-15-16, *Grants*, of the Used Oil Rules.

At the July 12, 2018 Board meeting, the Board approved proposed changes to R315-15-16 to be filed with the Office of Administrative Rules for publication in the *Utah State Bulletin*. The proposed changes were published in the August 1, 2018 issue of the *Bulletin* (Vol. 2018, No. 15). No public comments were received.

It was recommended that the Board approve final adoption of the rule changes to R315-15-16, as published in the August 1, 2018 issue of the *Utah State Bulletin* and set an effective date of September 14, 2018.

It was moved by Dennis Riding and seconded by Shawn Milne and UNANIMOUSLY CARRIED to approval for final adoption of proposed changes to the Used Oil Rules R315-15-16, Grants, with an effective date of September 14, 2018.

B. Final adoption of proposed changes to the Hazardous Waste Rules R315-260, Hazardous Waste Management System and R315-261, General Requirements – Identification and Listing of Hazardous Waste, to incorporate federal regulatory changes promulgated by the Environmental Protection Agency (EPA) and published in the Federal Register on May 30, 2018 (83 FR 24664) (**Board Action Item**).

Tom Ball, Planning and Technical Support Section Manager, reviewed the request for the Board to approve for final adoption changes to UAC R315-260 and R315-261 to incorporate federal regulatory changes promulgated by the Environmental Protection Agency (EPA) and published in the Federal Register on May 30, 2018 (83 FR 24664).

At the July 12, 2018 Board meeting, the Board approved the proposed changes to UAC R315-260 and R315-261 to be filed with the Office of Administrative Rules for publication in the *Utah State Bulletin*. The proposed rule changes were published in the August 1, 2018 issue of the *Utah State Bulletin* (Vol. 2018, No. 15). The comment period ended on August 31, 2018. No comments were received.

It was recommended that the Board approve final adoption of the rule changes to UAC R315-260 and R315-261 as published in the August 1, 2018 issue of the *Utah State Bulletin* and set an effective date of September 14, 2018 (this date was incorrectly identified as September 21, 2018 in the Executive Summary provided to the Board).

It was moved by Shawn Milne and seconded by Danielle Endres and UNANIMOUSLY CARRIED to approval for final adoption proposed changes to the Hazardous Waste Rules R315-260, Hazardous Waste Management System and R315-261, General Requirements –Identification and Listing of Hazardous Waste, to incorporate federal regulatory changes promulgated by the EPA with an effective date of September 14, 2018.

C. Approval to proceed with formal rulemaking and public comment on proposed changes to Solid Waste Rules R315-301, to add a new subsection (R315-301-7) to establish self-inspection requirements in accordance with Section 19-6-109 of the Solid and Hazardous Waste Act (**Board Action Item**).

Allan Moore, Solid Waste Section Manager, reviewed the request for approval from the Board to proceed with formal rulemaking and public comment by filing with the Office of Administrative Rules and publishing in the *Utah State Bulletin* proposed changes to UAC R315-301-7, Self-Inspection of Solid Waste Management Facility.

In the 2018 General Session, the Legislature passed House Bill 373, Waste Management Amendments. The bill requires the Division to establish rules for self-inspection of solid waste management facilities. The proposed rule, UAC R315-301-7, outlines the requirements for solid waste management facilities that elect to perform self-inspections.

Board approval is necessary to begin the formal rulemaking process by filing the appropriate documents with the Office of Administrative Rules for publishing the proposed rule changes in the *Utah State Bulletin* and conducting a public comment period.

It was recommended that the Board approve formal rulemaking and public comment by publishing in the *Utah State Bulletin* the proposed changes to UAC R315-301-7 on October 1, 2018. This matter will be brought back to the Board once the comment period has ended.

Richard Codell asked if other agencies allow self-inspections. Mr. Moore was not aware of any state agencies that allow self-inspections. The Division will be conducting its own inspections as well. Those wanting to self-inspect will be required to complete a Division training program. Rusty Lundberg clarified that this matter is specific to solid waste facilities, so no radioactive facilities are included.

Dennis Riding asked if these self-inspections were in lieu of or in addition to inspections by the Division. Mr. Moore explained that the self-inspections are in addition to Division inspections. At this time, no facility has requested to self-inspect.

Brett Mickelson commented that those facilities wanting to self-inspect would likely be industrial facilities rather than Class MSW or C&D facilities.

Mr. Riding asked if the rules would set out standards on how inspections will be conducted and qualifications for inspectors. Mr. Moore stated that all those issues will be included in the training program conducted by the Division.

It was moved by Mark Franc and seconded by Dennis Riding and UNANIMOUSLY CARRIED to approve formal rulemaking and public comment on proposed changes to Solid Waste Rules R315-301, to add a new subsection (R315-301-7) to be published in the October 1, 2018 *Utah State Bulletin*.

