



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WASTE MANAGEMENT
AND RADIATION CONTROL
Scott T. Anderson
Director

A meeting of the Waste Management and Radiation Control Board has been scheduled for October 11, 2018 at 11:00 a.m. at the Utah Department of Environmental Quality, Multi-Agency State Office Building (Conference Room #1015), 195 North 1950 West, SLC.

(One or more members of the Board may participate telephonically.)

AGENDA

- I. Approval of the Meeting Minutes for the September 13, 2018 Board Meeting (**Board Action Item**).
- II. Procedures for Public Comment.
- III. Conflict of Interest.
- IV. Underground Storage Tanks Update.
- V. 2018 PST Trust Fund Actuarial Report.
- VI. Administrative Rules.
 - A. Approval to proceed with formal rulemaking and public comment on proposed changes to Hazardous Waste Rules UAC R315-273, Standards for Universal Waste Management (**Board Action Item**).
 - B. Approval to proceed with formal rulemaking and public comment on proposed changes to Radiation Control Rules UAC R313-28, Use of X-Rays in the Healing Arts (**Board Action Item**).
- VII. Break.
- VIII. Low-Level Radioactive Waste.
 - A. Presentation on R313-25-9(5)(a) (**Informational Item only**).

(Over)

- IX. Public Comment.
- X. Other Business.
 - A. Misc. Information Items.
 - B. Scheduling of next Board meeting.
- XI. Adjourn.

In compliance with the Americans with Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Kimberly Diamond-Smith, Office of Human Resources at (801) 536-4285, Telecommunications Relay Service 711, or by email at "kdiamondsmith@utah.gov".

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, 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, Anfield 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 tetra uranium oxite-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.

UST STATISTICAL SUMMARY
September 1, 2017 -- August 31, 2018

PROGRAM													
	September	October	November	December	January	February	March	April	May	June	July	August	(+/-) OR Total
Regulated Tanks	4,063	4,062	4,050	4,054	4,047	4,055	4,061	4,064	4,066	4,061	4,058	4,067	4
Tanks with Certificate of Compliance	3,953	3,954	3,957	3,969	3,968	3,969	3,968	3,976	3,976	3,982	3,986	3,992	39
Tanks without COC	110	108	93	85	79	86	93	88	90	79	72	75	(35)
Cumulative Facilities with Registered A Operators	1,300	1,307	1,305	1,306	1,304	1,307	1,307	1,305	1,264	1,261	1,296	1,300	97.60%
Cumulative Facilities with Registered B Operators	1,302	1,307	1,305	1,306	1,305	1,308	1,308	1,306	1,306	1,303	1,301	1,304	97.90%
New LUST Sites	3	6	13	8	10	6	8	1	7	6	15	5	88
Closed LUST Sites	4	3	18	13	11	15	8	5	13	5	15	16	126
Cumulative Closed LUST Sites	5036	5045	5060	5072	5087	5100	5106	5110	5125	5131	5146	5162	126
FINANCIAL													
	September	October	November	December	January	February	March	April	May	June	July	August	(+/-)
Tanks on PST Fund	2,722	2,718	2,708	2,707	2,708	2,708	2,706	2,705	2,698	2,704	2,704	2,703	(19)
PST Claims (Cumulative)	671	674	674	676	677	680	686	687	686	687	688	686	15
Equity Balance	-\$9,466,602	-\$12,442,135	-\$13,385,166	-\$13,951,499	-\$14,290,860	-\$14,288,779	-\$13,656,255	-\$14,076,436	-\$14,562,872	-\$14,838,728	-\$14,362,717	-\$14,322,626	(\$4,856,024)
Cash Balance	\$15,342,052	\$16,002,761	\$15,059,729	\$14,493,396	\$14,154,036	\$14,156,117	\$14,788,641	\$14,368,460	\$13,882,024	\$13,606,168	\$14,082,179	\$14,122,270	(\$1,219,782)
Loans	0	0	0	0	0	0	0	0	1	0	0	0	0
Cumulative Loans	112	112	112	112	112	112	112	112	113	113	113	113	1
Cumulative Amount	\$4,079,887	\$4,079,887	\$4,079,887	\$4,079,887	\$4,079,887	\$4,079,887	\$4,079,887	\$4,079,887	\$4,229,887	\$4,229,887	\$4,229,887	\$4,229,887	\$150,000
Defaults/Amount	0	0	0	0	1	1	1	1	1	1	1	1	1
	September	October	November	December	January	February	March	April	May	June	July	August	TOTAL
Speed Memos	34	54	33	18	12	22	17	28	51	31	16	38	354
Compliance Letters	2	1	8	6	4	4	6	1	1	7	3	13	56
Notice of Intent to Revoke	0	0	0	0	0	0	0	0	0	0	0	0	0
Orders	0	1	2	0	0	0	0	1	0	0	0	1	5

WASTE MANAGEMENT AND RADIATION CONTROL BOARD
Executive Summary
Public Comment -- Proposed Rule Changes
UAC R315-273, Standards for Universal Waste Management
October 11, 2018

<p>What is the issue before the Board?</p>	<p>Approval from the Board to proceed with formal rulemaking and public comment by filing with the Office of Administrative Rules and publishing in the <i>Utah State Bulletin</i> proposed changes to UAC R315-273 to fix some errors found in the rule since the last rule amendment in 2016; to update the rules for lamp crushers so that they reflect the current manufacturing and operating standards for lamp crushers; to remove some language that exempts lamp crushers from registration that does not meet the intent of the rule; and to add propylene glycol to the definition of antifreeze.</p>
<p>What is the historical background or context for this issue?</p>	<p>The last major update to the Standards for Universal Waste Management was made in 2016. Since that time, the Division has found some typographical errors in the rules and has learned that some to the requirements do not correspond to current manufacturing and operating standards for lamp crushers.</p> <p>It has also been determined that language in the current rules could be interpreted to exempt lamp crushers from registration which was not the intent of the rule when adopted in 2016.</p> <p>The Division has also learned that the use of propylene glycol as an engine antifreeze is more prevalent than understood in 2016, making it appropriate to add it along with ethylene glycol under the definition of antifreeze in the rule.</p> <p>The proposed changes to UAC R315-273 follow this Executive Summary.</p>
<p>What is the governing statutory or regulatory citation?</p>	<p>The Board is authorized under Subsection 19-6-105(1)(c) to make rules governing generators and transporters of hazardous wastes and owners and operators of hazardous waste treatment, storage and disposal facilities.</p> <p>The rule changes also meet existing DEQ and state rulemaking procedures.</p>
<p>Is Board action required?</p>	<p>Yes. 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 <i>Utah State Bulletin</i> and conducting a public comment period.</p>

What is the Division Director's recommendation?	The Director recommends the Board approve formal rulemaking and public comment by publishing in the November 1, 2018 <i>Utah State Bulletin</i> the proposed changes to UAC R315-273 and conducting a public comment period from November 1, 2018 to November 30, 2018.
Where can more information be obtained?	Please contact Tom Ball (801) 536-0251, (tball@utah.gov) or Rusty Lundberg (801) 536-4257, (rlundberg@utah.gov).

