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PROPOSED CLEANUP ACTIONS FOR REMEDIATION OF HANFORD WASTE SITES CONTAMINATED WITH PLUTONIUM AND CESIUM

VOLUME III
MEETING
Tuesday, July 26, 2011
Best Western, Columbia Room
Hood River, Oregon

REPORTED BY: Michele J. Lucas, Court Reporter

VOLUME III

MEETING

Tuesday, July 26, 2011

7:01 p.m.

MR. NILES: Thank you all for coming it was a gorgeous evening out there. Thank you for giving up your summer evening and talk with us tonight.

It is always encouraging to see the support we get --

(Brief interruption)

MR. NILES: It is always encouraging to see the support we get in Hood River and the mid gorge. Always get a consistent group of folks to come out and provide some comments.

My name is Ken Niles. I work for the Oregon Department of Energy. I head up the State of Oregon's oversights of the Hanford cleanup, and a lot of you have seen me at meetings like this in my state role. A little bit different role for me tonight in that when the Department of Energy approached me a few weeks ago asking whether or not there would be interest for a meeting in Hood River and in Portland on this topic, and I said

absolutely. And they said: Well, we are a little bit tight in terms of our budget. We really can't afford a professional facilitator. Would you mind doing that.

So they are saving some money, which is a good thing, and I will ask for your help in making this a good meeting tonight. So, again, thank you for coming.

We are here to talk about -- you know, a lot of you have been here. We have talked about bits and pieces of Hanford cleanup. Hopefully this will make sense tonight in terms of how it all fits together, but tonight we are talking about 21 different waste sites and a proposed plan by the tri-parties as to what to do with those waste sites.

And there is a lot of information around the room. I know a lot of you have received information via E-mail and otherwise. And we have got a couple of speakers here that are going to explain some of these things for you. What we would like to do is, we have got a speaker from the Department of Energy who is going to talk a little bit about this, a speaker from one of the regulators, in this case, the Environmental Protection Agency. I will step out of this role for

just a couple of minutes and provide you some comments on behalf of Oregon. We have an alternative public viewpoint that is going to be joint shared by Columbia River Keeper and Heart of America Northwest.

We will take some time, hopefully not too long but as much time as we need, to clarify things, to do a little Q and A to answer things or clarify things that might come up during the discussion. And then really the purpose of the meeting is for the tri-party agencies to get comments from you about what they are proposing to do. So we will have a formal public comment period as the last thing that will run through the remainder of the meeting.

So that is our plan. Our plan is to be out of here by about 9:00. I think we have a few enough people that we should be able to do that without cutting people's testimony time too much. But we will try and see if three minutes or so works for everybody to do that. So that is the plan.

Does that sound right with everybody to do that?

Yes, sir.

MALE SPEAKER: You are referring to the

tri-party.

MR. NILES: Yes.

MALE SPEAKER: What's that?

MR. NILES: The tri-parties is the U.S. Department of Energy which is the owner and operator, if you will, of the Hanford site, and it is two regulators, the State of Washington and the U.S. Environmental Protection Agency. Together they form the tri-party agencies and have an agreement that sets up cleanup milestones at Hanford. So that is the tri-party agencies.

So before we get started with our DOE speaker, let me just write this down here for you real briefly just because the official thing we are here for tonight is to comment on the draft proposed plan on the CW-5 and PW-1, 3 and 6 operable units. And I know what I just said made no sense to most of you, and it barely makes sense to me.

But what I want to tell you is it is really not important that you understand what PW-1 is versus PW-3 or an operable unit. It is really not important. What is important is to understand there is really six groupings of waste sites -- and they are going to explain this all to you, but I am trying to give you kind of a preview -- six

groupings of waste sites that they are proposing to do some things at Hanford. There is some plutonium-contaminated ditches that they are proposing to dig up. There is some other plutonium waste sites called low-salt waste group that they are proposing to dig up as well. There are some pipelines they are proposing to dig up, and there are some tanks they are proposing to empty.

The things that I think you will probably find more interesting is the other two waste groups. One is three different waste sites that have large amounts of plutonium, and JD is going to talk about, and the others is going to talk about what the proposed plan is. The other group of waste sites is five waste sites that contain cesium, which is also radioactive material. And they will talk about those as well. So if you break it down it is kind of what we are talking about tonight. And hopefully it all will make sense and come together for you.

So our first speaker is with U.S. Department of Energy. He is the assistant manager for the central plateau. Correct title? From the Richland office of Hanford is JD Dowell. JD.

(Brief interruption)

MR. DOWELL: I would like to echo the

thank-yous for everyone coming out tonight. We serve the public in our role in the Department of Energy. We are here to get your input and to hear what you have to say about what we consider to be the options that we are presenting for the remediation of these sites that we are going to talk about tonight.

I want to quickly go through who is here from the team. It is combined contractor and DOE team. I have Briant Charboneau here. He is the FPD, the federal project director for many of these sites, the groundwater and soil.

I have got Bill Burk from the contractor group. I've got Dale McKenney off to his right, Sonya Johnson who does communications and community outreach, Moses Jaraysi, and back at the other table I have got Paula Call, and I think I have covered everybody. Am I missing -- no -- Cameron Soloney. Where's Cameron?

That is my group that I have tonight. So if you have questions, grab one of us afterwards if the period is too long. We are going to be here as long as it takes for you to get your questions answered even after the 9:00 time when we are trying to achieve finish. I am here with Emmy Laija, and

she is going to cover a few of the slides here from EPA.