VII. Hazardous Waste Section.

- A. Approval of proposed Stipulation and Consent Order between the Board and Jordan Valley Water Conservancy District (**Board Action Item**).

Ms. Ng and Mr. Wixom reviewed the request for the Board to approve proposed Stipulation and Consent Order (SCO), No. 1807055, to resolve Notices of Violation Nos. 1709022 and 1806048 issued to the Jordan Valley Water Conservancy District (JVWCD). The SCO includes a penalty of \$64,965. A copy of the SCO was included in the Board's September 13, 2018 Board packet.

On September 22, 2017, the Director issued Notice of Violation and Compliance Order (NOV/CO), No. 1709022, to the JVWCD for the following violations: (1) Failure to have the required wording on hazardous waste containers; (2) Failure to mark hazardous waste containers with accumulation dates; (3) Failure to obtain an EPA identification number prior to transporting and storing hazardous waste; (4) Transporting hazardous waste without a manifest; and (5) Disposing of solid waste without a permit.

On June 20, 2018, the Director also issued Notice of Violation 1806048 to the JVWCD for failure to submit a draft Sampling and Analysis Plan for the Director's review by the date ordered in the previously issued NOV/CO.

A 30-day public comment period on the proposed SCO began on August 10, 2018 and ended on September 10, 2018. No comments were received. It was recommended that the Board approve SCO No. 1807055.

Dennis Riding asked why the JVWCD was conducting work relative to hazardous waste. Ms. Ng stated that a contractor for JVWCD was sand blasting water tanks and generated the waste. Mr. Riding asked how the waste was disposed. Ms. Ng stated that the solid waste portion of the waste stream was disposed on a residential property.

Danielle Endres asked how the penalty was determined and if the penalty was based on the severity of the violations. Ms. Ng explained that the penalty was calculated using the Board's penalty policy. Mr. Wixom further explained that the Division calculates a penalty based on the policy and proposes it to the facility that receives the NOV. A final penalty is then negotiated and agreed to by both parties. Mr. Wixom added that in this circumstance, JVWCD did not directly deposit material at the private residency; it hired a contractor and the contractor took that action. Mr. Lundberg referred the Board to the penalty calculation work sheets included in the September 13, 2018 Board packet.

Mark Franc asked if the violations were willful or an oversight. Ms. Ng clarified that JVWCD's contractor willfully placed the waste on property owned by the subcontractor. Mr. Franc asked if the contractor was cited for his actions. Mr. Wixom stated that a separate Notice of Violation had been issued to the contractor; that matter is still pending. An action has been initiated in the District Court against the contractor concerning the penalty. When this matter with JVWCD is settled, the Division will proceed with the contractor to determine how to resolve that case.

Mr. Franc asked if JVWCD was a victim or co-conspirator. Mr. Wixom declined to characterize the circumstances but did explain that JVWCD hired a contractor to conduct the work and, based on reviewing the documents in this case, he did not believe that JVWCD wanted this contractor to dispose of the sand blast material at a private

residence. Mr. Franc asked if the reason for the penalty is that JWCD has the responsibility to ensure that the material is disposed of correctly. Mr. Wixom agreed.

Shane Whitney asked if the violations resulted in a corrective action plan. Ms. Ng explained that the EPA conducted an emergency cleanup of the site.

It was moved by Shane Whitney and seconded by Vern Rogers and UNANIMOUSLY CARRIED to approve proposed Stipulation and Consent Order 1807055 between the Board and Jordan Valley Water Conservancy District.

VIII. Low-Level Radioactive Waste Section.

A. EnergySolutions' request for a site-specific treatment variance from the Hazardous Waste Management Rules. EnergySolutions seeks authorization to treat waste contaminated with dioxins and furans by macroencapsulation rather than by chemical means (**Board Action Item**).

Otis Willoughby, Environmental Scientist, Low Level Radioactive Waste Section, reviewed the request from EnergySolutions for a one-time site specific treatment variance from the Utah Administrative Code.

During the July 12, 2018 Board meeting, EnergySolutions presented a treatment variance request to the Board to receive up to 100 tons of ash contaminated with metals with varying levels with dioxins and furans as underlying hazardous constituents. If, upon receipt, this waste meets land disposal restrictions for characteristic metals, the waste may be directly disposed in the low level radioactive waste embankment regardless of dioxin and furan concentrations. However, if the facility is required to treat the waste for metals to meet the land disposal restrictions for characteristic metals, then it is also required to treat the dioxins and furans as underlying hazardous constituents.

EnergySolutions proposes to treat the waste to meet land disposal restriction standards for the hazardous metals, if necessary. EnergySolutions is asking to be relieved of the requirement to treat the dioxins and furans. In order to ensure that this treatment is protective of the environment, EnergySolutions proposes to macroencapsulate the waste for disposal in the mixed waste landfill cell.