R315. Environmental Quality, Waste Management and Radiation Control, Waste Management.

R315-273. Standards for Universal Waste Management.

R315-273-6. Standards for Universal Waste Management -- Applicability for Utah Specific Wastes.

(a) Antifreeze.

(1) The requirements of Rule R315-273 apply to persons managing antifreeze, as described in Section R315-273-9, except those listed in Subsection R315-273-6(a)(2).

(2) Antifreeze not covered under Rule R315-273. The requirements of Rule R315-273 do not apply to persons managing the following antifreeze:

(i) Antifreeze, as described in Section R315-273-9, that is not yet a waste under Rule R315-261, including antifreeze that does not meet the criteria for waste generation in Subsection R315-273-6(a)(4).

(ii) Antifreeze, as described in Section R315-273-9 that is not hazardous waste. Antifreeze is a hazardous waste if it exhibits one or more of the characteristics identified in Sections R315-261-20 through 24.

([43]) Generation of waste antifreeze.

(i) Antifreeze becomes a waste on the date it is discarded, e.g., when sent for reclamation.

(ii) Antifreeze becomes a waste on the date the handler decides to discard it.

(b) Aerosol Cans

(1) The requirements of Rule R315-273 apply to persons managing aerosol cans, as described in Section R315-273-9, except those listed in Subsection R315-273-6(b)(2).

(2) Aerosol cans not covered under Rule R315-273. The requirements of Rule R315-273 do not apply to persons managing the following aerosol cans:

(i) Aerosol cans, as described in Section R315-273-9, that are not yet wastes under Rule R315-261, including those that do not meet the criteria for waste generation in subsection R315-273(b)(3).

(ii) Aerosol cans, as described in Section R315-273-9, that are not hazardous waste. An aerosol can shall be managed as a hazardous waste if the can or its contents exhibit one or more of the characteristics identified in Sections R315-261-20 through 24, or if its contents are listed in Sections R315-261-30 through 35.

(3) Generation of waste aerosol cans.

(i) An aerosol can becomes a waste on the date it is discarded or is no longer useable. For purposes of Rule R315-273, an aerosol can is considered to be no longer useable when:

(A) the can is as empty as proper work practices allow;

(B) the spray mechanism no longer operates as designed;

(C) the propellant is spent; or

(D) the product is no longer used.

(ii) An unused aerosol can becomes a waste on the date the handler decides to discard it.

R315-273-9. Standards for Universal Waste Management -- Definitions.

(a) "Aerosol can" means a container with a total capacity of no more than 24 ounces of gas under pressure and is used to aerate

and dispense any material through a valve in the form of a spray or foam.

(b) "Ampule" means an airtight vial made of glass, plastic, metal, or any combination of these materials.

(c) "Antifreeze" means an ethylene glycol or propylene glycol based mixture that lowers the freezing point of water and is used as an engine coolant.

(d) "Battery" means a device consisting of one or more electrically connected electrochemical cells, which is designed to receive, store, and deliver electric energy. An electrochemical cell is a system consisting of an anode, cathode, and an electrolyte, plus such connections, electrical and mechanical, as may be needed to allow the cell to deliver or receive electrical energy. The term battery also includes an intact, unbroken battery from which the electrolyte has been removed.

(e) "Destination facility" means a facility that treats, disposes of, or recycles a particular category of universal waste, except those management activities described in Subsections R315-273-13(a) and (c) and Subsections R315-273-33(a) and (c). A facility, at which a particular category of universal waste is only accumulated, is not a destination facility for purposes of managing that category of universal waste.

(f) "Drum-top lamp crusher" means a device attached to a drum or container that mechanically reduces the size of lamps and includes a bag filter followed in series by a HEPA filter and an activated carbon filter. Drum-top crushers are the only devices that can be approved for the use of crushing lamps.

(g) "FIFRA" means the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136-136y).

(h) "Generator" means any person, by site, whose act or process produces hazardous waste identified or listed in Rule R315-261 or whose act first causes a hazardous waste to become subject to regulation.

(i) "Lamp," also referred to as "universal waste lamp" is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.

(j) "Large Quantity Handler of Universal Waste" means a universal waste handler, as defined in Section R315-273-9 who accumulates 5,000 kilograms or more total of universal waste; batteries, pesticides, mercury-containing equipment, lamps, or any other universal waste regulated in Rule R315-273, calculated collectively; at any time. This designation as a large quantity handler of universal waste is retained through the end of the calendar year in which the 5,000 kilogram limit is met or exceeded.

(k) "Mercury-containing equipment" means a device or part of a device, including thermostats, but excluding batteries and lamps, that contains elemental mercury integral to its function.

(l) "On-site" means the same or geographically contiguous property which may be divided by public or private right-of-way,

provided that the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing as opposed to going along the right of way. Non-contiguous properties owned by the same person but connected by a right-of-way which he controls and to which the public does not have access, are also considered on-site property.

(m) "Pesticide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or desiccant, other than any article that:

(1) Is a new animal drug under FFDCFA section 201(w), or

(2) Is an animal drug that has been determined by regulation of the Secretary of Health and Human Services not to be a new animal drug, or

(3) Is an animal feed under FFDCFA section 201(x) that bears or contains any substances described by (1) or (2) above.

(n) "Small Quantity Handler of Universal Waste" means a universal waste handler, as defined in this Section R315-273-9 who does not accumulate 5,000 kilograms or more of universal waste at any time.

(o) "Thermostat" means a temperature control device that contains metallic mercury in an ampule attached to a bimetal sensing element, and mercury-containing ampules that have been removed from these temperature control devices in compliance with the requirements of Subsection R315-273-13(c)(2) or 33(c)(2).

(p) "Universal Waste" means any of the following hazardous wastes that are subject to the universal waste requirements of Rule R315-273:

(1) Batteries as described in Section R315-273-2;

(2) Pesticides as described in Section R315-273-3;

(3) Mercury-containing equipment as described in Section R315-273-4;

(4) Lamps as described in Section R315-273-5;

(5) Antifreeze as described in Subsection R315-273-6(a); and

(6) Aerosol cans as described in Subsection R315-273-6(b).

(q) "Universal Waste Handler:"

(1) Means:

(i) A generator, as defined in Section R315-273-9, of universal waste; or

(ii) The owner or operator of a facility, including all contiguous property, that receives universal waste from other universal waste handlers, accumulates universal waste, and sends universal waste to another universal waste handler, to a destination facility, or to a foreign destination.

(2) Does not mean:

(i) A person who treats, except under the provisions of Subsection R315-273-13(a) or (c), or 33(a) or (c), disposes of, or recycles universal waste; or

(ii) A person engaged in the off-site transportation of universal waste by air, rail, highway, or water, including a universal waste transfer facility.

(r) "Universal Waste Transfer Facility" means any transportation-related facility including loading docks, parking areas, storage areas and other similar areas where shipments of

universal waste are held during the normal course of transportation for ten days or less.

(s) "Universal Waste Transporter" means a person engaged in the off-site transportation of universal waste by air, rail, highway, or water.