Before I get started, a brief comment on what you saw before this. I know Gerry Pollet had a seminar going in back. Hopefully you had a chance to look at some of the placards and get the background information on some of these sites we are going to talk about. I also courage all of you to look at the Hanford site story which really kind of does a good job of wrapping up the size and magnitude of what we are trying to achieve with the remediation and cleanup of the Hanford site. In addition to that, every time I go out and every time I take any speaker that comes with the Department of Energy we are going to put out slides of progress over the last year, and if you haven't had a chance to go out to the site you probably don't have a real good concept of it. It is massive, very large and huge. And we had the slides going at the beginning of the brief or beginning of the public comment or open house period just showing that. So I courage you all to take a look at those things, and I hope you enjoy them and understand a little bit better of what we are talking about.

So from the standpoint of tonight, I

talked about the purpose. We are here for you. We are here to get comments from you. We are here to find out what the adequacy of the options that we are going to show you are and see what you think about those. We are going to split it out into an agenda. I am going to talk briefly about the Hanford cleanup approach and kind of take you from the big picture down to the areas that we are talking about and mention remediation tonight. So hopefully I will go at a level where you all understand that, and I am not going to move speak simplistically, but we are going to have to move through that material fairly quickly.

Then we will talk about the actual operable units which are -- just think of those as the areas that we are talking about, and you can see those broken down into 200 CW-5 which is cooling water -- that is what CW stands for -- and 200 PW, which is process water, 1, 3 and 6 of the sites that we are talking about the remediation plans tonight.

We will go into some detail on those. I won't do that now. And, lastly, we are going to talk about how you can provide that -- provide input to us and the many ways that we take that input, and if you don't think we take it seriously, change that

paradigm. We are listening to you. I just came from Seattle last week. Came from Richland last week and we are here for you. We serve our public. That is the way I look at it, and we all take that very seriously. So please give us your input.

A brief talk about Hanford cleanup approach. These things are kind of expensive to print, but we do have them available in DVD for you to take tonight. If you want understand how the Department of Energy and the government is looking at the cleanup of this place strategically, this is a pretty readable document, and I encourage you to look at it so you can understand how we looked at it and what our strategy is to mitigate this mess and remediation of these sites that we call Hanford.

So that is a pretty good framework. It is called -- I didn't talk about what it is called. It is called the Hanford site cleanup completion framework. And if you can see one of our communications and outreach personnel, they will help you get a DVD of that tonight.

Looking into the gross area of Hanford, you probably all have seen this before, but I am going to kind of briefly cover it. 586 square mile area north of the city of Richland and the tri

cities to the south about 20 miles. If you look at the green area that you see here, that is called a Hanford Reach National Monument. Those sites are being cleaned up as we speak. I am just finishing those. My division is responsible for that, and those sites are being shrunk. That footprint is going to be shrunk this year so that we will finish final cleanup on the Hanford Reach National Monument. Sounds like a big deal. It is a big deal, but those are not very highly-contaminated sites. That is where a lot of junk was out there. There was missile sites that they used to protect the site with, that kind of thing. So that footprint is shrinking. That is about 290 square miles, and it includes not only the monuments to the north but also the Arid Lands Ecology Resort which is Rattlesnake Mountain. If you have ever been by that area you will see a big large mountain area in that part.

The next stage is the river corridor which is shown here in the yellow. It is about 220 square miles. We are focusing on river corridor right now because it is close to the river. It makes a lot of sense. We looked at those fields and the remediation sites, the buildings, the nine reactors

that were used to transfer uranium into plutonium. Those were along the river because they had to be close to the river for cooling water. We are looking at that first so that we remove the risk to the river as soon as we can. So that is the strategy here.

Next you look at the central plateau, and that is my area. When you look at the central plateau, it is broken into two areas. The total area of 75 square miles broken out into an outer area that is 65 square miles in the light brown and an inner area, that reddish brown, of 10 square miles. Very important concept is that the inner area is an area that the Department of Energy will have continuous presence until we remediate and finish the cleanup. And what that means is that we will be there as long as it takes to protect human health and the environment. That is the concept. I will come back to at the end of the night, but it is an important concept. That means that as we looked at the land use of these areas, as we looked at how the land is going to be used along the river, eventually we are going to want to see that turned over to other agencies of the federal government like Fish and Wildlife, and we are looking at the

processes for doing that now.

Much different for the industrial area. The industrial area is ours. We are going to be there for a long time, and I will talk to you specifically about how that area was designed to minimize the footprint to as small as we can make, and we will talk about that in a second.

Last thing I want to leave you with is think of this as a concentric circle shrinking, and we are trying to shrink it down to the inner area footprint. That is what we are all about. We are all about making that as small as possible concentrating the material that is going to be there for a long time in that area so that we can monitor it and have a long-term presence to monitor it to make sure that the human health and the environment is safe.

So as we looked at the central plateau area, there is three areas to it, and when I talked about the river corridor one of the goals for the river corridor is we are trying to return that water to drinking water standards, drinking water standards. You can pump that water out and drink it. In the central plateau we are trying to achieve the same thing, and if we can't achieve it we will

continue to pump and treat but we are going to at all costs stop any plume that exists right there today from reaching the river. So our goal is to target trying to get drinking water standard in the cental plateau. If not, we are going to stop plumes from reaching the river.

Those are two very important concepts for groundwater remediation which is one of the three strategies for the central plateau.

The other one is the outer area which, again, compared to the inner area is less cleanup, but that is where you are starting to get into more of the radioactive sites that we have to remediate, but it is much less complex than the inner area. The areas that we are going to talk about tonight are in the inner area, and that inner area is where we are going to drill down now.