This request is based on the fact that treatment of the dioxin and furan contaminants is contingent only upon the hazardous metal levels. The proposed treatment will include further encapsulating the waste and protecting it from contact with precipitation, thereby decreasing the potential of leaching.

A corrected notice of public comment was published in the Salt Lake Tribune, the Deseret News and the Tooele County Transcript Bulletin on July 17, 2018. A 30-day public comment period began on July 17, 2018 and ended August 16, 2018. No comments were received. The Director recommends approval of this variance request 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.

Dennis Riding asked if the need for additional treatment is triggered by the metals above the threshold. Mr. Willoughby stated yes and clarified that the facility tests the waste as it is received. If the metals are below the threshold, they follow a certain management protocol. If they are above the threshold, they follow another protocol.

Mr. Riding asked how much is typically above the threshold. Tim Orton, EnergySolutions, explained that the metals vary depending on what is fed to the incinerator. Because this is incinerator ash, it varies from two or three times, up to ten times for the metals and potentially about ten times for dioxins and furans.

Shane Whitney asked how this material will be shipped and how much EnergySolutions will actually receive. Mr. Orton explained that the waste is shipped to the facility in drums and EnergySolutions anticipates 50 tons to come in with the potential for more.

Mr. Riding asked if the macroencapsulation addresses the organics directly. Mr. Orton stated it does not. Macroencapsulation only stabilizes the waste so the organics cannot leach out, which is the purpose of the treatment.

Vern Rogers recused himself from voting on this matter.

It was moved by Dennis Riding and seconded by Shane Whitney and UNANIMOUSLY CARRIED to approve EnergySolutions' request for a one time site-specific treatment variance to treat waste contaminated with dioxins and furans by macroencapsulation rather than by chemical means.

IX. EnergySolutions' request for an exemption from R313-25-9(5) of the Utah Administrative Code. (Informational Item Only)

Brett Mickelson informed the Board and those in attendance that two informational presentations would be made to the Board regarding EnergySolutions' exemption request.

A. EnergySolutions presentation.

Tim Orton presented EnergySolutions' request for an exemption from the requirement to conduct a performance assessment prior to disposing of depleted uranium metal penetrators. (A copy of the presentation was provided in the Board's September 13, 2018 Board packet.)

NOTE: Given the nature of the discussion on the exemption request and the two presentations, the following minutes are presented in a transcription format. Every attempt was made to capture the exact comments and questions but in some cases, some editing and summarization were necessary.

Richard Codell: How much more depleted uranium would be added to what is already at the site under this request?

Mr. Orton: Over a period of four years, approximately 10,000 tons or 20% more will be added. This amount is less than 1% of the annual volume disposed at the facility. (Mr. Orton made reference to 800,000 tons of depleted uranium oxide that EnergySolutions would like to receive from the Department of Energy, which is currently the subject to an ongoing performance assessment).

Dennis Riding: Please clarify the reference to the 800,000 tons.

Mr. Orton: The reference to the 800,000 tons was only to explain the basis for the one metric ton limit in the rule. If EnergySolutions is approved to receive this amount of depleted uranium oxide from the Department of Energy, it may eventually come to EnergySolutions over a ten to twenty-year period. However, this is a separate matter and is not before the Board today.

Vern Rogers: Please clarify the seven performance assessments that have been reviewed by the regulators.

Mr. Orton: Performance assessments look at waste management under worst-case scenarios (earthquakes, floods, differential settlement, etc.) to determine if EnergySolutions' facility, as designed, could withstand these scenarios and ensure containment of the radioactive waste.

Mr. Rogers: Do you believe that performance assessments should be based on science, not politics?

Mr. Orton: The assessment should be scientific not political.

Mr. Riding: Is EnergySolutions currently in the process of completing another performance assessment?

Mr. Orton: A performance assessment regarding the 800,000 tons of depleted uranium oxide previously referenced is ongoing and may be completed early next year.

Mark Franc: How many tons of depleted uranium have been received at the facility prior to the one-ton limit?

Mr. Orton: EnergySolutions has received 49,000 tons over 20 years.

Mr. Franc: Did the 2010 one metric ton moratorium effectively stop the flow of the material into the facility?

Mr. Orton: EnergySolutions has not received any concentrated depleted uranium at the Clive facility since the 2010 rule went into effect.

Mr. Franc: What is the anticipated annual flow of depleted uranium metal penetrators if the exemption were approved?

Mr. Orton: Approximately 10,000 tons over four years (2,500 tons per year or 800/900 cubic feet per year).

Shawn Milne: EnergySolutions was able to perform seven performance assessments over 20 years but it has been over seven years to complete the last performance assessment.

