

From: [Tibbetts, Jenny A](#)
To: [RulemakingComments.Resource](#)
Subject: [External_Sender] Re: Public Comment
Date: Wednesday, November 20, 2019 1:28:58 AM
Attachments: [My Comments.docx](#)

NRC Board members,

I just realized that I sent you the unedited version in that last e-mail attachment I sent you, instead of the edited version that contains my comments on **Docket ID NRC-2017-0081**. I hope you can accept my sincere apologies. I have taken the liberty in submitting the edited version into the attachment of this e-mail. Again, I appreciate your time and consideration in receiving my comments. Thank you.

- Jenny Tibbetts

From: Tibbetts, Jenny A
Sent: Tuesday, November 19, 2019 10:22 PM
To: Rulemaking.Comments@nrc.gov <Rulemaking.Comments@nrc.gov>
Subject: Public Comment

NRC Board members,

*I've been trying to submit my public comments on **Docket ID NRC-2017-0081** for the last half hour or so, but I've had technical issues doing so on your site. Eventually my time ran out before I could resolve the technical issues. Can I just submit my comments here to you for your consideration? I placed my comments in the attachments. Please let me know that you recieved my comments, thank you so much for your time.*

- Jenny Tibbetts

Docket ID NRC-2017-0081

I am a resident of Tooele County Utah. I worked in the environmental industry doing hazmat and hazardous waste management before I returned back to school and received a bachelor's degree in Environmental Science. I'm presently in graduate school at the University of Alabama's School of Safety Engineering. I'm will graduate with a master's degree in Safety Engineering in 2020. I wish to comment on Docket ID NRC-2017-0081. I have a personal interest in your ruling because of the amount of low level nuclear waste (LLW) that Energy Solutions currently buries in Tooele County. For the purposes of this paper I will limit most of my comments to the concerns that I have that involve Energy Solutions in Clive Utah. I will also be referring to Energy Solution as ES in this paper.

Over the years ES have increased the amount of LLW they bury at their site in Clive Utah. ES leads the nation in the amount of LLW that they bury if we go by sheer volume and not by the level of waste. I have studied the political and business dealings of ES over the years. I'm against the idea that companies like ES should be allowed to burying LLW in more shallow surface areas. Burying LLW in shallow surface areas sounds like a really great deal for ES. But it's not so great of a deal for those of us that live in the communities close by. Aside from the risks of unforeseen radioactive exposure to the public, I would ask you to consider another price that the local people alone will have to pay if this terrible deal goes through. And that is the price that county residence pay when we lose a little more of "Our peace of mind." Perhaps we will see that it is indeed safe to bury LLW closer to the surface as we look back many years from now. But one could easily argue the other way that things might not turn out so well. People like me, my family, my friends and my neighbors have to live with these complex uncertainties for a great many years to come. Some may even choose to move out of the area to a place that doesn't pose so many risks. People in this county like me enjoy hiking, rock hounding and camping near the ES Clive site, which makes such experiences uncomfortable to say the least and much less enjoyable. The rural area is also a popular area for off-roading, target shooting and hunting.

Living in Tooele County already comes with a significant amount of risk compared to other communities in the nation. We have more than our share of EPA Superfund sites, hazardous abandoned mining districts, military test ranges, smelter operations and waste incineration plants that already pollute our environment and put our community on edge. For many years our county was also burdened with dismantling our nation's stockpile of ageing chemical weapons and weapons of mass destruction (EnviroCon, 2015). Large emergency siren towers were erected in every neighbor in case of a nerve agent leak. Every Wednesday to this day we still do mock drills with ear splitting sirens that can be heard for miles around. On a more personal level I have seriously considered moving out of Tooele County because of the environmental pollution that already plague this area. Many of my friends and neighbors have similar concerns. So I respectfully ask your committee not to bargain away our peace of minds. Please consider how this will make us feel and how it will affect our way of life. Why should Tooele County Utah be burdened with so much of this nuclear waste on behalf of our nation when our citizens have not generated even a small amount of the waste stream ourselves? And now we will be asked to take on even more potential risk if you allow LLW to be buried at even more shallow depths.