So when I look at the inner area and you look at the decisions that we came through to get that inner area, if you think about it as a progression of decisions, and you can see where they started. In 1965 Hanford site was still operational through 1989. Department of Ecology needed a radioactive waste disposal site, and that was the first site we established right here. In 1986 naval

reactors, not Department of Energy, Department of Defense needed a place to put burial of submarine corps, and that was established up in this area. 1992 was the next time we actually started establishing disposal remediation sites. In 1989 Hanford went to coal operations. We were no longer operating at that time. We became a cleanup project at that point.

So you can see those decisions and recommendations came in various times throughout this, up through 2006, to show exactly how we got the footprint we have today. Pretty odd looking footprint, isn't it? It is not a rectangle. It is not pretty. We call it the soup bowl. I don't know. You can call it whatever you want, but it is defined by only those areas that we think we are going to need to monitor and take custody of long-term. And, again, it is going to have a continuous presence there until there is no longer a need to protect human health and the environment. So that is a very important concept about the inner area. We are not going to release it for farming. We are not going to release the water for irrigation. We are not going to build condos. That is an area that we are going to probably, fence and as we talked

about before CERCLA will determine inside the final decision exactly what measures we will take to protect the public, but there is going to be control in that area that prevent the general use and protect not only the public. What I am really concerned more about is a worker that is in there that can dig down in the soil. That is really what we have to protect at that point because that material is all going to be engineered. The DNF plates like the ERDITH, the ERDITH disposal facility. If you don't know what that is, you know, we will amplify that. But these are some long-term storage areas that are engineered to be for a long time. We have to monitor those and have a presence there as the Department of Energy long time.

So as we look at the inner area, I talked about the argument is that to make it as small as it is and as small as it can be, but it has that kind of ugly footprint to it. Is it not perfect. It might be challenging to manage, but that is really what we should be doing is minimize the amount of area that it has. We have the commitment to long-term DOE presence in that area. When I say long-term I am talking hundreds of years if not thousands of years.

MALE SPEAKER: It's not tens of thousands?

MR. DOWELL: What's that?

MALE SPEAKER: It is not tens of thousands?

MR. DOWELL: You know, we can go there, sure, tens of thousands, but it kind of becomes funny money when we start talking about 10,000 years.

But the commitment is going to be as long as we have to protect human health and the environment. So if it is 10,000 years, that is the commitment.

Okay. Then as you look into the inner area approach, some of these decisions are going to have to be risk based. Risk based means we look at the risk, and you will see that tonight. We will assess what that risk is to the public. We will assess what it is to a co-located worker that is working in that site, and we will make the decision, not cheaply, not based on just budget, but a more kind of holistic balanced approach. And the way that we get to that is that we meet a threshold criteria in CERCLA. When we conduct a remediation and we recommend a proposal for how we are going to remediate a site, it meets a threshold criteria. It

is a balancing criteria is what we call it. And really it is a very simple process. It looks at five different areas once we get to the balancing decision. Long-term effectiveness and permanence, you know, if it is going to last and be durable, the short-term effectiveness, well, it is going to provide the protective measures that are designed to in the short-term as well; the reduction of toxicity mobility or volume as necessary, again, to protect human health and the environment; and implement ability which means the ability to actually institute the control, engineer it and deploy it; and then, lastly, cost. Those are the balances that we have to look at.

It is not overdriven by cost. It is not overdriven by cost. You know, you all read what is happening in the American economy, the rescission and the budget. It is not a good news story for us. We are not going to live in the means of $10,000 and $100,000,000 there and be able to throw money around, not that we threw money around in the past. I am down to the point now where I have to make very critical decisions at the $10,000 and less level. We have always done that. We have always been good custodians of taxpayer dollars as long as I have

been there at least and recent memory, but it is going to be more acute, as you know, with the recession, but it is not going to drive these decisions. These decisions have to be made to protect human health and the environment.

On that note, I am going to turn to this -- well, actually, I am going to go through the CERCLA process and then turn it over to Emmy.

So the CERCLA process, this is important because this will kind of drive home why we are here tonight and why your opinion matters and why your comments matter.

We start with the process of doing a site inspection. We do personal interviews. We look at record reviews. We look at the data and the history of how these sites were developed, how they were operated. We go into remedial investigation where we collect all this data. We collect the samples that we have in place. We determine and get a big data package of what we think is there. As you look at those placards and they summarize the materials that are in these areas, that is what that does. It actually roles up all that material in the remedial investigation to kind of give us the information that we need to make decisions. Then we look at

feasibility studies, and this is where we actually develop our alternatives. We lack at the risks. We try to balance those risks with the different alternatives, and then we go through a process, a CERCLA process, to evaluate those risks.

Two years ago we came out to the public, and we got input from the tribes, got input from the State of Oregon. We got input from our other partners of TPA, and we got input from the public, and we actually made some real changes in the remediation, the sites we are going to talk about tonight.

So it matters. That is all I am tying to say from that. Right now we are at the proposed plan, step three. We are at the time where we want to select an option, and we have a preferred option that we are going to present to you tonight, and then we will take your comments and then go back to the tri-party agreements and make decisions off those comments.

Lastly, we will get to -- or the next three steps basically take it to closure. We have developed a record of decision. It is a record of decision that we go out, and we are going to describe our remediation actions. So when we come

to that decision and we determine which alternative we are going to use, it comes into a design and an engineering process to deploy that action for remediation of the site.

After that we are not done. Again, this is that long-term stewardship I talked about, especially in the inner area. As we make these decisions, we have to revisit the effectiveness of those decisions in the future. It is a commitment by law. So it is a legal standard, if you will, that bears us to this obligation, and that is a very important concept to understand. We can talk about the specifics as we get to it later.

I will turn this over to Emmy. She is going to set us up on basically the background of these areas.

MS. LAIJA: Good evening, everyone. My name is Emmy Laija, and I work for the Environmental Protection Agency. I am the project manager for many of the waste sites that we are going to be discussing tonight. I just wanted to take a few minutes to give you some background information on how these waste sites became contaminated.

