DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION OF RADIATION CONTROL

IN THE MATTER OF: THE PROPOSED CHANGE TO UTAH RADIATION CONTROL RULE R313-25-8	**TRANSCRIPT OF PROCEEDINGS** Public Comment Hearing

January 26, 2010 * 6:03 p.m.

Before: John Hultquist, Low-Level Waste Section Manager

Location: Department of Environmental Quality
Division of Radiation Control
168 North 1950 West, Room 101
Salt Lake City, Utah 84116

Reporter: Kelly Fine-Jensen, RPR
Notary Public in and for the State of Utah

PUBLIC SPEAKERS:

Ed Firmage
Robert Henline
Cindy King
George Chapman
John Cuomo
Claire Geddes
Steve Nelson
Geri Roos
Christopher Thomas
Amy O'Connor
Joe Andrade
Helene Cuomo
Sam Gosch
Joe Nickols
Bob Brister

P R O C E E D I N G S

MR. HULTQUIST: Good evening, ladies and gentlemen.

I call this meeting to order.

This is a public hearing convened under R313-17, of the Utah Radiation Control Rules, to receive oral comments on the proposed rule, R313-25-8: License Requirements for Land Disposal of Radioactive Waste - Technical Analysis.

My name is John Hultquist. I am the Low-Level Waste Section Manager in the Department of Environmental Quality, Division of Radiation Control.

This proposed rule added language to Section 8 of Chapter 25 regarding land disposal of significant quantities of depleted uranium, i.e., more than one metric ton in total accumulation, and the requirement to submit for the Executive Secretary's review and approval a performance assessment that demonstrates that the performance standards specified in 10 CFR Part 61 and corresponding provisions of Utah rules will be met. Revision to R313-25-8: License Requirements for Land Disposal of Radioactive Waste - Technical Analysis, was submitted to the Division of Administrative Rules

in December 2009, and was published in the January 1st, 2010 issue of the Utah State Bulletin, which initiated a 30-day public comment period. In addition to being published in the Utah State Bulletin, the public notice was published in the Salt Lake Tribune, Deseret News and Tooele Transcript-Bulletin, as well as on the DRC web page.

If anyone desires to make a statement or comment for the record, please write and sign the public participation sign-in sheet located on the back table near the entrance door.

This hearing is being recorded and the proceedings will be available as part of the public participation document prepared for this rule making.

Written statements dealing with the proposed rule and dated postmarked no later than February 2nd, 2010 will be accepted for the record, as well as oral statements or comments made this evening.

Relevant comments will be considered in the final decision of the proposed rule. This is a hearing to receive oral comments, and as such, there will be no questioning of the participants. I ask that you confine your remarks to the matter at hand.

We will now proceed with the hearing

comments.

And first up, I have Ed Firmage.

MR. FIRMAGE: For the last year, the DEQ has struggled to deal with the consequences of the NRC's shockingly shortsighted and scientifically-indefensible decision to classify depleted uranium as Class A low-level waste. The proper response from Utah to this decision should have been, and still could be, to ban depleted uranium all together. In view our State's relationship with EnergySolutions, however, this seems unlikely.

The least, therefore, that our State should do is to ensure that appropriate new measures are in place to limit future damage. DU violates every essential definition of true low-level waste. It becomes more, not less, radioactive over time. And it is long lasting. EnergySolutions Clive facility is designed for waste with a short half life and relatively low levels of radioactivity. On this basis alone, storing DU at Clive must necessarily involve extra site-specific measures.

But concerns about longer lived and eventually more potent radioactive material are not the only reasons that new, much more stringent

requirements should be in place. EnergySolutions touts Clive as a remote and arid facility ideal for storing dangerous material. On the time scale of true low-level waste, this claim is not inaccurate. On the time scale of DU, however, it is entirely misleading. Clive is located at the bottom of historic Lake Bonneville, which has inundated the area several times in the last 100,000 years. In geologic time, which is what we're talking about with the active life of DU, it is near certain that Lake Bonneville will return. And with its return, Clive ceases to be a remote, arid anything. The integrity of Clive will be destroyed by wave action, and radioactive material could be dispersed by currents, storms and the rise and fall of the lake to every part of the basin and potentially beyond.

It is therefore incumbent on Utah, if it will not do the sensible thing and ban DU all together, to provide a higher level of safety for DU storage here than currently applies at Clive. It should be the purpose of the RCB's new rule to ensure that this is the case.

MR. HULTQUIST: Thank you.

Next up will be Robert Henning.

MR. HENLINE: Henline.

MR. HULTQUIST: Okay. Sorry.