Another reason I'm against giving more options to ES is because they have a long history of not being honest with the state of Utah, as well as to my specific community. When they first came into Tooele County I watched as they made false promises to our residence, as well as to our governor in order to win over the support that they needed for their proposed site in Clive Utah. Our own governor assured us that nothing more would ever be buried there. ES gave their corporate word that they would never consider burying higher levels of nuclear waste in our back yard. I still remember how their promise won over some of the residents that were initially against the site. But as we now know ES lied to us and has petitioned the state of Utah to grant them the ability to bury higher levels of nuclear waste in our county. Recently the Utah Senate has taken steps to allow ES the right to accept shipments of depleted uranium at its site. Utah Senators voted 23-6 to advance HB220, "which signals state support for them to take larger amounts of a kind of low-level radioactive material that grows more hazardous over time" (Semerad, 2019). Many of the Senators who support HB220 are financial recipients of ES campaign contributions, while not a single one of the senators opposing HB220 took any campaign contributions, according to a Salt Lake Tribune investigative report (Semerad, 2019). HB220 will still have to receive final approval by a single individual at The State Division of Waste Management and Radiation Control (DWMRC), but the consensus seems to be that it will pass. Much of this was done without any consideration for the people in Tooele County who were once promised that these measures would never be considered.

I don't trust ES and I don't believe they have the best interest of the people of Tooele County at heart. I am not alone. The Department of Environmental Quality (DEQ) has many concerns as well. The DEQ published a report in 2015 in cooperation with the DWMRC, after extensively investigating the Clive Utah site. They provided a Safety Evaluation Report (SER) to determine the extent to which the depleted uranium performance assessment (DU PA) submitted by ES on June 1, 2011 and revised on June 5, 2014, complies with the requirements of Utah Administrative Code (UAC) R313-25-9(5)(a) and other government regulations (Winslow, 2015). Some of their initial concerns have been satisfied, whereas other concerns have yet to be resolved. I will be commenting on both open and closed cases because I feel that it paints a disturbing picture that outlines a pattern of behavior on the part of ES that should not be tolerated in such as high risk industry. It illustrates how ES has a history of relying on unfounded scientific standards of methodologies to base their testing, reports and scientific data on.

In the 2015 report the DEQ stated that ES misled state regulatory officials with insufficient data and misleading field tests. Much of the disputed data pertained to the uncertainty of the underground Clive aquifers, hydraulic conductivity barrier levels, compacted clay used for embankment liners and cover barrier layers, liner covers, freezing and thawing cycles, clayey barrier soil, routes of potential exposure and possible exposure scenarios. Some of these issues can be found in **(Sections F-1, F-2, F-3 of the DEQ 2015 Report)**. The DEQ claims that the test results don't meet ASTM or acceptable industry standards. At times ES fails to provide legitimate cited sources to back up their data sheets and described data reports. **(F-1, F-2)** Some of their field testing at Clive Utah was erroneously done in a matter of minutes, despite the fact that industry standards require longer durations of days or even weeks to obtain legitimate scientific data. The DEQ called these specific "test methods dubious." **(F-2)**

I find it most disturbing that ES has dismissed, down played and even appears to professionally criticize the DEQ for some of the "seemingly hard" requirements that are asked of them in the numerous rounds of requests and reports. ES often deflects or dismisses information that the DEQ requests, which requires more exhaustive efforts on the part of the DEQ and the DWMRC both to respond to each delinquent, misleading or unanswered request. This is evident

in numerous accounts if you read through the 2015 DEQ report. One examples of this can be found close to the bottom of **Section C-17 and continues on into C-18 and into the first part of C-19**. It has become clear to me that ES does not respect state and federal regulators and looks down on them as an intrusive presence that interferes in their operational plans. I was emotionally exhausted myself after having read through these reports. I felt quite sorry for the regulatory folks who are tasked with having to deal with all the ES issues (needless issues) throughout these many years. After studying their reactionary responses to the DEQ requirements it seems as if the company feels entitled to another set of standards all together, outside of the state and nuclear industry standards they agreed to. Perhaps this explains all the campaign contributions to state policy makers as an alternative route to advance their business agendas was needed.

The following concerns below were outlined in a DEQ 2015 Report (Winslow , 2015) and contain only a fraction of the concerns listed: The concerns pertain to federal laws, as well as rules enacted by the DEQ in 2010 entitled: UAC RULES R313-28-9(4) AND R313-25-9(5)(a), as well as other industry regulations. Each concern was assigned an interrogatory, Neptune or a Condition Number. The interrogatories were also outlined in an updated DEQ 2019 report (DEQ, 2019). The DEQ 2019 updated report shows that some of the concerns have been satisfied such as Condition 35 (RML UT 2300249), while others issues haven't even been addressed, resolved or require further action on the part of the DEQ. Based on the ES response to past interrogatories, the DEQ and DWMRC intend to move forward with a second version of the Safety Evaluation Report (SER) soon. Regulatory officials stated that "It's important to note that some interrogatories listed as "closed" might need to be reopened again, depending on resolution of currently open interrogatories" (DEQ, 2019). This really alarms me given the fact that ES may soon be given more burying options, as well as permission to dispose more dangerous levels of nuclear waste while some of these chronic issues remain unresolved.