So the waste sites are located in the inner area. That is a central area in the dark red

colors. The inner area is basically divided in two halves. We have the 200 west area, which is on the left-hand side of the inner area, and then the 200 east area, which is where the cesium contaminated sites are. The ones at 200 west are the sites that are contaminated with plutonium. I will talk a little bit more about that in a second.

So let's take a closer look at the inner area, what else is going on there. There is numerous waste sites located there. Tonight we are looking at 21 waste sites.

As I mentioned, the ones in 200 west are the plutonium-contaminated waste sites, and the one thing with the inner area, as JD mentioned, it is a different type of cleanup that we are doing here. We are looking at an industrial cleanup. So that makes it unique to Hanford. This is one of the first decisions that we will be making in this area that has industrial cleanup standards. So that is one thing to keep in mind when we are discussing the cleanup alternatives later on tonight.

One thing, JD hinted at this. We are looking at soil-contaminated sites. There is also contaminated groundwater at Hanford that is located beneath where these sites are located. That is

being remediated under different decisions. We are currently constructing the 200 west pump and treat system. It's the nation's largest pump and treat system which will be sucking up contaminated groundwater, treating it and then reinjecting the clean water back in into the groundwater. So there is other cleanup actions that are going on to address contamination in the area. We are looking at a small piece of it tonight.

So let's go ahead and see what these waste sites are. There is 21 waste sites, and this graphic here is depicting how they became contaminated. In that central part of Hanford we had processing facilities where plutonium was processed, and those activities generated large amounts of liquid waste which was disposed of in the soil.

So with these 21 waste sites, we grouped them into operable units, which is kind of confusing. 200 PW-1 has no meaning to anyone just hearing that phrase for the first time. So we looked at the waste sites and said how can we group these better? What are the similarities between them? So we divided them into waste groups based on the type of waste they received, and then with the

similarities between those waste sites we were able to look at cleanup alternatives that we could apply across the waste group. So these are similar. Ideally the same type of cleanup approach would be applicable to all of these waste sites. So we broke them down, and some of the waste groups are listed here.

This first little shape on the bottom is looking at the Z ditches and the low-salt waste group. So these waste sites received liquid waste that was contaminated with plutonium and americium. So these sites we are looking at things like ditches or cribs or trenches where the liquid was disposed to.

In these cases the waste didn't travel that deep into the soil column. In the Z ditches it went down about 15 feet below ground surface. For the low salt sites, it went down to about 25 feet. So it didn't travel too far down into the soil column. However, for the high-salt waste group, which is the third little graphic on the bottom here, this was highly acidic, and that allowed that wastewater to travel down into the soil column to about a depth of 100 feet below the surface. So that makes those high salt sites unique.

We know there is a lot of interest around these sites. So we will be interested in hearing about what you have to say about cleanup of those sites in just a little bit. But, again, those stand out from the other waste sites we are looking at.

We also have tanks in the PW-1 and 6 operable units. There is two tanks overall, and these tanks were used to collect solid when wastewater was discharged. Think of it as an old septic system. You flush the toilet; the solids are separated into a tank and then the dirty water is discharged into the soil usually over bed of gravel or tile or something similar.

So that is a very simplified version of what happened here, but it is the same general idea. So that is what is in the tanks, sediments contaminated with plutonium and americium from the activities that were occurring when we were processing the plutonium.

The next waste group is the cesium-137 waste group. Those were located separate from the west and 200 east and here the waste contaminated with cesium traveled to a depth of about 28 feet or so.

We had two other sites that we are not

really discussing tonight. We tested them. We found that the risk levels there were not a threat to human health and the environment. So there was not a remedial alternative identified for those.

And I will go ahead and hand it back to JD so he can talk about the alternatives we evaluated for these waste sites.

MR. DOWELL: That is a really good background.

And Ken talked about six areas. This is the first of six areas, and we are basically going to go through these. I hope we have a handout because the handout is fairly self-explanatory.

First is the current 200 cooling water 5 area. This is a good picture of that. It shows, if you look at the back map, these are very long trenches. One goes up to 4200 feet. This actually shows normal salt for the trenches that we are talking about in that area. Not a very clamorous photo, but that is what we see out there, and that is how we looked at these fields every day, and we don't really determine much from that, but it does show you and kind of characterizes what is out there now, and you can see what it was designed to be earlier.

These are pretty shallow open ditches. They are known as Z ditches. They are very rudimentary in their design. Some of them were just ditches in the ground. Some were engineered. Some have French pipes, as Emmy talked about, the different kind of configurations.

I kind of find it fascinating that there were so many variations out there. It is not a really a good thing because it seems like it was somewhat an undisciplined process, but they were looking at different technologies at the time to get the stuff in the soil, and that is what it was all about at that time.

There was a tile field and an unplanned release site. Unplanned release site sounds really bad, but actually it was a site where they got too close to one of the trenches that existed and decided that they couldn't use that but still used it and then moved and did another trench. So it was just a site that we found or knew about that actually wasn't a complete trench but ended up being used in that manner.

Again, these received cooling water from the plutonium finishing plant. It also received it from the Z plant. So if you see a Z or a PFP, it is

the plutonium finishing plant where we did the final processing of the material before it was weapons grade.

The contamination is located primarily at and below the bottom of the trenches. So most of these fields are fairly shallow, shallow being less than 15 feet or shallower, and the primary risk drivers were, as you can see, americium, plutonium, cesium and radium.

When we looked at the remedial alternatives, CERCLA by law describes us to look at these, for instance, the no action option where we don't do a thing. We always look at that option as a base. We looked at maintaining the existing soil cover with institutional controls, which is not doing anything but making sure people can't dig it up. It's making sure we have a fence around it, if you will.