Mr. Orton: The current performance assessment is for a much larger amount of waste (800,000 tons). Therefore, the regulators want to get it exactly right and so does EnergySolutions.

Mr. Milne: How much decay has taken place in the past seven years?

Danielle Endres: What is the difference between the 2012 performance assessment and this on-going performance assessment?

Mr. Orton: The 2012 Performance Assessment was for continued normal operations at Clive and included all radioactive waste and depleted uranium at normal concentrations. The 2012 performance assessment did not include the 800,000 tons.

Ms. Endres: Why can't this wait for a performance assessment specific to the metal penetrators?

Mr. Orton: The Army has funding and wants to dispose of the material now. So, if EnergySolutions wants any chance of disposing of the material at the Clive facility, it needs the exemption right now.

Ms. Endres: Are there other facilities that could take the waste?

Mr. Orton: There is a facility in Texas that could take the waste.

Ms. Endres: How much waste is coming from Tooele and how much is coming from Indiana?

Mr. Orton: I'm not sure of the exact volumes, but I think about 40% from Tooele and 60% from Indiana.

Ms. Endres: Referring to your opinion that the NRC will likely not reclassify depleted uranium, what scientific evidence or reasons do you have to support that?

Mr. Orton: EnergySolutions has people who talk to the NRC almost on a daily basis and know what they are thinking. Also, the NRC has not stopped any other facility from disposing of depleted uranium. Otherwise, they would have stopped it if they were planning on reclassifying it.

Ms. Endres: Is the urgency really coming from the Department of Defense?

Mr. Orton: I cannot speak for the DOD but I have heard that it has gotten some flak from depleted uranium in the Iraq War and needs to clean them up but that is just speculation only. I do know the DOD has been funded for cleaning them up right now.

Richard Codell: What information can you provide regarding the special embankment at the site specifically for the disposal of DU ordinances?

Mr. Orton: There is not a special area. The penetrators would be buried in the normal Class A radioactive waste embankment, which is the biggest embankment.

Mr. Codell: I have read the August 24, 2018 letter sent to Scott Anderson and my first impression was that EnergySolutions stated that the DU metal ordinance was much safer than depleted uranium oxide, which is the form that most of the waste would normally be in. There was no mention made in the presentation if EnergySolutions was planning to dispose of the waste without treatment. Based on my knowledge of chemistry and uranium metals, DU metal is hazardous and pyrophoric and could burst in flames and, in a wet environment, generates hydrogen and other things like uranium hydride, which is very unstable.

Mr. Orton: I agree. For these reasons, the letter states that DU metal is different than DU oxide. The DU oxide is in powder form and could potentially be pyrophoric.

Mr. Codell: Uranium oxide is not pyrophoric like uranium metal.

Mr. Orton: In chunk form, it may oxidize on the surface, but as to being pyrophoric, the definition states that it's an explosive type of reaction.

Mr. Codell: I don't expect that EnergySolutions would have that type of waste form to deal with, but searching on the internet I did find information on the treatment of uranium metal for disposal and the occurrence of a lot of fires.

Mr. Orton: I am aware of that. EnergySolutions has treated depleted uranium from the Idaho National Lab and grouted it so that no moisture can get to it. If EnergySolutions receives the penetrators, a special management plan will be in place to grout the penetrators in a cement type mixture so that it is solidified and isolated from the environment to avoid potential problems.

Mr. Codell: Over thousands of years, the kind of grout doesn't matter because moisture is going to eventually reach the uranium and change it from uranium metal to something else. In my research regarding this matter, to avoid problems with unstable waste forms, it is recommended to change uranium metal to uranium oxide prior to disposal.

Mr. Orton: Such a process is a very expensive and very dangerous and nobody wants to do. DOE has looked into that and doesn't want to do it for the same reasons. The process also creates the possibility for a pyrophoric reaction.

Mr. Codell: I agree but even in a dry environment, there is plenty of water, probably 10-20% water in the soil. I would like more information on treatment options.

Mr. Orton: EnergySolutions' performance assessments addressed that issue.

Mr. Codell: I want specific information on the disposal of the metal penetrators not information on the large quantities of depleted uranium oxides.

Dennis Riding: How much waste will EnergySolutions receive over the time period identified?

Mr. Orton: 10,000 tons over four years (approximately 5,000 cubic feet). DU metal is very heavy and very dense.

Mr. Riding: Is EnergySolutions requesting approval to dispose of 10,000 tons?

Mr. Orton: Yes. EnergySolutions is asking for this specific volume, not approval for future waste.

Mr. Riding: At what point does EnergySolutions come back to the Board, when the next performance assessment is in process and ask for approval to do more?

Mr. Orton: If there were more DU munitions and the moratorium stayed in place, EnergySolutions would be back before the Board asking for more exemptions.

Mr. Whitney: Will EnergySolutions be treating the waste?