2015 DEQ Report that contains Open/Closed Concerns:

- ES failed to meet UAC R313-25-9(4) and (5) (a) regulations requirements in providing parameter input's. This relates to the inadequate "FEPs Analysis." In the 2015 report the DEQ states that they are concerned about HYDRUS and GoldSim. "For example, in the 20HYDRUS simulations, it appears that the tails of the distributions describing the hydraulic properties are poorly sampled." This caused a number of unresolved issues with the selection of parameter ranges, distributions, and correlations, their modeling approach and predicted sensitivities. " DEQ found that a reasonably thorough sensitivity analysis, or a subset thereof, was not conducted by ES. They also found that the spatial variability within the hydraulic data is not represented properly. **(page 3, 37-38 of the DEQ 2015 report**
- DEQ staff notes that at the ES site they failed to account for deterioration over time of the clay liner, resulting in higher values of hydraulic conductivity that should be modeled as such. As shown in a U.S. Army Corps of Engineers. Degradation of liners over time (e.g., within 10 years) is a nearly universal occurrence. **(page 34)**
- DEQ believes that there is significant uncertainty in technetium-99 (Tc-99) concentrations that is not fully captured in the DU PA at the Clive site. This can not only affect compliance with the GWPLs at 500 years but also the ability of the facility to protect the groundwater in the confined aquifer underlying the Clive Utah site from degradation over 10,000 years. **(page 35)**

- DEQ cited concerns during the deconversion process where DUF 6 cylinders are rinsed with a neutralizing solution of potassium hydroxide (KOH) before being refilled with DU oxide. This neutralization process is unlikely to remove significant amounts of contaminants in the heels. This would lead to high levels of transuranic elements (such as Pu-238, Pu-239 and Np-237) which would exceed the acceptable limits set under the terms of the Northwest Interstate Compact on Low-Level Radioactive Waste Management. **(page 36)**
- DEQ states that ES provided inadequate performance assessment model assumptions for uranium fate and transport in the subsurface environment (the vadose and saturated zones). **(page 39-43)**
- ES provided miscalculated data for all possible radon pathways and routes of exposure as outlined in **Condition 35 which starts on page 48**. ES also calculated potential site exposure doses to industrial workers, ranch workers, hunters, and OHV enthusiasts. But because their potential exposures were assumed to occur on site, ES considered them to be inadvertent intruders and not valid members of the general public. Therefore their exposure was not addressed. This would directly affect someone like me that likes to hike or rock hound in the area, as well as my sons who like to hunt around the remote areas around Clive Utah. The DEQ also found that the equation values that ES used in their Radon Flux Analyses was mathematically flawed. The miscalculations have led to considerable uncertainty regarding the functionality of the ET cover as noted on **page 53-54**, which may lead to higher exposure rates with respect to intruders, or so called intruders. This oversight applies to the draft regulatory basis as outlined in the docket information that states, “The NRC staff concluded that most GTCC waste streams would be acceptable for near-surface disposal under the existing 10 CFR part 61 regulatory frameworks with the addition of new requirements, including requirements to protect an inadvertent intruder.” (Winslow, 2015). In particular, “the NRC staff has determined that an applicant for a near-surface disposal facility that can accept GTCC waste must: (1) Prepare and submit, as part of its application, a site-specific intruder assessment demonstrating that the 10 CFR part 61, subpart C performance requirements for inadvertent intruder protection will be met; and (2) must dispose of GTCC waste at a minimum depth of 5 meters below the surface of the earth and install or construct a barrier to inadvertent intrusion that is effective for a minimum of 500 years” (Winslow, 2015). The ES site in Clive Utah does not meet the description standards in **Condition 35**.
- UAC R313-25 requires investigation of all aquifers in the area of the LLW. ES has failed to adequately map and address the hydraulic interconnection of the *three aquifers* below their site in Clive, Utah. The DEQ asked them to investigate the deeper aquifers at the site and include the identity and presence of the aquifers, their geologic, geochemical, geotechnical and hydrologic characteristics, and the quality of associated ground waters therein. They have failed to comply.
- DEQ found that ES did not evaluate any exposures pathways for the general public involving groundwater ingestion. ES claims that groundwater around the site is not potable and does not need to be evaluated. But the DEQ disagrees. They point out that the Clive water system is registered with the Utah Division of Drinking Water that services four facilities in Tooele County, near Clive, which already relies on reverse osmosis treatment to supply industrial or commercial water needs. At least two of these facilities have used the treated groundwater for culinary purposes and drinking. **(page 55)**