Remove, treat, as needed, and dispose -- RTD is the acronym for that -- where we actually remove the soil that is contaminated, backfill with clean soil and remove the contaminate from the ground and then process it to the appropriate waste site.

Engineered surface barriers, and you know

that surface barriers are what it sounds like. It is basically a way to provide a barrier on top of the material, stays in the ground, that prevents water from penetrating the soil and acting as a motive force for driving that material back down deep into the water column.

Again, job one: Do not let this stuff get to the water column. Do not let it get into groundwater. That is exactly what we are trying to achieve here. That is what we are trying to make long-term in our decision process with these alternatives.

The next one is in-situ vitrification. Vitrification is a fancy word for glass. So basically what this does is it puts electrodes into the ground. Between 30 and 40 feet I think is the maximum extent you can do this to. It drives an electric charge through these electrodes on opposing field and it actually vitrifies the soil, turns it into class to hold the material in the soil.

So there is some question about effectiveness of that, but it is an option, a definite option.

The last thing we looked at, a combination of alternatives. For this decision we are -- our

proposed alternative is to remove, treat and dispose. So we are going to remove the contaminated soil. I talked about about 15 feet. We will treat it as necessary and then take it to the appropriate disposal site. That is either ERDITH, on the site low enough or it is true. True waste goes down to the waste isolation pile plant down in New Mexico, WIPP.

So that was the first area. Now, for this slide this gives you a general overview of the five areas that we are going to talk about. Ken talked about those as well.

There is 16 engineered liquid waste disposal sites in 200-PW-1, 2 and 3. They are broken down into these five types of areas, and they are not all grouped in the same. For instance, we have high salt, low salt. We have settling tanks which is a geometry problem to dispose. We have cesium-137 which is a specific radionuclide of concern, and then we have other sites, which is kind of a miscellaneous site that we have grouped together because the remediation is the same.

These were just Hanford site operations to introduce how to dispose of plutonium-contaminated water. It was just kind of stepping grounds, if you

will, and the primary risk drives are plutonium, americium and carbon tetrachloride.

Lastly, the current PW site is the only one that we really focus on with cesium-137. It is a little too early.

I am going to go through these alternatives and what we looked at. The only difference between this and the other list, we have the no action alternative. The second one is a little bit different. We maintain or enhance the existing soil cover, and that means that we are adding material on top of it to enhance a barrier to prevent access to that material or give it a higher stand-off to protect workers.

We have an engineered surface barrier as we have talked about. We have in-situ vitrification as an option, as we have talked about.

We have remove, treat and dispose, as we talked about.

And, lastly, we have soil vapor extraction. This is a highly effective means of extracting carbon tetrachloride. So we basically just put a vacuum on the ground, and we pull out the vapor. It is vapor form, and then we basically condense it. So that we are pulling out that carbon

tet and constantly pulling it out of the soil with the vacuum. It is pretty simple technology. It is highly effective because in the right conditions carbon tetrachloride does get into a vapor form, and it is effective relative to the other ways we mitigated, which is pump and treat.

So as we look at preferred alternatives, we are going to start with one group, the high-salt waste group. We looked at the high-salt waste group. Emmy talked a little bit about the way that it fused into the ground. It is a significant concern up to 110 feet into the ground. Right now we looked at that, and we say it is clearly that the plutonium that we assessed to be stable. I will talk about what that means in a second.

Our alternative, however, looks like continuing to operate the soil vapor extraction system. We are going to excavate the highest concentrations or at least -- let me correct that. We are going to excavate to two feet of this material. We are going to excavate two feet of the contaminated soil after we remove the structure. So in this case it takes it to about 22 feet in the ground is how much we are going to remove.

Then we are going to remove and dispose of

that material and the structures as necessary and take it to the appropriate fill. We are going to backfill the excavated area with clean fill, clean fill. We are not mixing anything or anything like that. Clean fill gets backfilled into what we excavated, and then we are going to construct one of those evapotranspiration barriers over the site. This is engineered barrier, and this is designed to basically provide a plant cover or some kind of cover that actually allows the water to evaporate naturally from the top of that field after we engineer a barrier, and it has got an impermeable membrane underneath that that prevents the water from, again, getting into the ground and driving that material at all. So if there is no motive force, the material remains stable.

MR. NILES: JD, if I can speed you up here because we are already over time.

MR. DOWELL: Okay. The others are less complicated.

The low-salt waste group, we are going to remove the significant portion of plutonium contamination, and we are basically going to do an RTD, remove, treat and dispose. We are going to apply the evapotranspiration barrier. On the low-

salt waste group, that material, again, is fairly shallow. It didn't penetrate deeply into the soil.

The current PW-3, which is the cesium-137 waste group, we are going to maintain and enhance the existing soil cover to assure waste sites are at least 15 feet below the ground, and that is all we are doing for that site. That alone is it.

For 200 PW-1 and 200 PW-6, these are settling tank waste groups. We are going to take the material out of those tanks, stabilize it and dispose of so. So it is RTD of the material in the tank, and our plan is to grout that tank in place, and that will hold that tank and whatever remains in that tank in place in the ground.

And, lastly, for 200 PW-6, other waste sites, there is no action required on these because we don't have -- we just can't find the material there. And Z-8, the French drain in Z-10, injection reverse well, the soil concentration -- the contamination concentrations are below risk. So there is really nothing to mitigate at this stage.

So how you can provide comment? We are here tonight to take your comment personally. You can provide verbal comments, provide comments now on paper. There will be a Q and A session that we will

get to here in less than minute, and you can also submit written comments to that website or that address.