Mr. Orton: It will be stabilized to make a solid chunk in the cell so that liquids could not get to it in the near term. It would be encapsulated in a grout, but not as encompassing as macroencapsulation because that is a special grout specifically for a hazardous waste. Rather, it would be grouted similar to how EnergySolutions handles large debris at the site. EnergySolutions handles large debris by grouting it in a CLSM, which is a cement type mixture.

Mr. Whitney: There are other facilities that could take the waste, but not any facility that is only 50 minutes from EnergySolutions.

Jeremy Hawk: Would the exemption be limited to 10,000 tons of depleted uranium?

Mr. Orton: EnergySolutions would be limited to this specific volume.

Brett Mickelson clarified for the record that this presentation is informational only and asked Vern Rogers, who is a representative of the radioactive waste management industry and an employee of EnergySolutions, if he had any questions.

Vern Rogers: Regarding the 49,000 tons at the facility that have already been managed and the fact that some of the material is metal, have you seen any of the effects that have been raised as a concern?

Mr. Orton: There have been some small fires in the cell because of loaders chipping away at the metal, because EnergySolutions did not know the DU metal was there at the time and did not have a specific management plan for that material. The metal didn't catch on fire, it sparked and caught debris next to it on fire. For this DU metal, EnergySolutions will have a specific management plan in place.

Mr. Rogers: Please clarify your statements that it takes 2 million years for some of the U238 depleted uranium to decay and that this same process happens with the U238 that is naturally in the soil.

Mr. Orton: Natural uranium will also decay over 2 million years and will actually be slightly hotter, because the depleted uranium has had the U235 removed. So it will always be less radioactive than naturally occurring uranium.

Mr. Rogers: Is EnergySolutions' request allowed by rule or law?

Mr. Orton: Yes, UAC R313-12-55 provides for an exemption from the rule if it is authorized by law and will not result in undue hazard to public health and safety or the environment.

Ms. Endres: Does the concentration of depleted uranium matter when it comes to safety considerations? Specifically, is the concentration of naturally occurring depleted uranium less than the concentration in the 59,000 tons?

Mr. Orton: The 59,000 tons is spread out over an embankment, so it is not all concentrated in one big lump.

Mr. Franc: The close proximity of this facility to the Utah material is a definite benefit. Are there other facilities in Utah that could potentially take this material?

Mr. Orton: There are no other facilities in Utah that could take the material.

Mr. Franc: Regarding the dry nature of the site, the deep groundwater at the site, the procedures EnergySolutions will utilize to encapsulate this material, do the other facilities outside of Utah have similar favorable climates?

Mr. Orton: In some ways, yes and in some ways, no. One other facility has drinkable groundwater underneath it, whereas the groundwater underneath the EnergySolutions facility is not drinkable.

B. Heal Utah presentation in response to EnergySolutions' request for an exemption from R313-25-9(5) of the Utah Administrative Code.

Scott Williams, Executive Director of HEAL Utah and Jessica Reimer, Policy Associate for HEAL Utah presented their objections to EnergySolutions' Exemption Request.

Jeremy Hawk: Are all of the documents (performance assessments, etc.) available for the Board members to review?

Rusty Lundberg: All of the documents are available on line at the UDEQ/WMRC webpage. (The Board Chair asked that the links to all these documents be provided to the Board members).

Vern Rogers: Are you opposed to allowing the public to have input on this matter since you raised frustration over the August 30, 2018 emergency Board meeting and were only given two days' notice? The only action in that Board meeting was to vote on whether or not to give the public an opportunity to comment on the exemption request.

HEAL Utah: We are not opposed to allowing the public a chance to have input, but given the fact that a performance assessment for depleted uranium had been ongoing for over seven years, an emergency Board meeting with a 30-day public comment period and then a decision seemed fairly hasty.

Mr. Rogers: Do you understand why the NRC suggested a Performance Assessment for depleted uranium?

HEAL Utah: Depleted uranium is a unique waste stream unlike any other form of radioactive waste and it gets more radioactive over time. So, the whole classification system for uranium doesn't really fit depleted uranium. Therefore, if you treat it as Class A waste, because you don't have a good category for it, you need to have a very different process of determining where it can go because it won't be inert in a hundred years like other forms of Class A waste.

Mr. Rogers: Would the NRC still require a site-specific performance assessment for a teaspoon of depleted uranium?

HEAL Utah: We have no idea what the NRC would require for a teaspoon. What we do know is that 10,000 tons is very different than one metric ton.

Mr. Rogers: Do you know the basis for the 40,000 cubic feet per year?

HEAL Utah: This amount has to do with blended ion resins, not depleted uranium.

Mr. Rogers: This figure was calculated on the amount of waste EnergySolutions receives and the capacity of the landfill, not the waste form.

Nathan Rich: Do you share the opinion that the NRC is not likely to reclassify depleted uranium?