MR. HENLINE: "The Utah Division of Radiation Control protects Utah citizens and the environment from sources of radiation that constitute a significant health hazard." These words were taken from the Utah Division of Radiation Control website, in Director Finerfrock's welcome message. I think it unfortunate that I need to come before the Board to remind you of your obligation to Utah's people and her environment, but the Board's recent refusal to act in any interests but those of corporate greed does, in fact, necessitate such a reminder.

There is no doubt that depleted uranium poses a significant health and safety risk. There is not a credible scientific expert that will contest this simple fact. It is a substance that is not only toxic for billions of years, it also becomes increasingly toxic over time. This, we know. What we don't know is if the EnergySolutions Clive facility is capable of storing this waste safely. Let me repeat that. We don't know if that facility is capable of safely storing the depleted uranium.

In a letter dated 21, September 2009, EnergySolutions' president, Val Christensen, stated, "EnergySolutions has contracted with Neptune and

Company, the industry-recognized experts in the field of performance assessments, to provide an updated performance assessment for depleted uranium disposal....We anticipate that the performance assessment will be provided to your staff by December 2010." What this tells us is that the facility at Clive has not been properly evaluated for the safe, long-term disposal of depleted uranium by the admission EnergySolutions. Yet, they still demand the right to import this deadly substance and to dispose of it on out land in our backyards.

It is now time for the people of Utah to make a demand of their own, a demand that this body live up to its obligations and act in the best interests of the people and the environment of Utah, not a corporation that has repeatedly demonstrated its disdain for the rules and regulations meant to protect us. What that means, ladies and gentlemen, is that as you evaluate the regulations regarding disposal of depleted uranium, you err on the side of caution, on the side of protection, on the side of doing the job as you've accepted it. And unless and until it can be proven that this toxic waste can be safely and permanently stored at this facility, your jobs and your integrity that you have taken demand

that you refuse to allow this waste to come into Utah.

Thank you.

(Applause.)

MR. HULTQUIST: Next, Cindy King.

MS. KING: Hello. My name is Cindy King. And I'd like to make my comments very brief.

I'd like to congratulate the Division of Radiation Control for its due diligence in taking upon a risk that's bigger than they actually need to do. I'd like to encourage them to make sure that they prove without a reasonable doubt that if they're going to dispose of depleted uranium, that EnergySolutions can do so. To date, the record of that facility does not speak for safety, does not speak for protection and does not speak for public health.

I thank you very much for your time.

MR. HULTQUIST: Thank you.

Next, George Chapman.

MR. CHAPMAN: Specifically, with regards to the rule 313-25-8 proposed, I recommend you put in birds. All you have in the way of animals is burrowing animals, and based on past experience with EnergySolutions, they will use that to drive more DU

in. It's a loophole you need to close. Again, I recommend you add specifically birds. We don't want radioactive seagulls flying around.

I also recommend that you put in something about monitoring directly the barrel viability, because those barrels aren't supposed to last more than 50 years.

I also recommend, and I understand the performance assessment coming will indicate the curies, but it is important for this rule that curies be limited and specified. And that's the only way to monitor, really, radiation.

Also, earthquakes are not listed here. And I think it's mentioned a couple of times in other rules, but I think you specifically have to mention that in the event of an earthquake there should be better monitoring.

And again, the biggest issue with regards to this rule is there is a drop dead date of March 1st. Between now and March 1st, EnergySolutions, in their mind, can do anything they want. And I strongly recommend you somehow make it clear that EnergySolutions is not allowed to bring in anything else until this rule goes into effect and they prove, through a performance assessment, that

it's safe.

Thank you for your time.

MR. HULTQUIST: Thank you.

John Cuomo.

MR. CUOMO: I'm John Cuomo. I'll also make my statement short.

As a citizen of Utah, as a Ph.D. research scientist, I'm quite concerned about the safety of Utah's citizens and future generations, and risk of contamination exposure from depleted uranium. I, therefore, fully support a course of action to devise a new rule to ensure that no depleted uranium comes to our state in advance of the completion of thorough public health studies and performance assessments.

We need to fully evaluate the health effect, the level of possible exposures and the timing of peak radiation dosing.

In addition, the ruling should take into account the possibility of geological events that could occur during the storage period, including flooding, earthquakes or other likely events that could impact the security of these stored materials.

Thank you.

MR. HULTQUIST: Thank you.

Next is Claire Geddes.

MS. GEDDES: My name is Claire Geddes.

I'd like to thank the Board for the time and effort they've put into looking at this issue.

I'm convinced that this isn't a safe disposal for depleted uranium. Most of the time, they're using a clay liner in there. In studying clay liners, clay liners heave in an area where you have freeze and thaw. And they're not something that's going to keep anything from coming through. So this seems to be more suitable to deep geological burial.

I also am concerned about the concentrations of the toxic metals, and hope that this'll be looked at just as much as the long life of the depleted uranium.