We are going to go back to the tri-party agreements probably within two weeks and assess the comments. We will look at every comment. We will have an analysis done on every comment that we hear, and then we will come to the decision, and we expect that decision to be made by the end of September.

Thank you.

MR. NILES: Thank you, JD.

And I know Emmy wants to provide just a brief comment on EPA perspective on these alternatives.

MS. LAIJA: Yeah, I am just going to take one minute.

With EPA when we look at these alternatives we are looking to see if the alternatives that are being proposed are protective of human health and the environment. So that is what we look at with these alternatives, and we determined that, yes, they are considered protective of human health and the environment.

However, we are very interested in hearing what you have to say about the high-salt waste

sites. We know, there is a lot of energy on those. We welcome that feedback. Your input does have a direct effect on the decisions we are going to make. So I encourage you to share your comments with us.

And I am also interested in hearing on the cesium waste group. We are proposing bringing in backfill to maintain a 15-foot depth of cover over those waste sites, and that is a new approach. We don't typically bring in backfill to put over a waste site. So any feedback you have on that part of the cleanup decision as being presented here would be very helpful as well. Thank you.

MR. NILES: Thank you, Emmy.

I am going to step out of my role briefly as moderator and give you just a couple minutes on the State of Oregon's perspective on this cleanup.

If you haven't seen them, there is a copy of our comment letter out there. In my early comments I mentioned, you know, the first four groups of sites that were removing, we are fine with those. So I am going to limit my comments just to the high-salt waste, which is the plutonium sites and the cesium sites, and tell you what our perspective is.

Before I do that, I should say that we are

very pleased that through this four-and-a-half-year process that we have been involved with in commenting and reviewing these documents and as they brought them out to the public, they have made some dramatic changes. We are really pleased with the distance that the tri-parties have come in our view in terms of what they are proposing to do. A couple of these areas though we are still a little uncomfortable.

Our position on the cesium sites, I think, is probably going to surprise you because our position is that we are willing to accept the cesium to stay in there. And the reason that we are doing that is really to be consistent with our technical analysis is, and that is the chemistry in the soil and how contaminates move or don't move within the soil at Hanford.

So the operative reason, or the same consistent reason, if you will, our perspective is from Oregon's perspective is the soil chemistry at Hanford can allow certain forms of plutonium to move. So we have concerns about the high-salt waste group I will talk about in a second.

With cesium the soil chemistry is such that that cesium does not move. We are very

confident that the cesium does not bind, and so we are willing to accept the proposal to leave it in place to allow the cesium to decay so long, as JD mentioned, that the Department of Energy can guarantee a presence on the surface to protect those sites to allow that there is not fertilizers, for example, that go on there because they can remobilize the cesium. That is what our position on the cesium is.

On the high-salt waste sites, we are very concerned about excavating just two feet further. There doesn't appear to be any real rational basis for that in our view. We can't find it in the documents. It isn't you will get 85 percent of the plutonium out with two feet. We don't know what the percentage is.

And what we are recommending is the observational approach it is called where you begin to dig your sampling as you go. If you still have a lot of plutonium, you keep digging. If you run out in two feet, in five feet, in ten feet or 20 feet, wherever it might be, that is where you stop. You don't just arbitrarily pick two feet.

So that is the State of Oregon's perspective. I hope you will take a look at our

letter and that will help you in determining all this.

So I am sorry we are running late in terms of our schedule. We have got a lot of folks that joined us since we did our opening comments. We last want to hear from a local perspective, which is going to be shared by Columbia River Keeper, Dan Sherrer, and Gerry Pollet of Hearts of America Northwest, and we will try to clarify and answer any questions that we might have confused you about so far.

So, Dan, thank you.

MR. SHERRER: First thing I want to say, if anyone hasn't found our handout yet, we have sort of talking points and information about this, this process on our table over there. So raise your hands if you don't have one, if you want one, and we have got folks that will go around and give it to you. They also help give you information on how to comment formally online.

Columbia River Keeper has a pretty starkly different view of what is a protective approach particularly for the plutonium issues. We disagree with both Department of Energy and the Environmental Protection Agency about whether leaving a large

amount of plutonium in the ground is protective of the public and the environment in the long term.

Plutonium has a half life of 24,000 years. That is a pretty difficult place to start from when you are talking about leaving large volumes of this in the ground. We are not -- our position is not controversial. In fact it is the consensus from a broad range of regional interest that this approach is not acceptable.

The Hanford advisory board, which includes government agencies, tribes, conservation groups, watchdog groups like Gerry from Hearts of America Northwest. The consensus conclusion is that the Department of Energy needs to get as much plutonium out of the ground as possible. Stopping at two feet, which would leave an estimated 50 percent of the plutonium in some of these sites, is simply not adequate.

The assumption that this would work, that leaving this plutonium in the ground, would be protective rests on a few key elements, many of which we think are flawed.

First of all, plutonium will not move. That is the first assumption. That rests on the idea that plutonium will not be mobile, that the

geology of the area is stable. We are talking geologic time here. A half life of 24,000 years, roughly you think ten half lives that is mostly gone. That is 240,000 years.

That the caps will be effective, that is another big assumption. That the engineered evapotranspiration barriers will work over this time frame, another big assumption, and, you know, essentially that, you know, the funding, the effort, to keep this site off limits will be stable for the length of time that this stuff will be dangerous.

So we talking about material in the soil that is going to be dangerous for tens of thousands of years, and that is, to us, the crux of the issue in terms of plutonium.

The idea that there will be continuous presence on this site to protect the central plateau, it just doesn't add up. When you think about 14,000 years ago, the Mazola floods were breaking through the Columbia basin, huge walls of water repeatedly sweeping through this area.