R315-273-10. Standards for Universal Waste Management, Standards for Small Quantity Handlers of Universal Waste -- Applicability.

Sections R315-273-10 through 20 apply to small quantity handlers of universal waste, as defined in Section R315-273-9[~~except that the registration requirement of Subsection R315-273-13(d)(3) and Subsections R315-273-13(d)(6) and (7) do not apply to generators~~].

R315-273-13. Standards for Universal Waste Management, Standards for Small Quantity Handlers of Universal Waste -- Waste Management.

(a) Batteries. A small quantity handler of universal waste shall manage universal waste batteries in a way that prevents releases of any universal waste or component of a universal waste to the environment, as follows:

(1) A small quantity handler of universal waste shall contain any universal waste battery that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions in a container. The container shall be closed, structurally sound, compatible with the contents of the battery, and shall lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

(2) A small quantity handler of universal waste may conduct the following activities as long as the casing of each individual battery cell is not breached and remains intact and closed, except that cells may be opened to remove electrolyte but shall be immediately closed after removal:

- (i) Sorting batteries by type;
- (ii) Mixing battery types in one container;
- (iii) Discharging batteries so as to remove the electric charge;
- (iv) Regenerating used batteries;
- (v) Disassembling batteries or battery packs into individual batteries or cells;
- (vi) Removing batteries from consumer products; or
- (vii) Removing electrolyte from batteries.

(3) A small quantity handler of universal waste who removes electrolyte from batteries, or who generates other solid waste, e.g., battery pack materials, discarded consumer products, as a result of the activities listed above, shall determine whether the electrolyte and/or other solid waste exhibit a characteristic of hazardous waste identified in Sections R315-261-20 through 24.

(i) If the electrolyte and/or other solid waste exhibit a characteristic of hazardous waste, it is subject to all applicable requirements of Rules R315-260 through 266, 268 and 270. The handler is considered the generator of the hazardous electrolyte and/or other waste and is subject to Rule R315-262.

(ii) If the electrolyte or other solid waste is not hazardous, the handler may manage the waste in any way that is in compliance with applicable federal, state or local solid waste regulations.

(b) Pesticides. A small quantity handler of universal waste

shall manage universal waste pesticides in a way that prevents releases of any universal waste or component of a universal waste to the environment. The universal waste pesticides shall be contained in one or more of the following:

(1) A container that remains closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions; or

(2) A container that does not meet the requirements of Subsection R315-273-13(b)(1), provided that the unacceptable container is overpacked in a container that does meet the requirements of Subsection R315-273-13(b)(1); or

(3) A tank that meets the requirements of 40 CFR 265.190 through 202, except for 40 CFR 265.197(c) and 40 CFR 265.200 and 201, 40 CFR 265 is adopted by reference in R315-265; or

(4) A transport vehicle or vessel that is closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

(c) Mercury-containing equipment. A small quantity handler of universal waste shall manage universal waste mercury-containing equipment in a way that prevents releases of any universal waste or component of a universal waste to the environment, as follows:

(1) A small quantity handler of universal waste shall place in a container any universal waste mercury-containing equipment with non-contained elemental mercury or that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions. The container shall be closed, structurally sound, compatible with the contents of the device, shall lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions, and shall be reasonably designed to prevent the escape of mercury into the environment by volatilization or any other means.

(2) A small quantity handler of universal waste may remove mercury-containing ampules from universal waste mercury-containing equipment provided the handler:

(i) Removes and manages the ampules in a manner designed to prevent breakage of the ampules;

(ii) Removes the ampules only over or in a containment device, e.g., tray or pan sufficient to collect and contain any mercury released from an ampule in case of breakage;

(iii) Ensures that a mercury clean-up system is readily available to immediately transfer any mercury resulting from spills or leaks from broken ampules from that containment device to a container that meets the requirements of Section R315-262-34;

(iv) Immediately transfers any mercury resulting from spills or leaks from broken ampules from the containment device to a container that meets the requirements of Section R315-262-34;

(v) Ensures that the area in which ampules are removed is well ventilated and monitored to ensure compliance with applicable OSHA exposure levels for mercury;

(vi) Ensures that employees removing ampules are thoroughly familiar with proper waste mercury handling and emergency procedures, including transfer of mercury from containment devices to appropriate

containers;

(vii) Stores removed ampules in closed, non-leaking containers that are in good condition;

(viii) Packs removed ampules in the container with packing materials adequate to prevent breakage during storage, handling, and transportation;

(3) A small quantity handler of universal waste mercury-containing equipment that does not contain an ampule may remove the open original housing holding the mercury from universal waste mercury-containing equipment provided the handler:

(i) Immediately seals the original housing holding the mercury with an air-tight seal to prevent the release of any mercury to the environment; and

(ii) Follows all requirements for removing ampules and managing removed ampules under Subsection R315-273-13(c)(2); and

(4)(i) A small quantity handler of universal waste who removes mercury-containing ampules from mercury-containing equipment or seals mercury from mercury-containing equipment in its original housing shall determine whether the following exhibit a characteristic of hazardous waste identified in Sections R315-261-20 through 24:

(A) Mercury or clean-up residues resulting from spills or leaks; and/or

(B) Other solid waste generated as a result of the removal of mercury-containing ampules or housings, e.g., the remaining mercury-containing device.

(ii) If the mercury, residues, and/or other solid waste exhibits a characteristic of hazardous waste, it shall be managed in compliance with all applicable requirements of Rules R315-260 through 266, 268, and 270. The handler is considered the generator of the mercury, residues, and/or other waste and shall manage it in compliance with Rule R315-262.

(iii) If the mercury, residues, and/or other solid waste is not hazardous, the handler may manage the waste in any way that is in compliance with applicable federal, state or local solid waste regulations.

(d) Lamps. A small quantity handler of universal waste shall manage lamps in a way that prevents releases of any universal waste or component of a universal waste to the environment, as follows:

(1) A small quantity handler of universal waste shall contain any lamp in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps. Such containers and packages shall remain closed and shall lack evidence of leakage, spillage or damage that could cause leakage under reasonably foreseeable conditions.

(2) A small quantity handler of universal waste shall immediately clean up and place in a container any lamp that is broken and shall place in a container any lamp that shows evidence of breakage, leakage, or damage that could cause the release of mercury or other hazardous constituents to the environment. Containers shall be closed, structurally sound, compatible with the contents of the lamps and shall lack evidence of leakage, spillage or damage that could cause leakage or releases of mercury or other hazardous constituents to the environment under reasonably foreseeable conditions.