It just makes good sense that we shouldn't be putting anything out there that we aren't absolutely sure is suitable for that area. And as many others have said, I don't think there's any proof that this is suitable.

I'm also concerned that what we may see here is someone come in, EnergySolutions will go out and hire a firm to tell us that it's okay. They'll bring it to Dane Finerfrock, and Dane Finerfrock will say, "Yeah. It's okay." That's kind of the way

we've done things in the past. I find that very unsuitable. Most people want an independent report on this anyway, not the company that's trying to get the waste in to go out and authorize it. So that's a real concern of mine, how we're going to look at this report, how this report is generated.

So I would urge the Board to look at those issues and also the issues that the others have talked about, earthquake, flood, all of the natural disasters that could happen that would impact that site.

I appreciate the work the Board's done. I think they need to be vigilant on this. And that nothing should be put in the ground until there's definite proof, and I don't know how they can ever prove that, that it would be safe.

Thank you.

(Applause.)

MR. HULTQUIST: Thank you.

Steve Nelson.

DR. NELSON: Hi. My concerns with the rule are that the 10,000-year performance period is too short and that the requirement for only a qualitative analysis out to the time of what is currently in the rule peak doses is inadequate. And

I think there are some other requirements in the rule that conflict with that.

And I'll be providing the Board with lengthy written comment.

There is some things -- just a few things I wanted to express tonight.

First of all, I was concerned with the audio that I listened to regarding some of the staff discussions from December talking about the probability of repeated flooding having to do with the stars being aligned. Long-term hazard assessment in the geological sciences is based upon the observation of past behavior of natural system. And the past behavior of this natural system is telling us that the lake has expanded to the elevation of Clive at least five times -- or has reached the elevation of Clive at least five times in the last 150,000 years.

In other waste regulatory programs, we have the concept of what is called a "disruptive event." This is a feature event or a process that could disrupt the containment integrity of a storage facility. And usually the point, the tipping point at which you have to consider in a performance assessment a disruptive event is if it has a one in

10,000 chance of occurring in 10,000 years. Our analysis shows that it has about a one in three chance of occurring in 10,000 years. Much, much higher than the threshold.

Some other things we will show, that if the 60,000 tons -- and I realize that's an upper limit based upon EnergySolutions' good faith estimates of what's been placed in the past -- but if you take the upper limit of 49,000 tons, plus 11,000 that are on their way, and dissolve them in a lake that has expanded to the elevation of Clive, you get a concentration of uranium in water that is .25 parts per million, which, by the way, is about eight times the Environmental Protection Agency limits for water.

If the market place is opened, if the more than a million tons of depleted uranium, which are anticipated to be produced in addition to the inventory that's already in existence, if a million tons are buried out there and dissolved in that lake, it will exceed the EPA limit on uranium in water by about 140 times.

And by the way, uranium oxides are fairly soluble in waters. A recent study from 2000, at the Idaho National Engineering and Environmental Lab, showed that uranium oxides are soluble at about 100

parts per million. That's -- I haven't done the math, but that's undoubtedly a few thousand times the EPA limit.

So some recommendations, which I am going to put forth for the Board:

From the discussions that the Board had in December, they were concerned about the ability to have realistic models that extend beyond 10,000 years. Well, I happen to agree with that, but that is no excuse for inadequate protection and not modeling out longer than that. If they want to take time out of the equation, the EnergySolutions' contractor can assume the full activity of depleted uranium as its daughter's ingrown into the model at time equal zero. If, as I heard from the audio, if they're going to assume flooding, they can assume that a shore line develops at EnergySolutions on piles for an extended period of time. If we're concerned about things like differential compaction as we're concerned about in the rule, they can assume that the lake returns to the Provo level, which is about 460 feet higher than the elevation of EnergySolutions. And they can model what will happen in terms of differential compaction in enhanced seepage due to a water column that's 460 feet deep.

More importantly, it is my very strong recommendation that the Board, and not the DRC staff, read and respond to all public comment. The Board wrote the draft rule, the Board should read and respond to the input.

And finally, a final recommendation would be that an independent peer review panel be formed, not a contractor to DRC, not DRC staff, but an independent, multi-disciplinary peer review panel be formed to review the performance assessment.

As a final statement, I heard EnergySolutions acknowledge that they were going to consider flooding in their model. And so my immediate reaction was, of course, if they have to consider flooding in the model, isn't that an implicit assumption that this is the wrong place for the storage of depleted uranium?

(Applause.)

MR. HULTQUIST: Thank you.

Is it Geri Rose?

MS. ROOS: Roos.

MR. HULTQUIST: Roos.

MS. ROOS: I'm Geri Roos.