From the River Keeper's perspective, we are aware that the Columbia river has a turbulent geologic history. You know, just a couple weeks ago we were paddling down along the White Bluffs. Those

bluffs contain all kinds of fossils that you would never imagine would be in these places. So we have to think on a different time scale than we are talking about tonight.

I am going to give this to Gerry in just a second here, but fundamentally the idea that plutonium is going to be stable is unreasonable.

At the state of the site meetings, we heard from Department of Energy a sentiment that we really agree with, and that was cleanup is not discretional. This is not something we get to choose whether to do or not. This is a moral responsibility that was conferred about our generation by decisions that were made long ago to go and produce large amounts of plutonium.

We would go a step further and say thorough, effective cleanup is not discretional. Leaving large amounts of plutonium in the ground at these high-salt waste sites is just simply not going to work.

The alternative range, part of the reason that they come to the conclusion that it is too expensive to go further is that there is a big gap between going two feet and the next alternative is to go many dozens of feet below that. And so, like

Ken pointed out, does going 10 feet get you 90 percent? Does going 13 get you 95 percent? Then that is probably worth it. We don't have that information. It is not disclosed in the plan. And so we need more from the Department of Energy to justify leaving any of this in the ground.

I will sort of close by saying that we have given input before on this issue. The Hanford advisory board, many people in the public have repeatedly argued for thorough cleanup. We will do it again if we have to, but we are asking DOE to pull this back and take a harder look at the plutonium.

And I want to pitch it to Gerry. He is going to talk about some of the other troubling aspects of this.

MR. POLLET: Gerry Pollet with Hearts of America Northwest.

I want to thank you all for coming tonight. It is really important that you are here. Without your voice this would not be a cleanup. It would be a coverup, as you heard. Coverup of 15 feet of dirt and walk away. So it is really important you are here.

Just how much plutonium there is in the

soil in the central plateau sites, 562 kilograms in the sites we are talking about tonight. That is their estimate. It is actually not a very firm estimate. That is enough plutonium to make 70 nuclear bombs. When we are done there is still going to be dozens of nuclear bombs' worth of plutonium in the soil if we don't require them to clean it up.

But it is not just plutonium. It is the cesium. It is vast amounts of chemicals. You heard about soil vapor extraction. Sounds great, but the thing here is that is like sipping -- using a straw to try to clean up the Columbia River, because if you don't get the stuff out of the dirt, the stuff that's mobilized into the gas vapor is miniscule compared to what is in the dirt.

We are going to skip over repeat slides here.

Here is a picture of the Z-9 trench. Just to give you a sense of the size of this, that concrete cover over that trench is 120 feet wide. There is enormous amounts of plutonium in here, and the plutonium in 1979, the last time they did any sampling, was 120 feet below the site, and they are only going to dig out two feet below it.

And massive amounts of powerful solids. These solvents were chosen to be used in plutonium processing operations. Because why? They were damn good at mobilizing plutonium.

And the other thing to bear in mind about the Energy Department's promises to be there forever, the Energy Department was dumping these untreated liquid wastes straight into the soil as late as 1995, not very long ago. It was illegal to dump untreated liquid waste 20 years before that, and they kept doing it. They were not good stewards, and the idea of trusting them when their budget priorities to make more nuclear waste and more nuclear weapons and to send the waste care to be buried at a national radioactive waste dump is not something I would like to bet our children's future on.

This trench is about two miles long, these trenches. In 1959 this is where they tested. Now, you heard this CERCLA process. We do a remedial investigation. We would like to know where the heck that investigation was, EPA, State of Washington, Energy Department, because what they looked for in 1959 was whether or not they put so much plutonium into the ground that they would have a self-

sustaining nuclear reaction, and 1979 they looked again, but they were only looking for plutonium. They weren't looking at the chemicals. They didn't care what chemicals they put in the ground back then. They were continuing to dump liquid waste without treating it into these trenches for another 16 years.

And so here is what they did in the last decade. One spot, a spot, a bore hole. That was that. On that basis we should say the waste contaminants haven't moved since 1979. Not reliable, and we believe the same thing is true in terms of old waste sites. They need to be dug up, not put under 15 feet of dirt.

How many of you have stood at the edge of a large construction site for an office building and looked down into the pit? Everyone here has done, that, looked down into the pit 40, 50, 60, sometimes a hundred feet deep. So you know you can excavate a hundred feet. It is not that costly. It ain't rocket science. You can do it. So what's the problem?

The problem is the Energy Department is under a rule that says you are supposed to send plutonium to a deep underground repository. There

is only one. It is a salt mine in New Mexico, and it is going to run out of room if they sent all the plutonium there. So it is expensive. They say maybe we will blend the average over a large area, and we will send it to the SuperFund cleanup site in the middle of Hanford, but it is still plutonium, and it should go to a deep underground repository.

MR. NILES: Gerry can I get you to wrap up, please.

MR. POLLET: Just a few slides.

This is the Energy Department's proposal for the cleanup standard on the central plateau for plutonium. 2,900 picocuries per gram. This is what they are being required to cleanup to in California at Lawrence Livermore Natural Lab, two and a half and ten, a thousand times greater level of plutonium.

So even along the Columbia River this is the level that EPA required them to clean up plutonium to. If you use 2,900, you look underneath the pipeline or a trench, and you say: "We don't need to dig up any further. We are at our cleanup standard."

So what we are suggesting in the way of comments, insist that these sites be dug up. It

ain't rocket science. It is a cleanup, not a coverup.

Secondly, the plutonium that is dug up needs to go to a deep underground repository, not put back into surface landfill.