HEAL Utah: This issue has been under review by the NRC for a long time without a decision. There are challenging scientific issues related to DU. The NRC Commissioners change over time so it is difficult to predict what the NRC might do.

Mark Franc: The material does exist. The DOD is not happy where it is currently being stored and it is not in a position or in a location that is considered permanent. They want to move it to a permanent location or semi-permanent location with the understanding that it may be slightly different. EnergySolutions has successfully taken this material, stored this material safely for a relatively short period of time, approaching twenty years. Is there a place or location you feel would be better than EnergySolutions? Would HEAL's proposal be to leave it in place in perpetuity or to move it to some other location in some other state or some other location in Utah? Do you have options that are better than this exemption option?

HEAL Utah: Disposal of depleted uranium is similar to high level nuclear waste and belongs in deep geologic storage not near surface disposal. It could be sent off to Texas, but that just transfers the burden of this long-term hazard to another population. Depleted uranium, because of its long-term radioactive acceleration curve, needs to be thought of more like high level spent nuclear fuel from reactors rather than like low level nuclear waste. Energy Solutions has had this around for a number of years and over time, this waste is going to be hazardous and our generation will not be here anymore. Our charge as an organization in Utah is to protect the public health and safety of Utahns both now in and in the future and part of that is who has custody of that waste when EnergySolutions as a company is dissolved. How do we communicate to future generations that there is something that is continually hazardous that they need to be aware of? There are also costs associated with long-term stewardship that may fall to Utah taxpayers. Utahns should not have to take on that risk to public health and the environment.

Mr. Franc: Is it your position that this waste should go someplace other than Utah?

HEAL Utah: It needs to be assessed like high level nuclear waste and must be determined on a national scale since most of this waste is generated on a national scale by the DOE and DOD.

Mr. Franc: Is it your position to leave it where it is until that is done?

HEAL Utah: It should be left where it is because if it is buried at EnergySolutions, it will be much more difficult to relocate as there is an urgency to address not only this type of waste, but high-level nuclear waste that is sitting on-site at nuclear power plants elsewhere. There was a search conducted by the government for appropriate deep geologic repositories and Yucca Mountain was chosen. Yucca Mountain is not the best site from a scientific standpoint. Other sites were identified in the 1990s that were believed to be suitable and should be reconsidered as a better solution to this problem.

Shawn Milne: How many contributors to HEAL Utah come from Tooele County?

HEAL Utah: When the organization began, it was called "Families Against Incinerator Risk." Almost all members were from Tooele County. The organization still gets calls and complaints from Tooele County residents but we know there are people in Tooele County who appreciate the jobs that EnergySolutions provides.

Mr. Milne: I was elected to serve and protect the health and safety of 70,000 residents. Even if HEAL has 20,000 members that still leaves a vast majority supporting EnergySolutions. The employees that work at EnergySolutions are passionate about the success of EnergySolutions and other similar businesses in the west desert that do their job and do it well, including Tooele Army Depot. When I first moved here twenty years ago, I may have been more

sympathetic to your cause than I am today, as I didn't understand the science. I had not visited the sites. I only subscribed to the perceptions that were distributed through the media and my own perceptions at that time. However, right now, 40% of the waste stream that would come from TEAD is on top a potable water supply and I can actually see TEAD from my house. So for me to know that this has been there for decades, in addition to a lot of terrible things and only 10 miles from the Tooele Army Depot South Area which housed and later destroyed really terrible munitions, I have become a little less fearful of other human beings working to protect and to treat safely some of the nastiest things we have on our planet as a civilization. So, I hear your concerns and think they are valid to a degree, because that is why we are all here; that is the nature of DEQ and what they do. I just happened to have a little more faith in their abilities than the national regulators and citizenry that is tasked with making sure that EnergySolutions continues to do what it has done for decades. I said some very opinionated things twenty years ago that would probably align with HEAL's viewpoints relative to where I am now. I have found a lot of people who are very passionate about their jobs and they take it as a slight that they would somehow mess up and purposely ruin their own community. I appreciate HEAL's statements because those 20,000 are also my citizens and I want to take their concerns into account as I look at it from my perspective.

Scott Williams: I appreciate Commissioner Milne's comments. I don't believe that anyone at EnergySolutions doesn't believe they are doing the best job they can to be safe and I am sure the facility has a strong commitment to safety. That is not what is being addressed here. I am talking about the kind of event that happens in my profession as a physician, where I think I am treating people for pain with good medicines that help them in the short run; and then I find that I have addicted tens of thousands of people to opioids and we now have an opioid crisis in this country. The fact that I think that I am doing a really good job as a physician doesn't mean that I didn't participate in something that created a problem for society. So, there is a difference between our individual commitment to our jobs, that we think we are doing the best job we can, and there is no doubt that the people at EnergySolutions believe that about their job and then a condition that is introduced into that industry is not one individual's responsibility and that creates a problem for society. This is how HEAL sees this. Commissioner Milne stated that his references was just to the hyperbole of the waste issue and he likens it to insurance, i.e., how much is enough to ensure your family against any possible catastrophe, loss of income or anything else.