It disturbs me that this company believes that the citizens of this state are so dumb that we

don't understand what is going on. One thing that we do understand is that this is very nasty waste that we are talking about. Waste that becomes more dangerous with time. And no one wants it. Thus, the other states would like to ship it off to Utah under the assumption that we are just a wasteland and good for nothing else. Many people love that wasteland and do not want to see it destroyed.

I stand with the Board to find new rules to ensure that no depleted uranium comes to our state ever, or at least until a complete and thorough performance assessment can be made. EnergySolutions and other states would have us believe it is perfectly safe. Never mind that 84 percent of the citizens of this state are opposed to our becoming a radioactive waste dump. It doesn't matter if we don't understand all the scientific information about it, what matters is we don't want it. Just like the other states don't want it.

As regulators, you should determine if it can be safe. Please remember, what may be safe today, may not be safe tomorrow. This state is prone to earthquakes, and when Mother Nature hits, man is powerless. Haiti is a prime example of that. And we don't know what the Great Salt Lake is going to do.

Utah has done it's share of storing dangerous waste. Now, let's let the other states step up to the plate.

Thank you.

(Applause.)

MR. HULTQUIST: Next, Christopher Thomas.

MR. THOMAS: I want to start by thanking the Radiation Control Board for looking at this rule in the first place. And I want to thank everybody who is here in the audience who came out because this issue is so important.

Our State is at a crossroads. 5,000 drums of depleted uranium await disposal at EnergySolutions nuclear waste dump site 80 miles west of where we sit tonight. Thousands more are lined up in South Carolina waiting to be loaded and shipped across the country here to Utah. Because the threat from depleted uranium is so great and so long lived, the choices we make today will literally impact Utah's health and environment forever. The stakes are great and the new standards proposed by the Utah Radiation Control Board cannot be enacted soon enough. We are racing the clock, attempting to close the door before the Department of Energy sends two more train loads full of depleted uranium to Utah. Because the

Department of Energy has decided that spending stimulus money to send nuclear waste to Utah is more important than respecting Utah's democratic process and is more important than ensuring this waste is held to more rigorous health and safety standards, we are counting on you and the Board to enact these new standards quickly.

It's important to remember that it did not have to be this way. When the Federal Government first looked at low-level waste, it recognized that large amounts of concentrated depleted uranium should never be buried in landfills, like EnergySolutions, period. Under those first draft rules, the drums of depleted uranium that now threaten us would never have been eligible to come here in the first place because these drums would have exceeded the allowable limit by ten times. The more than 700,000 tons of depleted uranium stockpiled around the country would be classified as greater than Class C waste, and would have been required to be disposed far below the earth's surface.

As we now know, the Nuclear Regulatory Commission did away with the proposed limits on depleted uranium because, quite frankly, they didn't anticipate the million-ton depleted uranium problem

that we now face. In fact, the NRC only assumed that 17 curies of depleted uranium, total, would be disposed at a site like EnergySolutions. The amount that we are now threatened with is thousands of times greater than that amount.

The radioactivity of depleted uranium is most like transuranic waste, and the National Research Council acknowledged this in a report released in 2003. "If treated like transuranic waste, depleted uranium would need to be disposed in a mined salt cavern in New Mexico 2,000 feet below the earth's surface." Scientists and engineers have mentioned this fact to me repeatedly. They have said our country already knows how to deal with waste like this, it needs to be put in a deep geologic disposal.

But instead, the Department of Energy has put a bullseye on the State of Utah and wants to bury a billion-year hazard in a landfill made of dirt and rocks and concrete, that scientists tell us will likely be washed away by the nearby Great Salt Lake over the next tens of thousands of years. This defies science, logic and basic common sense.

The way we deal with nuclear waste in this country and internationally comes from a very simple concept. The concept is that future generations

should not have to pay for the nuclear messes we make today. They shouldn't have to pay with their health and they shouldn't have to pay with their resources. We know now that depleted uranium grows in radioactive hazard, starting in 1,000 years, peaking at a million years and then remaining at that high level of radioactivity for billions of years. Seen from a more global view, depleted uranium only meets our Class A limit on nuclear waste for far less than one percent of its hazardous life. We know now that EnergySolutions was only designed to limit radioactive releases for up to 1,000 years, a limit that is grossly insufficient to meet this hazard.

The more I learn, the more I've talked to experts in the field, even considering putting depleted uranium here in Utah is a gross misjudgment. We would rather not have this waste here at all period. But if we cannot stop it outright, then we must hold it to a much, much higher standard. And the rule you're accepting comment on tonight is a step in that direction. But it must be made even stronger.

First, the new studies required by this rule must be transparent and they must be open to public scrutiny. It is shocking to many that

EnergySolutions gets to choose and pays for the new safety study that will be required. How do we ensure that this black box of a study is rigorous enough and conservative enough that it will actually be protective of Utah's public health and safety for the foreseeable future? The first thing we need to do is require that before the Executive Secretary can accept a performance assessment as complete, it must be made available for public comment, there must be a finding of fact issued and it must be open to public review and comment.