(3) A small quantity handler of universal waste may crush

universal waste lamps using a drum-top lamp crusher designed specifically for crushing lamps provided that the small quantity handler submits a drum-top lamp crusher registration application to and receives approval from the Director. The registration application shall demonstrate that the small quantity handler shall operate the drum-top lamp crusher to ensure the following:

(i) The lamps are crushed in a closed accumulation container [designed specifically for crushing lamps] as specified by the manufacturer of the drum-top lamp crusher;

(ii) The lamps are crushed in a controlled manner that prevents the release of mercury vapor or other contaminants in exceedance of the manufacturer's specifications;

(iii) The drum-top lamp crusher shall have a filtration system consisting of, at a minimum, a bag filter followed in series by a HEPA filter and an activated carbon filter;

(iv) The drum-top lamp crusher is installed, maintained, and operated in accordance with written procedures developed by the manufacturer of the equipment including specific instructions for the frequency of filter changes;

(v) Filters are either characterized to demonstrate that they are not a hazardous waste or managed as a hazardous waste;

(vi) A spill clean-up kit is available;

(vii) The area in which the drum-top crusher is operated is well ventilated and monitored to ensure compliance with applicable OSHA exposure levels for mercury;

(viii) An employee using the drum-top lamp crusher is trained annually on the written operating, safety, personal protection and maintenance procedures of the system;

(ix) An employee using the drum-top lamp crusher is trained annually in emergency procedures;

(x) An operating record is kept and consists of the following:

(A) the number and size of lamps crushed per calendar day, per calendar month, and per calendar year;

(B) the schedule for the change out of filters;

(C) date and time of filter change out;

(D) date, type, and time of equipment maintenance;

(E) any occurrence of equipment malfunction; and

(F) procedures for preventing equipment malfunctions.

(4) The operating record shall be maintained for at least three years.

(5) When a drum-top crusher is no longer used or is relocated, the area where the crusher was located shall be decontaminated of all mercury and other contaminants caused by the use of the drum-top lamp crusher. A report documenting the decontamination steps as well as supporting analytical data demonstrating successful remediation shall be submitted to the Director for approval within 30 days following completion of decontamination.

(6) The small quantity handler shall provide a closure plan along with a detailed written estimate, in current dollars, of the cost of disposing of the drum-top lamp crusher; decontamination of the area surrounding the drum-top lamp crusher, and any analytical costs required to show that decontamination is complete. Drum-top lamp crushers operated by the state or the federal government are exempt from the cost estimate requirement of Subsection

R315-273-13(d)(6).

(7) The small quantity handler shall demonstrate financial assurance for the detailed cost estimates determined in Subsection R315-273-13(d)(6) using one of the options in Subsections R315-261-143(a) through (e). Drum-top lamp crushers operated by the state or the federal government are exempt from the financial assurance requirement of Subsection R315-273-13(d)(7).

(8) Crushed universal waste lamps may be managed as universal waste lamps under Rule R315-273 or they may be managed as hazardous waste in accordance with all applicable requirements of Rules R315-260 through 266 and 268.

(e) Antifreeze. A small quantity handler of universal waste shall manage universal waste antifreeze in a way that prevents releases of any universal waste or component of a universal waste to the environment. The universal waste antifreeze shall be contained in one or more of the following:

(1) A container that remains closed, structurally sound, compatible with the antifreeze, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions; or

(2) A container that does not meet the requirements of Subsection R315-273-13(e)(1), provided that the unacceptable container is overpacked in a container that does meet the requirements of Subsection R315-273-13(e)(1); or

(3) A tank that meets the requirements of 40 CFR 265.190 through 202, except for 40 CFR 265.197(c) and 40 CFR 265.200 and 201, 40 CFR 265 is adopted by reference in R315-265; or

(4) A transport vehicle or vessel that is closed, structurally sound, compatible with the antifreeze, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

(f) Aerosol cans. A small quantity handler of universal waste shall manage universal waste aerosol cans in a way that prevents release of any universal waste or component of a universal waste or accelerant to the environment as follows:

(1) A small quantity handler of universal waste shall immediately contain any universal waste aerosol can that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions in a separate individual container. The individual container shall be closed, structurally sound, compatible with the contents of the universal waste aerosol can, and shall lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

(2) A small quantity handler of universal waste may accumulate universal waste aerosol cans in a specially designated accumulation container provided it is clearly marked for such use. The accumulation container shall be closed, structurally sound, compatible with the contents of the universal waste aerosol can, and shall lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions. The universal waste aerosol cans shall be sorted by type and compatibility of contents to ensure that incompatible materials are segregated and managed appropriately in separate accumulation containers.

(3) A small quantity handler of universal waste may puncture

universal waste aerosol cans to remove and collect the contents of the aerosol can provided the handler:

(i) Ensures that the universal waste aerosol can is punctured in a manner designed to prevent the release of any universal waste or component of universal waste or accelerant to the environment;

(ii) Ensures that the puncturing operations are performed safely by developing and implementing a written procedure detailing how to safely puncture universal waste aerosol cans. This procedure shall include:

(A) the type of equipment to be used to puncture the universal waste aerosol cans safely;

(B) operation and maintenance of the unit;

(C) segregation of incompatible wastes;

(D) proper waste management practices, i.e., ensuring that flammable wastes are stored away from heat or open flames; and

(E) waste characterization;

(iii) Ensures that a spill clean-up kit is readily available to immediately clean up spills or leaks of the contents of the universal waste aerosol can which may occur during the can-puncturing operation;

(iv) Immediately transfers the contents of the universal waste aerosol can, or puncturing device if applicable, to a container that meets the requirements of Section R315-262-34;

(v) Ensures that the area in which the universal waste aerosol cans are punctured is well ventilated; and

(vi) Ensures that employees are thoroughly familiar with the procedure for sorting and puncturing universal waste aerosol cans, and proper waste handling and emergency procedures, relevant to their responsibilities during normal facility operations and emergencies.

(4)(i) A small quantity handler of universal waste who punctures universal waste aerosol cans to remove the contents of the aerosol can, or who generates other solid waste as a result of the activities listed above, shall determine whether the contents of the universal waste aerosol can, residues and/or other solid wastes exhibit a characteristic of hazardous waste identified in Sections R315-261-20 through 24, or are listed as a hazardous waste identified in Sections R315-261-30 through 35.

(ii) If the contents of the universal waste aerosol can, residues and/or other solid waste exhibit a characteristic of hazardous waste or are listed hazardous wastes, they shall be managed in compliance with all applicable requirements of Rules R315-260 through 266, 268, 270 and 124. The handler is considered the generator of the contents of the universal waste aerosol can, residues, and/or other waste and is subject to the requirements of Rule R315-262. In addition to the Rule R315-262 labeling requirements, the container used to accumulate, store, or transport the hazardous waste contents removed from the punctured universal waste aerosol can shall be labeled with all applicable EPA Hazardous Waste Codes found in Sections R315-261-20 through 24 and Sections R315-261-30 through 35.

(iii) If the contents of the universal waste aerosol can, residues, and/or other solid waste are not hazardous, the handler may manage the waste in a way that is in compliance with applicable federal, state or local solid waste regulations.

R315-273-14. Standards for Universal Waste Management, Standards

for Small Quantity Handlers of Universal Waste -- Labeling/Marking.