Danielle Endres: The question has been raised about EnergySolutions not being here in the future and yet we'll still be dealing with this waste two million years from now. I also understand this discussion may be broader than this issue, but what does happen with waste that has such a long lifetime when a company no longer exists?

Rusty Lundberg: The Division plans on compiling not only what is being discussed here today, but also comments that will be part of the official comment period, so that the Board will have a greater context in which to evaluate its ultimate decision. To specifically just address what you are asking here, may not provide that greater context for you. There is already a fund in place for perpetual care and this fund will be used by whatever entity would exist to be able to do maintenance or corrective action on the facility depending on what the need may be in the long term. Perpetual care follows the 100-year institutional care period and is designed to provide care of the site in perpetuity.

Alan Matheson: What is the difference between the depleted uranium oxide that may come from the DOE sources and this metallic depleted uranium?

HEAL Utah: They have the same radiological profile as they become more radioactive over time. Richard Codell mentioned other characteristics that may or may not be a concern and questioned if there were any other distinctions between the two, i.e., are they really the same or are they different? This is something that we need to look at. I am not a chemist, but my understanding is that depleted uranium has two toxicities, one that is a shorter-term chemical toxicity, which is really inhalation ingestion toxicity from the chemical issues related to depleted uranium and one that is radiologically toxic long term. The metallic form is less likely to cause chemical toxicity with exposure in the short run than the oxide form but they both have a similar radiologic profile.

Mr. Codell: At the atomic level, it is the same stuff. But there is quite a difference and there is a lot of history with dealing with uranium metal in terms of accidents. Metal is very dangerous to deal with. This is an unstable waste

form and if you just put it in the ground or put it in grout, something is going to happen over thousands of years. It is very chemically active and in some cases causes explosions. There is a long history of dealing with metal from the early days of the atomic programs, Hanford and other places. If you are going to bury this in a shallow land environment, even in grout, it ought to be looked at closely.

Dennis Riding: EnergySolutions has made the argument that the one-ton moratorium is arbitrary. It feels arbitrary to me as well. Is there a reason for it?

HEAL Utah: There was a pause button pressed as if to say, “we need to stop and do a complete site specific performance assessment on depleted uranium as recommended by the NRC, but in the meantime, if EnergySolutions has material that has a small amount of depleted uranium, we are not going to stop their business of having anything with DU.” It gave EnergySolutions a small window to continue to receive waste with depleted uranium in some loads, but not more than a ton. Those who were here during that time period would have a better answer. Referring to the statement that the State preemptively put these rules into place, the NRC made a specific recommendation that a site-specific performance assessment be conducted for the volume of depleted uranium that was out there to be stored, so it was not a preempted decision. It was a decision based in advice given by the national regulator. Therefore, it is a little misleading to say it was preempted; it was based on the best facts and best science at that time.

Shane Whitney: Where is the material currently being stored?

HEAL Utah: We do not know where the penetrators are currently stored. We understand the munitions will be disassembled so the DU would be a small part of the munition itself (the size of a thumb). It has been stated that approximately 60% is in Indiana. This is the first time we have heard that ratio.

Mr. Whitney: Does the uranium in these munitions pose more of a risk or health hazard than naturally occurring uranium?

HEAL Utah: Danielle Endres’ comment about distribution is an important one, as it is one thing to concentrate all this depleted uranium in one fairly small geographic area and the amount of radioactivity that would emanate from it as it becomes more radioactive over time compared to the natural decay of uranium that is happening right now in the ground all around us. Those are two different things and how you designate a site as having a much more concentrated amount of this material in one place then exists across the crust of the earth. Yes, there are places where we mine uranium because it is more plentiful, but that is just part of living on this planet; it is not us creating a new hazardous location.

Mr. Whitney: These things have to be moved. When you think about war, they were intended to be transported.

HEAL Utah: This is just really part of the 800,000 ton problem. It is not just a matter of where to put this, it is a matter of where to put all of it. It is important to consider how an exemption would impact the ongoing performance assessment.

Brett Mickelson: This is an informational item only, so typically the Board would not be having any public comments at this point in the process. Any comments on EnergySolutions’ request should be submitted in writing to make sure they are formally recognized. In consideration of individuals who have taken time to come to this meeting and in consideration of the Board members’ time, 10 minutes will be allowed for public comment, which is couple of minutes each.