Second, this performance assessment that is undertaken must be no less rigorous than the studies that the NRC originally performed to create the whole A, B, C waste classification system. They looked at very specific issues where people would come into contact with the waste at future times. And those same scenarios must be considered at a minimum in any new performance assessment that EnergySolutions has to do.

Third, disruptive events or any events that could cause a catastrophic failure of the EnergySolutions landfills must be looked at. And I think that the disruptive events mentioned by Dr. Nelson may be a very good place to start. We have a

model already for how to look at the safety of waste that lives -- that is hazardous for many, many thousands of years of high-level waste, and we should, where appropriate, adopt the same standards here for depleted uranium because of the long-lived hazard.

There also must be a very clear line distinguishing what threshold makes depleted uranium supposedly acceptable for disposal versus unacceptable for disposal. I am shocked that the Nuclear Regulatory Commission, in their recent analysis, accepted a two percent success rate as evidence that depleted uranium could be disposed of safely. I mean, to me, that's 98 percent evidence that near service disposal is absolutely inadequate. And I think in this case, we must consider something like a 95 percent bar that must be met before depleted uranium would be considered safe to come to Utah.

We must also take into account changes in climate that can happen over tens of thousands of years. I've heard experts talk about this at great lengths, and there's no way that using the last 40 years of precipitation out at the Clive site can be used to then predict the changes in climate that can

happen over the next several thousand years. It just doesn't make sense.

And along those same lines, I've heard that, you know, modeling beyond 10,000 years is difficult. Well, it's difficult to know what'll happen. It's difficult to have a crystal ball and to see exactly what will happen. That should be absolutely no excuse for allowing depleted uranium waste into this State. Our rules, our law in Utah requires scientifically defensible modeling to support, you know, the conclusion that a certain site would be safe for waste. Of any kind. And I think if looking at more than 10,000 years is a high bar to set, that's a high bar that EnergySolutions should be expected to meet and meet fully. There is no reason we should have a less -- reduced standard for waste that's dangerous for a longer time.

I'm prepared to submit more detailed written comments before the close of the public comment period on February 2nd that will detail more of what I think should be in the rule to ensure that Utah's public health and safety is protected.

But in conclusion, this is what I want to say: Utah deserves very strong protections. We deserve regulators who have the expertise, resources

and will to enforce those protections in the strongest possible way. And we need leadership in the Governor's Office to ensure that no one, including and even especially the Federal Government, no one is given free reign to circumvent or preempt those protections.

Thank you.

(Applause.)

MR. HULTQUIST: Thank you.

Is it Annie O'Connor?

MS. O'CONNOR: Amy.

MR. HULTQUIST: Amy. Okay.

MS. O'CONNOR: My name is Amy O'Connor.

I'd like to start by saying I would encourage the Committee to not allow one more ton of DU into Utah. However, for the sake of clarity and exactness, what I would like to bring to your Committee today is a paper by -- that was written in 2003 by the National Research Council. It's entitles, "Improving the Scientific basis for Managing DOE's Excess Nuclear Materials and Spent Nuclear Fuel." And it outlines many of the potential health risks that I'm very much concerned with.

And let me just read this to you, again, for the sake of clarity.

"Options for future disposition of DU, once converted to oxide, are continued storage, reuse and disposal as waste. There are significant gaps in understanding health effects of uranium and its compounds that need to be resolved before DOE can fully evaluate these options. Beneficial ways to reuse large amounts of uranium have not been identified. Because of uranium's unique chemical and physical properties, the Committee believes that this lack of reuse options reflect gaps in current knowledge rather than being a reason for disposing of the material as waste. There are significant challenges for deciding how the uranium might be disposed if it were declared to be waste."

They address disposal.

"The current plans for conversion to oxide will put the DU in a form that will be more stable than the DUF6 for further storage. If disposal is necessary, it is not likely to be simple. The alpha activity of DU is 200 to 300 nanocuries per gram. Geological disposal is required for transuranic waste with alpha activity above 100 nanocuries per gram. If uranium were a transuranic element, it would require disposal in a Waste Isolation Pilot Plant based on its radioactivity. The chemical toxicity of

this very large amount of material would certainly become a problem as well. One option suggested by the U.S. Nuclear Regulatory Commission is disposal in a mined cavity, or former uranium mine. Challenges for this option would include understanding the fundamental differences between uranium ore and the bulk uranium oxide powder."

As for long-term research for reuse and disposal: "The World Health Organization has compiled a list of the research needed to better assess chemical and radiological health risks from exposure to uranium compounds. The Committee believes that this research will assist the DOE in its future decisions for reusing or disposing of its DU."