A small quantity handler of universal waste shall label or mark the universal waste to identify the type of universal waste as specified below:

(a) Universal waste batteries, i.e., each battery, or a container in which the batteries are contained, shall be labeled or marked clearly with any one of the following phrases: "Universal Waste-Battery(ies)," or "Waste Battery(ies)," or "Used Battery(ies);"

(b) A container, or multiple container package unit, tank, transport vehicle or vessel in which recalled universal waste pesticides as described in Subsection R315-273-3(a)(1) are contained shall be labeled or marked clearly with:

(1) The label that was on or accompanied the product as sold or distributed; and

(2) The words "Universal Waste-Pesticide(s)" or "Waste-Pesticide(s);"

(c) A container, tank, or transport vehicle or vessel in which unused pesticide products as described in Subsection R315-273-3(a)(2) are contained shall be labeled or marked clearly with:

(1)(i) The label that was on the product when purchased, if still legible;

(ii) If using the labels described in Subsection R315-273-14(c)(1)(i) is not feasible, the appropriate label as required under the Department of Transportation regulation 49 CFR part 172;

(iii) If using the labels described in Subsections R315-273-14(c)(1)(i) and (ii) is not feasible, another label prescribed or designated by the waste pesticide collection program administered or recognized by a state; and

(2) The words "Universal Waste-Pesticide(s)" or "Waste-Pesticide(s)."

(d)(1) Universal waste mercury-containing equipment, i.e., each device, or a container in which the equipment is contained, shall be labeled or marked clearly with any of the following phrases: "Universal Waste-Mercury Containing Equipment," "Waste Mercury-Containing Equipment," or "Used Mercury-Containing Equipment."

(2) A universal waste mercury-containing thermostat or container containing only universal waste mercury-containing thermostats may be labeled or marked clearly with any of the following phrases: "Universal Waste-Mercury Thermostat(s)," "Waste Mercury Thermostat(s)," or "Used Mercury Thermostat(s)."

(e) Each lamp or a container or package in which such lamps are contained shall be labeled or marked clearly with one of the following phrases: "Universal Waste-Lamp(s)," or "Waste Lamp(s)," or "Used Lamp(s)".

(f) A container, tank, or transport vehicle or vessel in which antifreeze is contained shall be labeled or marked clearly with the words "Universal Waste-~~[-]~~antifreeze" ~~.[~~-~~or "~~Waste-~~antifreeze."~~]~~~~

(g) Universal waste aerosol cans, i.e., each can, or a container in which the universal waste aerosol cans are contained or accumulated, shall be labeled or marked clearly with any one of the following phrases: "Universal Waste-Aerosol Can(s)", or "Waste Aerosol Can(s)".

R315-273-30. Standards for Universal Waste Management, Standards for Large Quantity Handlers of Universal Waste -- Applicability.

Sections R315-273-30 through 40 apply to large quantity handlers of universal waste, as defined in Section R315-273-9[~~except that the registration requirement of Subsection R315-273-33(d)(3) and Subsections R315-273-33(d)(6) and (7) do not apply to generators~~].

R315-273-33. Standards for Universal Waste Management, Standards for Large Quantity Handlers of Universal Waste -- Waste Management.

(a) Batteries. A large quantity handler of universal waste shall manage universal waste batteries in a way that prevents releases of any universal waste or component of a universal waste to the environment, as follows:

(1) A large quantity handler of universal waste shall contain any universal waste battery that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions in a container. The container shall be closed, structurally sound, compatible with the contents of the battery, and shall lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

(2) A large quantity handler of universal waste may conduct the following activities as long as the casing of each individual battery cell is not breached and remains intact and closed, except that cells may be opened to remove electrolyte but shall be immediately closed after removal:

- (i) Sorting batteries by type;
- (ii) Mixing battery types in one container;
- (iii) Discharging batteries so as to remove the electric charge;
- (iv) Regenerating used batteries;
- (v) Disassembling batteries or battery packs into individual batteries or cells;
- (vi) Removing batteries from consumer products; or
- (vii) Removing electrolyte from batteries.

(3) A large quantity handler of universal waste who removes electrolyte from batteries, or who generates other solid waste, e.g., battery pack materials, discarded consumer products, as a result of the activities listed above, shall determine whether the electrolyte and/or other solid waste exhibit a characteristic of hazardous waste identified in Sections R315-261-20 through 24.

(i) If the electrolyte and/or other solid waste exhibit a characteristic of hazardous waste, it shall be managed in compliance with all applicable requirements of Rules R315-260 through 266, 268 and 270. The handler is considered the generator of the hazardous electrolyte and/or other waste and is subject to Rule R315-262.

(ii) If the electrolyte or other solid waste is not hazardous, the handler may manage the waste in any way that is in compliance with applicable federal, state or local solid waste regulations.

(b) Pesticides. A large quantity handler of universal waste shall manage universal waste pesticides in a way that prevents releases of any universal waste or component of a universal waste to the environment. The universal waste pesticides shall be contained in one or more of the following:

- (1) A container that remains closed, structurally sound,

compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions; or

(2) A container that does not meet the requirements of Subsection R315-273-33(b)(1), provided that the unacceptable container is overpacked in a container that does meet the requirements of Subsection R315-273-33(b)(1); or

(3) A tank that meets the requirements of 40 CFR 265.190 through 202, except for 40 CFR 265.197(c) and 40 CFR 265.200 and 201, 40 CFR 265 is adopted by reference in R315-265; or

(4) A transport vehicle or vessel that is closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

(c) Mercury-containing equipment. A large quantity handler of universal waste shall manage universal waste mercury-containing equipment in a way that prevents releases of any universal waste or component of a universal waste to the environment, as follows:

(1) A large quantity handler of universal waste shall place in a container any universal waste mercury-containing equipment with non-contained elemental mercury or that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions. The container shall be closed, structurally sound, compatible with the contents of the device, shall lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions, and shall be reasonably designed to prevent the escape of mercury into the environment by volatilization or any other means.

(2) A large quantity handler of universal waste may remove mercury-containing ampules from universal waste mercury-containing equipment provided the handler:

(i) Removes and manages the ampules in a manner designed to prevent breakage of the ampules;

(ii) Removes the ampules only over or in a containment device, e.g., tray or pan sufficient to collect and contain any mercury released from an ampule in case of breakage;

(iii) Ensures that a mercury clean-up system is readily available to immediately transfer any mercury resulting from spills or leaks of broken ampules from that containment device to a container that meets the requirements of Section R315-262-34;

(iv) Immediately transfers any mercury resulting from spills or leaks from broken ampules from the containment device to a container that meets the requirements of Section R315-262-34;

(v) Ensures that the area in which ampules are removed is well ventilated and monitored to ensure compliance with applicable OSHA exposure levels for mercury;

(vi) Ensures that employees removing ampules are thoroughly familiar with proper waste mercury handling and emergency procedures, including transfer of mercury from containment devices to appropriate containers;

(vii) Stores removed ampules in closed, non-leaking containers that are in good condition;

(viii) Packs removed ampules in the container with packing materials adequate to prevent breakage during storage, handling, and

transportation;

(3) A large quantity handler of universal waste mercury-containing equipment that does not contain an ampule may remove the open original housing holding the mercury from universal waste mercury-containing equipment provided the handler:

(i) Immediately seals the original housing holding the mercury with an air-tight seal to prevent the release of any mercury to the environment; and

(ii) Follows all requirements for removing ampules and managing removed ampules under Subsection R315-273-33(c)(2); and

(4)(i) A large quantity handler of universal waste who removes mercury-containing ampules from mercury-containing equipment or seals mercury from mercury-containing equipment in its original housing shall determine whether the following exhibit a characteristic of hazardous waste identified in Sections R315-261-20 through 24:

(A) Mercury or clean-up residues resulting from spills or leaks and/or

(B) Other solid waste generated as a result of the removal of mercury-containing ampules or housings, e.g., the remaining mercury-containing device.