- DEQ found that ES miscalculated infiltration rates in their HYDRUS model (which usually includes 5 layers of protection over the buried LLW). They failed to account for the reported statistical correlation and the full range of in-service saturated hydraulic conductivity (Ksat) and van Genuchten α values recommended for use in cover systems in NUREG/CR-7028.(page72)
- In relation to (71) Interrogatory CR R313-25-8(4)(a)-71/1:Biotic Processes in Gully Formation. The DU PA was determined to be inadequate; ES needs to clarify certain issues relating to Appendix 10 to the DU PA Model v1.2. (Winslow, 2015).

I'm greatly concerned about the state's role in providing the proper oversight that's needed with a company like ES, who shows disrespect towards the DEQ's regulatory presence and authority. But my concern only lies with state law makers and not with the DEQ or the DWMRC. I am however concerned that important decisions such as receiving approval for new state regulatory laws is left up to the judgment call of a single individual. I believe this is a grave mistake, even if we are currently dealing with an upstanding individual with a high degree of integrity. Even under the best of circumstances this decision depends heavily on the individual character of future workers who will hold this job title in subsequent generations to come. I strongly suggest that this responsibility should not be taken lightly.

I'm not sure if your board has the regulatory authority to take action against the campaign contributions that were given out by ES to Utah Senators. But I think it's in everyone's best interest if companies like ES, who can potentially affect our national security for better or for worse, not be granted the right to make campaign contributions to policy makers who are in a position to grant personal business favors. I feel that this is ethically and professionally wrong on so many levels.

I can appreciate the fact that you put additional LLW disposal safeguards in place to add to the ones that are already in place, such as the ones found in Section 10 CFR 61.2, (SOC) for 10 CFR part 6, § 61.55 (Waste classifications standards), 10 CFR part 61, as well as the overall stipulations found in NRC-2011-0012. But the problem is that the ES Clive site as it now stands doesn't appear to be safe, according to the DEQ and DWMRC concerns. Furthermore, ES does not appear to be a very willing participant in becoming compliant with all of the industry standards. The site is already plagued with complex, wicked problems that ES doesn't appear to know how to solve, or simply refuses to solve. I can only imagine the kind of precedence it would set if they were given more burying options, when they have already failed to bury their current LLW by the regulating standards already on the books. At minimum, I feel they should follow the wise counsel and directives set by the DEQ by proactively addressing their concerns, before more responsibilities are handed over to them.

My last appeal is on a more personal level. I would like to ask the NRC board members a few questions, if I may? If your family lived in Tooele County and frequently hiked, picnicked or visited the area around the Clive site, would you be worried about the issues raised by the DEQ and the DWMRC? What measures would you take to ensure that ES operates in professionally responsible ways that would ensure that your family is safeguarded from any possible exposure routes? Would you allow them to bury LLW at more shallow levels, or bury more risky forms of LLW waste while they currently struggle to remain compliant with the waste they already have?

In closing I would like to clarify that I'm not against the idea of burying LLW at more shallow levels *if* it can be done in reasonably safe and professionally responsible ways. I am however against implementing these procedural changes at a facility like ES that has failed to resolve the complex issues that currently exist at their site. The ES site is presently beset with

dysfunction and questionable business practices. ES falls far short of meeting even basic nuclear industry standards in their disposal operations. They desperately need to get their internal affairs in order and step up to the plate to address the plaguing concerns that the DEQ and DWMRC has with them; concerns that they have had 5 years to address, despite the fact that they have chosen to address only a selective number of issues thus far. They need to respect and appreciate the nuclear industry regulations that keep us all safe, wise and prudent. They also need to earn back both the public and regulatory officials trust by taking personal accountability for their past shortcomings. In particular, they need to work towards becoming fully compliant with regulations that pertain to the Low-Level Radioactive Waste Policy Act, UAC RULES R313-28-9(4), R313-25-9(5)(a) and NRC's, 10 CFR 73.67 (to name a few).

I plead with all NCR Board Members to remember us, the people of Tooele County Utah and future generations who will one day reside in this fast growing area, when you deliberate over the amendment issues at hand. I thank you for your time and consideration in giving me the opportunity to share my comments about a subject that remains very personal to me, my family and to the community that I live in. Thank you for your time.

Best Regards

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