And as an aside, I just encourage the Committee to carefully look at these and make sure that they are addressed in your rule.

First, "Neurotoxicity: Other heavy metals are known neurotoxins, but only a few studies have been conducted on uranium. Studies are needed to determine if DU is a neurotoxic. Reproductive and developmental effects have been reported in single animal studies, but no studies have been conducted to determine if they can be confirmed or that they can

occur in humans."

Second, "Hematological effects: Uranium distribution within bone is thought to be such that irradiation of bone marrow and blood-forming cells are limited due to the short range of alpha particles emitted during decay. Research is needed to determine if this view is correct."

Third, "Genotoxicity: Some in vitro studies suggest genotoxic effects occur via the binding of uranium compounds to DNA. Research is needed to determine if uranium is genotoxic by this or other mechanisms. There are also opportunities to extend current knowledge in the following areas:

"Understanding of the extent, reversibility and possible existence of thresholds for kidney damage in people exposed to DU. Important information could come from studies of populations exposed to naturally-elevated concentrations of uranium in drinking water.

"Better assessments of impacts of exposure of children. This is particularly important given their unique exposure scenarios such as geophagia and hand-to-mouth activities.

"Validation of transfer coefficients for uranium compounds entering the food chain, for

example, from soil ingested by livestock during grazing and then to humans. Investigations are needed on the chemical and physical form, physiological behavior, leaching and subsequent environmental cycling of specific forms of uranium from various industrial and military sources. Particular attention should be paid to how the bulk of DU might eventually be deposed. Aside from the possible presence of containments in some of the DU from recycled uranium, the isotope enrichment process leaves a material that initially has a lower radioactivity than natural uranium. Not only U-235, but most of the uranium decay chain isotopes are removed. Modeling the long-term behavior of DU should include the fact that these daughter isotopes will gradually reappear over time."

So as you can see, "all of these considerations," I believe, "should have been dealt with prior to EnergySolutions accepting any quantity of depleted uranium." Please, please ensure that each and every one of these serious, possible health risks is fully investigated before Utah accepts one more ounce of depleted uranium. And while I haven't, obviously, done all these studies, my personal feeling is simply that not one more ton should come

to Utah.

Thank you so much for your time.

(Applause.)

MR. HULTQUIST: Thank you.

Next I have Joe Andrade.

MR. ANDRADE: Thank you for the opportunity to provide some input.

I'm going to read parts of a letter that I submitted to Governor Herbert about two weeks ago, and has been received by his staff. And I will, of course, leave that with you as a written comment.

"I am an engineer, professor and teacher with over 40 years on the University of Utah faculty. During 1983 to '87, I served as Dean of the University's College of Engineering. My office was almost directly above the University's small teaching nuclear reactor. I have used radioactive isotopes as research aids for my studies on blood proteins in the early part of my career. I am familiar with radiation, radioactive isotopes, their hazards and risks and generally their safety and disposal issues. I have tested my own basement for Radon, using the State's very effective resources. By the way, this is National Radon Awareness Month, or Radon Action Month. I'd encourage you all to do the same. My

basement is on the borderline of requiring some mitigation. I am well aware of safety and risk issues and the problems of relative risks.

"We are all responsible for waste, radioactive, CO2 and otherwise. We want our garbage picked up. We don't want to breathe asbestos. We want efficient industrial processes, some of which use radioactive isotopes. We want safety and risk detection equipment, like smoke detectors, many of which use radioactive isotopes. Some of us want nuclear energy, which generates waste, most of that from the mining and enrichment operations for the reactor fuel. We want the most modern and effective medical diagnosis and treatment, many of which utilize radiation and radioisotopes. And we don't want any of this stuff in our own backyard. We want to mine Utah's uranium ores, coal, silver and gold to generate employment and taxes, but we don't want to fully face the health and environmental hazards involved.

"It's all a question of balance: minimizing reasonable risks and maximizing reasonable benefits.

"I am thankful that we have reasonable, appropriate and safe waste disposal facilities, such

as the landfills we all use and the Clive facility under discussion. I am thankful that we have a State DEQ and Division of Radiation Control to help monitor and regulate such facilities. And I am thankful that our wastes, my wastes are located in such facilities, and thus, not spread throughout our communities and environments and not in my own backyard or in yours. Some such facilities even eventually become resources, such as the energy generated via the methane at the County landfill.

"As I understand it, the depleted uranium coming to and already at Clive is low-level waste in the oxide form. Thus, not particularly chemically hazardous. The radioactivity is significantly less than the uranium ores common in many parts of Utah. Of course it decays, and some of its decay products are of concern, Radon in particular. The uranium in the soils and concrete in my basement also decay. And the Radon they emit is also of concern. But not of great concern. Half of the average background radiation dose we all get in this State is due to Radon. It's emitted in your basement, in mine, in the soils, in the concrete. Radon is a decay product of uranium. And uranium is actually a fairly common element in the earth's crust. You and I each have

right now about a 100 micrograms of uranium in our bodies, according to the World Health Organization. We each carry in our own bodies the elemental makeup of Planet earth, our own, personal periodic tables.