(ii) If the mercury, residues, and/or other solid waste exhibits a characteristic of hazardous waste, it shall be managed in compliance with all applicable requirements of Rules R315-260 through 266, 268 and 270. The handler is considered the generator of the mercury, residues, and/or other waste and shall manage it in compliance with Rule R315-262.

(iii) If the mercury, residues, and/or other solid waste is not hazardous, the handler may manage the waste in any way that is in compliance with applicable federal, state or local solid waste regulations.

(d) Lamps. A large quantity handler of universal waste shall manage lamps in a way that prevents releases of any universal waste or component of a universal waste to the environment, as follows:

(1) A large quantity handler of universal waste shall contain any lamp in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps. Such containers and packages shall remain closed and shall lack evidence of leakage, spillage or damage that could cause leakage under reasonably foreseeable conditions.

(2) A large quantity handler of universal waste shall immediately clean up and place in a container any lamp that is broken and shall place in a container any lamp that shows evidence of breakage, leakage, or damage that could cause the release of mercury or other hazardous constituents to the environment. Containers shall be closed, structurally sound, compatible with the contents of the lamps and shall lack evidence of leakage, spillage or damage that could cause leakage or releases of mercury or other hazardous constituents to the environment under reasonably foreseeable conditions.

(3) A large quantity handler of universal waste may crush universal waste lamps using a drum-top lamp crusher designed specifically for crushing lamps provided that the Large quantity handler submits a drum-top lamp crusher registration application to and receives approval from the Director. The registration application shall demonstrate that the large quantity handler shall

operate the drum-top lamp crusher to ensure the following:

(i) The lamps are crushed in a closed accumulation container [~~designed specifically for crushing lamps~~] as specified by the manufacturer of the drum-top lamp crusher;

(ii) The lamps are crushed in a controlled manner that prevents the release of mercury vapor or other contaminants in exceedance of the manufacturer's specifications;

(iii) The drum-top lamp crusher shall have a filtration system consisting of, at a minimum, a bag filter followed in series by a HEPA filter and an activated carbon filter;

(iv) The drum-top lamp crusher is installed, maintained, and operated in accordance with written procedures developed by the manufacturer of the equipment including specific instructions for the frequency of filter changes;

(v) Filters are either characterized to demonstrate that they are not a hazardous waste or managed as a hazardous waste;

(vi) A spill clean-up kit is available;

(vii) The area in which the drum-top crusher is operated is well ventilated and monitored to ensure compliance with applicable OSHA exposure levels for mercury;

(viii) The employee using the drum-top lamp crusher is trained annually on the written operating, safety, personal protection and maintenance procedures of the system;

(ix) The employee using the drum-top lamp crusher is trained annually in emergency procedures;

(x) An operating record is kept and consists of the following:

(A) the number and size of lamps crushed per calendar day, per calendar month, and per calendar year;

(B) the schedule for the change out of filters;

(C) date and time of filter change out;

(D) date, type, and time of equipment maintenance;

(E) any occurrence of equipment malfunction; and

(F) procedures for preventing equipment malfunctions.

(4) The operating record shall be maintained for at least three years.

(5) When a drum-top crusher is no longer used or is relocated, the area where the crusher was located shall be decontaminated of all mercury and other contaminants caused by the use of the drum-top lamp crusher. A report documenting the decontamination steps as well as supporting analytical data demonstrating successful remediation shall be submitted to the Director for approval within 30 days following completion of decontamination.

(6) The large quantity handler shall provide a closure plan along with a detailed written estimate, in current dollars, of the cost of disposing the drum-top lamp crusher; decontamination of the area surrounding the drum-top lamp crusher, and any analytical costs required to show that decontamination is complete. Drum-top lamp crushers operated by the state or the federal government are exempt from the cost estimate requirement of Subsection R315-273-33(d)(6).

(7) The large quantity handler shall demonstrate financial assurance for the detailed cost estimates determined in Subsection R315-273-33(d)(6) using one of the options in Subsections R315-261-143(a) through (e). Drum-top lamp crushers operated by the state or the federal government are exempt from the financial assurance

requirement of Subsection R315-273-33(d)(7).

(8) Crushed universal waste lamps may be managed as universal waste lamps under Rule R315-273 or they may be managed as hazardous waste in accordance with all applicable requirements of Rules R315-260 through 266 and 268.

(e) Antifreeze. A large quantity handler of universal waste shall manage universal waste antifreeze in a way that prevents releases of any universal waste or component of a universal waste to the environment. The universal waste antifreeze shall be contained in one or more of the following:

(1) A container that remains closed, structurally sound, compatible with the antifreeze, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions; or

(2) A container that does not meet the requirements of Subsection R315-273-13(e)(1), provided that the unacceptable container is overpacked in a container that does meet the requirements of Subsection R315-273-13(e)(1); or

(3) A tank that meets the requirements of 40 CFR 265.190 through 202, except for 40 CFR 265.197(c) and 40 CFR 265.200 and 201, 40 CFR 265 is adopted by reference in R315-265; or

(4) A transport vehicle or vessel that is closed, structurally sound, compatible with the antifreeze, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

(f) Aerosol cans. A large quantity handler of universal waste shall manage universal waste aerosol cans in a way that prevents release of any universal waste or component of a universal waste or accelerant to the environment as follows:

(1) A large quantity handler of universal waste shall immediately contain any universal waste aerosol can that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions in a separate individual container. The individual container shall be closed, structurally sound, compatible with the contents of the universal waste aerosol can, and shall lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

(2) A large quantity handler of universal waste may accumulate universal waste aerosol cans in a specially designated accumulation container provided it is clearly marked for such use. The accumulation container shall be closed, structurally sound, compatible with the contents of the universal waste aerosol can, and shall lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions. The universal waste aerosol cans shall be sorted by type and compatibility of contents to ensure that incompatible materials are segregated and managed appropriately in separate accumulation containers.