George Chapman: My name is George Chapman. I am a former nuclear engineer and I have worked with depleted uranium munitions and if you want to be completely scientific about it, depleted uranium is not depleted uranium. It is so complicated. Richard you are right, the depleted uranium munitions are pyrophoric. That is one of the reasons they are used in anti-tank munitions. But uranium oxide is also pyrophoric, and tri uranium octi-oxide is not pyrophoric, but because it is such a fine powder, it requires encapsulation to be safe. So, it is really, really

complicated. The Oakridge National Laboratory 2000 Report stated that disposal of depleted uranium at EnviroCare is generally questionable. It is questionable because if you try to bury the stuff near a population, like Salt Lake City, it is an issue. They actually recommended Nevada, the nuclear test site, because it has 1/3 to 1/5 of the rain of Salt Lake City and is also 3,500 square kilometers. So I recommend going for the performance assessment and not granting a waiver. Thank you for listening.

Cindy King: My name is Cindy King. I am a member of the Utah Chapter of the Sierra Club. EnergySolutions' presentation today leaves me a little confused. It is my understanding that the Division of Waste Management and Radiation Control must comply with several federal regulations. For example, the Solid Waste Act, the Resource Conservation and Recovery Act, and the Nuclear Regulatory Commission regulations to name a few. The Division of Waste Management and Radiation Control is required by federal primacy to incorporate by reference any regulations that have not been promulgated into state rule or state statute. EnergySolutions claims that they are requesting an exemption from R313-25-9 (b) (f) for disposal of depleted uranium from two different United States military installations. Here lies the confusion. Nowhere in EnergySolutions' presentation today was there a request for an exemption from 40 CFR 260.20(a)(3), which states that the waste from military ammunitions must be transported from a military owned and operated installation to an military owned and operated treatment storage and disposal installation. EnergySolutions did not state how the United States Army's joint ammunition commander, who is responsible for the safe and compliant deposition of the depleted uranium metal 30 mm penetrators would be granted an exemption from federal regulations or how EnergySolutions will become a military installation. How can EnergySolutions be granted an exemption from state rule when they have not been granted one from the federal regulation that limits the management of military munitions to a military owned and operated treatment storage and disposal site? I am also requesting that the Board clarify the public process, what documents are available and where the public hearing will be.

Ashley Soltysiak: My name is Ashley Soltysiak. I am the Director of the Utah Chapter of the Sierra Club. We are an environmental non-profit organization representing 35,000 members across the State, one of whom you just heard from. I apologize for not having our membership numbers for Tooele at this time. I really appreciate the opportunity to address the Board this afternoon and strongly urge you to deny EnergySolutions' request for an exemption from R313-25-9-(5) of the Utah Administrative Code. We don't believe there is adequate reason to grant this exemption from State Law and would argue that in doing so, the Board places public health and environmental quality at risk. As previously mentioned according to the state code, any facility that proposes to land dispose of significant quantities of concentrated depleted uranium (defined as more than one metric ton in total accumulation) after June 10, shall submit for the Director's review and approval, a performance assessment that demonstrates the performance standards classified in 10CFR Part 61 and corresponding provisions of Utah Rules will be met for total quantities of concentrated depleted uranium and other wastes. We find their request for an exemption deeply troubling because they want to bring not just two metric tons or just over one metric ton, but up to 10,000 tons of depleted uranium, exceeding the threshold for what the State has deemed as a significant quantity. This issue is certainly not new to the State of Utah. We have heard a lot of history here today, but depleted uranium has been a controversial issue for years. We are nearly five years into a similar performance assessment to determine whether waste from the DOE can be safely disposed of at the Clive site. We still have no answer from the State whether that waste is considered safe for disposal in a site that is an historical lake bed. We find the claims that the company is utilizing the best scientific data false, given the fact that the most recent PA is yet to be resolved. We have several questions remaining from the state's highly skeptical safety and evaluation report (SER) that was issued in the Spring of 2015, in regards to the DOE depleted uranium, which certainly applies to the Department of Defense waste stream. One of the conditions of the SER is that EnergySolutions obtain written confirmation from the NRC that depleted uranium will continue to be Class A waste. To our knowledge, the NRC has provided no such commitment and we know over the millennia this waste will persist, it will increase in radioactive eventually exceeding Class C standards and violate our state law which prohibits any radioactive waste greater than Class A. (Ms. Soltysiak will email her comments to the Board members).

Brett Mickelson again stated that the public comment period is open right now and if anyone has comments, they need to submit them in writing to the State.

- X. Other Business.
 - A. Misc. Information Items. – None to Report.
 - B. Scheduling of next Board meeting.

The next Board meeting has been scheduled for October 11, 2018 at 1:30 p.m. at the Utah Department of Environmental Quality, 195 North 1950 West, (Conference Room #1015), SLC, Utah.

- XI. Adjourn.

The meeting adjourned at 4:05 p.m.