"I am far more concerned with our highly polluted air, leading to respiratory and related problems, with the rapidly increasing CO2 in our environment, leading to climate disruption and major planetary issues, with the increasing Mercury levels in the Great Salt Lake and in our waters and fish, and with many other environmental, social and community hazards, including auto accidents, gun accidents, domestic violence, substance abuse and child abuse.

"I'd encourage you all to arrange to test your office and basement for Radon.

"I also recommend that DEQ and the State encourage EnergySolutions to fully use the Clive facility to store low-level radioactive waste, including depleted uranium.

"I encourage the landfills, to keep taking and storing our other wastes.

"And encourage DEQ to continue to do the very best they can regarding the disposal and storage of the waste of our excessively consumption-oriented

society."

Thanks.

MR. HULTQUIST: Thank you.

Helene Cuomo.

MS. CUOMO: Hi.

First of all, I'd like to thank the Radiation Control Board and say, whoa, we need to do more research in this and we need to put a halt and set up new standards and new rules before more of these barrels come in of depleted uranium.

And on my drive over here I was thinking about the down-winders. If we don't know somebody personally, we've heard about the down-winders. And at that time, the Government said all these nuclear tests were safe.

And then just recently we've been hearing about these open burn pits, how some of our combat soldiers are coming back and they have strange ailments, whether it's leukemia or trouble breathing. Some are even dying. And once again, the Government is slow, saying, you know, "We don't know what's going on." And I think down the road we'll find out, almost like Agent Orange, that there is stuff going on.

But the Government, who is supposed to

protect us, it takes awhile for, I guess, the research to come in for them to admit, "Yeah. We can't let this hide."

And so when the NRC comes -- when they came this fall and they said, "They don't know," that really scared me. That here, we're supposed to know what to do with this depleted uranium when the Government is final saying, "We don't know." And that says to me we need to put a halt to this now, until we do know.

There is only a shallow site out at Clive. And the NRC said, "We don't know if that's safe. There hasn't been studies like that." And so, if the Government's taking that caution up front, I think we all need to listen. Because in the past, they haven't. And in the future, they might not. But if they're saying, "Wait. We don't know," everybody's ears should perk up.

And I'm very disappointed in Governor Herbert that -- I feel like he was doing it both ways. He waits and waits and waits, knowing that this stuff is coming to Utah unless he can put a halt to it or get the Radiation Control Board to get stuff moving, and then when it's already on the way, he writes this letter and there's big headlines in the

paper, "Governor asks to stop depleted uranium." Well, we all know that was too late to do that.

And so I really thank the Radiation Control Board for having the guts and the fortitude to say, "Halt. Let's see what's going on." Because this stuff -- it's just going to get hotter. And we don't know. And until we figure it out more and if our Government officials aren't protecting us, I'm really happy that the volunteers -- or if you do get paid, it's very little, I presume -- that they do care about the safety of Utahans, about us now and about our future generations. Because we really don't know. And so we need to slow down. We need to stop. And let's listen to the NRC. We don't know. And that means more research needs to be done and more controls. And somebody needs to have the back bone to say, "Halt," before it's too late.

(Applause.)

MR. HULTQUIST: Thank you.

I'm sorry. I can't read the last name, but is it Saw or Sam? Okay. Come on up.

MR. GOSCH: Thank you.

My name is Sam Gosch (ph). I am an engineer and retired professor from the University of Utah.

I do not have a prepared statement, but I had a few things, like putting water or washing down radioactive isotopes. The thing is as -- because I am a civil engineer I know, that once water gets into the ground, there is no telling which way it's going to go. It can stay static. The isotope, uranium 235 can be exchanged with minerals on the ground and stay there for awhile and then flushed out as it breaks through. So putting water under the ground with anything in it is very, very dangerous. Because we would lose track of it completely.

And many of these things have very long lives, so they're going to stay there for a long time. And they will keep emitting gamma rays. It is not going to stop. Because some of the half lives are tens of thousands of years.

There is one other thing that I have not heard mentioned, and that is the pressure we are now having from climate change. A lot of people think that climate change is happening because of fossil fuels and so let's go nuclear, so then we won't have the CO2 and the global warming problem. So then next some people are saying, "Well, let's cut out the fossil fuel and let's go with nuclear fuel." So there'll be more pressure to have nuclear fuel. So

climate change, unfortunately, may trigger another problem.

EnergySolutions, I understand, was going to bring waste from Japan and other countries. I think one solution they may consider is send our waste to Japan.