(3) A large quantity handler of universal waste may puncture universal waste aerosol cans to remove and collect the contents of the aerosol can provided the handler:

(i) Ensures that the universal waste aerosol can is punctured in a manner designed to prevent the release of any universal waste or component of universal waste or accelerant to the environment;

(ii) Ensures that the puncturing operations are performed

safely by developing and implementing a written procedure detailing how to safely puncture universal waste aerosol cans. This procedure shall include:

- (A) the type of equipment to be used to puncture the universal waste aerosol cans safely;
 - (B) operation and maintenance of the unit;
 - (C) segregation of incompatible wastes;
 - (D) proper waste management practices, i.e., ensuring that flammable wastes are stored away from heat or open flames; and
 - (E) waste characterization;
- (iii) Ensures that a spill clean-up kit is readily available to immediately clean up spills or leaks of the contents of the universal waste aerosol can which may occur during the can-puncturing operation;
 - (iv) Immediately transfers the contents of the universal waste aerosol can, or puncturing device if applicable, to a container that meets the requirements of Section R315-262-34;
 - (v) Ensures that the area in which the universal waste aerosol cans are punctured is well ventilated; and
 - (vi) Ensures that employees are thoroughly familiar with the procedure for sorting and puncturing universal waste aerosol cans, and proper waste handling and emergency procedures, relevant to their responsibilities during normal facility operations and emergencies.

(4)(i) A large quantity handler of universal waste who punctures universal waste aerosol cans to remove the contents of the aerosol can, or who generates other solid waste as a result of the activities listed above, shall determine whether the contents of the universal waste aerosol can, residues and/or other solid wastes exhibit a characteristic of hazardous waste identified in Sections R315-261-20 through 24, or are listed as a hazardous waste identified in Sections R315-261-30 through 35.

(ii) If the contents of the universal waste aerosol can, residues and/or other solid waste exhibit a characteristic of hazardous waste or are listed hazardous wastes, they shall be managed in compliance with all applicable requirements of Rules R315-260 through 266, 268, 270 and 124. The handler is considered the generator of the contents of the universal waste aerosol can, residues, and/or other waste and is subject to the requirements of Rule R315-262. In addition to the Rule R315-262 labeling requirements, the container used to accumulate, store, or transport the hazardous waste contents removed from the punctured universal waste aerosol can shall be labeled with all applicable EPA Hazardous Waste Codes found in Sections R315-261-20 through 24 and Sections R315-261-30 through 35.

(iii) If the contents of the universal waste aerosol can, residues, and/or other solid waste are not hazardous, the handler may manage the waste in a way that is in compliance with applicable federal, state or local solid waste regulations.

R315-273-34. Standards for Universal Waste Management, Standards for Large Quantity Handlers of Universal Waste -- Labeling/Marking.

A large quantity handler of universal waste shall label or mark the universal waste to identify the type of universal waste as specified below:

- (a) Universal waste batteries, i.e., each battery, or a container or tank in which the batteries are contained, shall be

labeled or marked clearly with any one of the following phrases: "Universal Waste-Battery(ies)," or "Waste Battery(ies)," or "Used Battery(ies);"

(b) A container, or multiple container package unit, tank, transport vehicle or vessel in which recalled universal waste pesticides as described in Subsection R315-273-3(a)(1) are contained shall be labeled or marked clearly with:

(1) The label that was on or accompanied the product as sold or distributed; and

(2) The words "Universal Waste-Pesticide(s)" or "Waste-Pesticide(s);"

(c) A container, tank, or transport vehicle or vessel in which unused pesticide products as described in Subsection R315-273-3(a)(2) are contained shall be labeled or marked clearly with:

(1)(i) The label that was on the product when purchased, if still legible;

(ii) If using the labels described in Subsection R315-273-34(c)(1)(i) is not feasible, the appropriate label as required under the Department of Transportation regulation 49 CFR part 172;

(iii) If using the labels described in Subsections R315-273-34(c)(1)(i) and (1)(ii) is not feasible, another label prescribed or designated by the pesticide collection program; and

(2) The words "Universal Waste-Pesticide(s)" or "Waste-Pesticide(s)."

(d)(1) Mercury-containing equipment, i.e., each device, or a container in which the equipment is contained, shall be labeled or marked clearly with any of the following phrases: "Universal Waste-Mercury Containing Equipment," "Waste Mercury-Containing Equipment," or "Used Mercury-Containing Equipment."

(2) A universal waste mercury-containing thermostat or container containing only universal waste mercury-containing thermostats may be labeled or marked clearly with any of the following phrases: "Universal Waste-Mercury Thermostat(s)," "Waste Mercury Thermostat(s)," or "Used Mercury Thermostat(s)."

(e) Each lamp or a container or package in which such lamps are contained shall be labeled or marked clearly with any one of the following phrases: "Universal Waste-Lamp(s)," or "Waste Lamp(s)," or "Used Lamp(s)".

(f) A container, tank, or transport vehicle or vessel in which antifreeze is contained shall be labeled or marked clearly with the words "Universal Waste-~~[-]~~antifreeze"~~. [~~-~~or "~~Waste-~~antifreeze."]~~

(g) Universal waste aerosol cans, i.e., each can, or a container in which the universal waste aerosol cans are contained or accumulated, shall be labeled or marked clearly with any one of the following phrases: "Universal Waste-Aerosol Can(s)", or "Waste Aerosol Can(s)".

KEY: hazardous waste, universal waste

Date of Enactment or Last Substantive Amendment: August 31, 2017

Authorizing, and Implemented or Interpreted Law: 19-6-105; 19-6-106

WASTE MANAGEMENT AND RADIATION CONTROL BOARD

Executive Summary

Public Comment -- Proposed Rule Changes

UAC R313-28-31, Use of X-Rays in the Healing Arts, General and Administrative Requirements

October 11, 2018

What is the issue before the Board?	Approval from the Board to proceed with formal rulemaking and public comment by filing with the Office of Administrative Rules and publishing in the <i>Utah State Bulletin</i> proposed changes to UAC R313-28-31 to clarify that x-ray equipment purchased for use in Utah must be certified and identified as meeting requirements set by the Food and Drug Administration (FDA) for x-ray equipment being used in the United States as required by 21 CFR 1010.2 and 1010.3.
What is the historical background or context for this issue?	<p>X-ray inspectors from the Division are finding x-ray equipment being used in medical facilities in Utah that has been purchased from overseas sources. In some cases this equipment does not meet the safety requirements set forth in the rules making the use of the equipment a potential hazard to the health of the operator and the patient. In all cases, it has been determined that the equipment was not certified and identified as being approved by the federal FDA for use in the United States.</p> <p>The proposed changes to UAC R313-28-31 follow this Executive Summary.</p>
What is the governing statutory or regulatory citation?	<p>The Board is authorized under Subsection 19-6-104 to make rules that are necessary to implement the provision of the Radiation Control Act.</p> <p>The rule changes also meet existing DEQ and state rulemaking procedures.</p>
Is Board action required?	Yes. 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 <i>Utah State Bulletin</i> and conducting a public comment period.
What is the Division Director's recommendation?	The Director recommends the Board approve proceeding with formal rulemaking and public comment by publishing in the November 1, 2018, <i>Utah State Bulletin</i> the proposed changes to UAC R313-28-31 and conducting a public comment period from November 1, 2018 to November 30, 2018.
Where can more information be obtained?	Please contact Tom Ball (801) 536-0251, (tball@utah.gov) or Rusty Lundberg (801) 536-4257, (rlundberg@utah.gov).

R313. Environmental Quality, Waste Management and Radiation Control, Radiation.

R313-28. Use of X-Rays in the Healing Arts.