Thank you.

(Applause.)

MR. HULTQUIST: Thank you.

Is there anyone else in the audience that would like to comment tonight?

(Hand raised.)

MR. HULTQUIST: Come on up.

MR. NICKOLS: My name is Joe Nickols. And I did sign something over there, but here I am anyway.

First, I'd like to say that I'm a recovering physics addict for 29 years sober. And I've seen the light then. And it's alarming that I'm seeing it through these regulations again.

I have to commend you on trying to make this at all possible. You know, it is an open forum, which is good. And trying to go from the laws of physics to man-made statutes is a pretty tall order. And it does take some more insight. And that's why

I'm here.

One of the difficulties I've seen and I'm hearing is that a lot of these basic assumptions kind of get swept over and they're kind of lost in the technical part of these presentations. And energy is neither created nor destroyed, just transformed. So I think if you put that under the umbrella of that's a law of physics, you begin to see some of the anxiety that the folks have.

One interesting thing I did discover was that the statutes make differences between "dispose," "deplete," "decay" and "industry" as stable. So here you're trying to figure out how to use land waste -- land for waste, which is invisible energy at this point. And I looked it up in a 1974 college physics book called, "Physics for the Life Sciences," and it seems to me that what's lacking is some way to standardize this. And the simplest way would be the ground states of this waste. And when you're hearing someone saying a container can only last 50 years, well, how long does it take this waste to go back to ground state, which physically means it's not emitting. So that would satisfy all the different types of emissions and different types of daughter particles that get made.

So I think in your policies, there needs to be something that's standardized, rather than something that is just made up and then amended and deleted on political will.

So in conclusion, the nuclear industry still can't find private insurance. And that, to me, is a great concern because when you're dealing with risk benefit ratios and then actuaries, this is not possible at this time.

So I'm saying that you need to put a halt on this. You need to develop a statute that actually goes by the law of physics and something easy to be able to tell the difference. And then this insurability is a concern for everyone, because every other industry has to work under some type of insurability. And years ago, when this started, part of that was a, you know, $50 billion bond, or I would say gold at this point. And I don't see that anymore.

So I just hope that you guys read this book and answer the arguments here today. I think it would put a lot of insight onto at least clarifying and creating some kind of standard that's either agreed on or mitigated on or gone through the courts. So I think a lot could be avoided but creating a

standard that's physically attached to some science rather than half a technical story.

Thank you for your time.

MR. HULTQUIST: Thank you.

At this point, I have no other individual on the list.

And by the way, Joe, I did have you on, you just didn't say "yes" or "no" whether you wanted to comment. So you were down on the list.

I would like to thank everyone for coming here tonight.

If there is no one in the audience that would like to make any additional statements --

MR. BRISTER: I would.

MR. HULTQUIST: Okay.

MR. BRISTER: My name is Bob Brister. I'm a resident of Salt Lake City.

One of my favorite means of recreation is going out to the West Desert and enjoying our beautiful public lands out there. It really breaks my heart to see the West Desert treated as the Nation's toxic waste dump.

You know, the people of Utah have suffered tremendously over the decades, from the nuclear power/nuclear weapons industry, from the down-winders

to the Navajo Indian miners of uranium, and I don't think the people of Utah should be made to suffer anymore from this industry.

I think it's a really sad reflection on the state of politics in Utah that a state that has suffered so much from the nuclear industry has so much of its political system bought off by the industry, apparently. EnergySolutions is a malignant corporation. I'd love to see its charter revoked.

And I urge the Radiation Control Board to be our last line of defense against nuclear waste dumping here in Utah, especially depleted uranium, which, as people have said so many times, just gets worse and worse over time.

Thank you very much.

(Applause.)

MR. HULTQUIST: Thank you.

All right. Ladies and gentlemen, that looks like it. We've been here an hour. And we appreciate all the comments that have been provided.

And if you have something in writing that you would like to leave with us, you may do so up front here.

And at this time, the meeting is adjourned.

(Hearing concluded at 7:00 p.m.)

REPORTER'S HEARING CERTIFICATE

STATE OF UTAH)
) ss.
COUNTY OF SALT LAKE)

I, Kelly Fine-Jensen, Registered Professional Reporter and Notary Public in and for the State of Utah, do hereby certify:

That said proceeding was taken down by me in stenotype on January 26, 2010, at the place therein named, and was thereafter transcribed, and that a true and correct transcription of said testimony is set forth in the preceding pages;

I further certify that I am not kin or otherwise associated with any of the parties to said cause of action and that I am not interested in the outcome thereof.

WITNESS MY HAND AND OFFICIAL SEAL this 4rd day of February, 2010.

_____
Kelly Fine-Jensen, RPR
Notary Public
Residing in Salt Lake County