R313-28-31. General and Administrative Requirements.

(1) Persons shall not make, sell, lease, transfer, lend, or install x-ray equipment or the accessories used in connection with x-ray equipment unless the accessories and equipment, when properly placed in operation and properly used, will meet the applicable requirements of these rules.

(a) X-ray equipment shall be FDA approved for use in the United States and shall be certified in accordance with 21 CFR 1010.2 and identified in accordance with 21 CFR 1010.3.

(2) The registrant shall be responsible for directing the operation of the x-ray machines which are under the registrant's administrative control. The registrant or registrant's agent shall assure that the requirements of R313-28-31(2)(a) through R313-28-31(2)(i) are met in the operation of the x-ray machines.

(a) An x-ray machine which does not meet the provisions of these rules shall not be operated for diagnostic purposes, when directed by the Director.

(b) Individuals who will be operating the x-ray equipment shall be instructed in the registrant's written radiation safety program and be qualified in the safe use of the equipment. Required operator qualifications are listed in R313-28-350.

(c) The registrant of a facility shall create and make available to x-ray operators written safety procedures, including patient holding and restrictions of the operating technique required for the safe operation of the x-ray systems. Individuals who operate x-ray systems shall be responsible for complying with these rules.

(d) Except for individuals who cannot be moved out of the room and the patient being examined, only the staff and ancillary personnel or other individuals needed for the medical procedure or training shall be present in the room during the radiographic exposure and shall be positioned as follows:

(i) individuals other than the patient shall be positioned so that no part of the body will be struck by the useful beam unless protected by not less than 0.5 mm lead equivalent material;

(ii) the x-ray operator, other staff, ancillary personnel and other individuals needed for the medical procedure shall be protected from primary beam scatter by protective aprons or barriers unless it can be shown that by virtue of distances employed, EXPOSURE levels are reduced to the limits specified in R313-15-201; and

(iii) patients who are not being examined and cannot be removed from the room shall be protected from the primary beam scatter by whole body protective barriers of not less than 0.25 mm lead equivalent material or shall be so positioned that the nearest portion of the body is at least two meters from both the tube head and nearest edge of the image receptor.

(e) For patients who have not passed reproductive age, gonad shielding of not less than 0.5 mm lead equivalent material shall be used during radiographic procedures in which the gonads are in the useful beam, except for cases in which this would interfere with the diagnostic procedure.

(f) Individuals shall be exposed to the useful beam for healing arts purposes only when the exposure has been specifically ordered and authorized by a licensed practitioner of the healing arts after a medical consultation. Deliberate exposures for the following purposes are prohibited:

(i) exposure of an individual for training, demonstration or other non-healing arts purposes; and

(ii) exposure of an individual for the purpose of healing arts screening except as authorized by R313-28-31(2)(i).

(g) When a patient or film must be provided with auxiliary support during a radiation exposure:

(i) mechanical holding devices shall be used when the technique permits. The written procedures, required by R313-28-31(2)(c), shall list individual projections where mechanical holding devices can be utilized;

(ii) written safety procedures, as required by R313-28-31(2)(c), shall indicate the requirements for selecting an individual to hold patients or films and the procedure that individual shall follow;

(iii) the individual holding patients or films during radiographic examinations shall be instructed in personal radiation safety and protected as required by R313-28-31(2)(d)(i);

(iv) Individuals shall not be used routinely to hold film or patients;

(v) In those cases where the patient must hold the film, except during intraoral examinations, portions of the body other than the area of clinical interest struck by the useful beam shall be protected by not less than 0.5 mm lead equivalent material; and

(vi) Facilities shall have protective aprons and gloves available in sufficient numbers to provide protection to personnel who are involved with x-ray operations and who are otherwise not shielded.

(h) Personnel monitoring. Individuals who are associated with the operation of an x-ray system are subject to the applicable requirements of R313-15.

(i) Healing arts screening. Persons proposing to conduct a healing arts screening program shall not initiate the program without prior approval of the Director. When requesting approval, that person shall submit the information outlined in R313-28-400. If information submitted becomes invalid or outdated, the Director shall be notified immediately.

(3) Maintenance of records and information. The registrant shall maintain at least the following information for each x-ray machine:

(a) model numbers of major components;

(b) record of surveys or calculations to demonstrate compliance with R313-15-302, calibration, maintenance and modifications performed on the x-ray machine; and

(c) a shielding design report for the x-ray suite which states assumed values for workload and use factors and includes a drawing of surrounding areas showing assumed values for occupancy factors.

(4) X-ray records. Facilities shall maintain an x-ray record containing the patient's name, the types of examinations, and the dates the examinations were performed. When the patient or film must

be provided with human auxiliary support, the name of the human holder shall be recorded. The registrant shall retain these records for three years after the record is made.

(5) Portable or mobile equipment shall be used only for examinations where it is impractical to transfer the patient to a stationary radiographic installation.

(6) Hand-held medical x-ray systems. X-ray equipment designed to be hand-held shall comply with Section R313-28-31, excluding Subsection R313-28-31(5), and R313-28-52, excluding Subsections R313-28-52(8)(b)(i) and (ii).

(a) When operating hand-held equipment for which it is not possible for the operator to remain at least six feet from the x-ray machine during x-ray exposure, protective aprons of at least 0.5 millimeter lead equivalence shall be provided for the operator to protect the operator's torso and gonads from backscatter radiation;

(b) In addition to the dose limits in R313-15-301, operators of hand-held x-ray equipment shall ensure that members of the public that may be exposed to scatter radiation or primary beam transmission from the hand-held device are not exposed above 2 milliroentgen per hour;

(i) Operators will ensure that members of the public likely to be exposed to greater than 2 milliroentgen per hour will be provided protective aprons of at least 0.5 millimeter lead equivalence or are moved to a distance such that the exposure rate to the individual is below 2 milliroentgen per hour; and

(c) In addition to the requirements of Subsection R313-28-350(1), each operator of hand-held x-ray equipment shall complete the training program supplied by the manufacturer prior to using the x-ray unit. Records of training shall be maintained on file for examination by an authorized representative of the Director.

(7) Procedures and auxiliary equipment designed to minimize patient and personnel exposure commensurate with the needed diagnostic information shall be utilized.

(a) The speed of the screen and film combinations used shall be the fastest speed consistent with the diagnostic objective of the examinations. Film cassettes without intensifying screens shall not be used for routine diagnostic radiological imaging, with the exception of standard film packets for intra-oral use in dental radiography. If the requirements of R313-28-31(6)(a) cannot be met, an exemption may be requested pursuant to R313-12-55.

(b) The radiation exposure to the patient shall be the minimum exposure required to produce images of good diagnostic quality.

(c) X-ray systems, other than fluoroscopic, computed tomography, dental or veterinary units, shall not be utilized in procedures where the source to patient distance is less than 30 centimeters.

KEY: dental, X-rays, mammography, beam limitation

Date of Enactment or Last Substantive Amendment: March 24, 2015

Notice of Continuation: July 1, 2016

Authorizing, and Implemented or Interpreted Law: 19-3-104; 19-6-107