Thirdly, don't ignore the fact that the plutonium has already spread, and in fact the irony of this cleanup plan is that the most -- the site with the most mobile plutonium is the one where they only want to dig up two feet instead of going after the deeper plutonium that the solvents have already mobilized and headed towards the groundwater. And urge them to adopt a cleanup standard for plutonium that's similar to the one used in California or at least the one used along the Columbia River except we actually have to clean up and leave.

Thank you very much for coming here. Please remember to give comments on the record when they open up the record to take comments, and use our facts sheets from both organizations to mail in more comments. Share our E-mails with all your friends on Facebook and ask them to send in comments.

Thank you.

MR. NILES: All right. Thank you to all

of our speakers.

We want to take a few minutes if there are some questions that came up in terms of needing clarification. We are still going to have the comment period. So I would like to really distinguish questions versus comments.

All of this I should mention is being recorded by our court reporter. So we are going to ask you to raise your hands for the Q and A so we can get a microphone to you and make sure she can hear you.

And Sonya you are going to be running the microphone around?

MS. JOHNSON: I am.

MR. NILES: We will have that to you in just a minute. And then once we start the public comment, we are going to put a microphone on the stand so people can come up and do that.

So questions, if there is some clarification needed, and we have got quite a few.

FEMALE SPEAKER: My question is to the gentleman that was talking about the trenches, and he said there was this trench and that trench, and then there was in kind of sort of trench.

So could you be more specific about the

kind of sort trench.

MR. DOWELL: The point of the comment I was making about the trenches, cribs, structures that used to dump this material is that there is no standardized way that they did it. And if you look at the placards back there, you can see a couple of the examples on what a crib is versus a trench.

Some of these trenches were just furrowed into the ground. Like think of a farmer going there and making a furrow and make it put water in it.

Others were engineered like a French drain system similar to a septic field where you had a perforated pipe and the material went through that and then it got dispersed into a field of gravel so it disbursed into the ground.

So I am not trying to make a big shell game about, you know, a trench or a crib or the different types of trenches. The point is that is a very rudimentary geometry that these in.

Do you a comment, Dennis?

MR. FALK: Well, I think the specific question, JD, is unplanned release. You were talking about the waste site that wasn't the unplanned release.

MR. DOWELL: The unplanned release site on

200 CW-5, which was the first site I talked about. I know memory won't serve. This kind of gets confused if we talk about it a lot.

That site, which is the one that Gerry showed up that shows you two miles of trenches, those are very rudimentary trenches. Some of them were engineered a little bit differently, but they are all basically the same. They are just basically trenches in the ground with a gravel liner on the bottom to disburse that material into the ground as efficiently as possible.

So when we talked about the unplanned area, what they did is they were going out to dig another trench, realized they were too close to an existing trench; ended up using that trench a little but ended up calling it an indeterminate area like that because they didn't have anything else to call it at the time. It is known as a graph. We know where it is.

FEMALE SPEAKER: So they just jumped it without anything; is that right?

MR. DOWELL: Correct. Well, they were trying to create a trench there, and then they used it, then didn't fill it in. They felt they were too close to the other one. So that kind of gives you

an idea what those 200 CW-5 areas are.

Now, the areas that Gerry did show you, the large trench two miles, that area is going to be RTD, remove, treat and dispose. We are not leaving any of that material in the ground in 200 CW-5, and we are going to treat it according to the normal methods we that use. We will go down to the levels where we retrieve that material and make determinate studies that we sample and retrieve that material to make sure we are getting it.

FEMALE SPEAKER: I thought, all these meetings we went to, I thought all of that stuff was supposed to be vitrification. It was supposed to be turned into glass so you can ship it off somewhere else.

MR. DOWELL: Yeah. I mean I will give you some background on that. It might be a little confusing. So bear with me.

The sites that we are talking about tonight are burial sites. So there were places where they took process water and cooling water and just dumped into the ground. The sites that you are talking about is the tank farms, which will hold about 53 million gallons of water of mixed waste right now. And also all the water has actually been

pulled out of those tanks. So they are really stabilized now. But those tanks are all the material that is going to be vitrified by the large waste treatment plant that is being built to vitrify the waste with a high level of waste going to a repository to be determined.

You know, we can call it Yucca, but I am not sure what it is going to be. It is going to be a repository somewhere. And that is where all true waste will go. So if we find true waste and it goes to a repository, WIPP. WIPP has got the capacity that they haven't even determined yet, and I can't talk too much about WIPP, but WIPP doesn't have a limited capacity. It has got a capacity today, but if we don't find alternatives the Blue Ribbon Council that is designed to do that by President Obama, it is going to -- I think the draft comes out this week, as a matter of fact.

They are talking about the options for a long-term repository for not only commercial nuclear energy but our true transient long-term waste as well. So not to confuse everyone, but that waste is going to go get vitrified that is coming out of those tanks, not out of the ground.

MR. NILES: We have a lot of other

questions, and if we are going to need to -- if we can't make the question and answer concise -- I know it is difficult and it is convoluted.

MALE SPEAKER: You referred to remove, treat and dispose. I would like to hear more about what that appropriate disposal is.

Also, I am assuming in the treatment process that that is -- I don't know if you could briefly mention that. I am assuming it is not going to be toxic intervals involved in that process.

And also it seems relevant to this issue that I have been hearing about a proposal for vast amounts of more waste from other sites, both existing processing from nuclear power plants and waste from proposed plants in the future equaling to what I have heard to be four semi trucks a day every day for the next 20 years to be shipped to Hanford and how this is going to be planned to be disposed of in the appropriate disposal.

What is this appropriate disposal methods that you are talking about?

MR. DOWELL: Well, I will talk quickly to the first question, RTD.

For remove, treat and dispose, the dispose either goes to a long-term repository like WIPP,

waste isolation pilot plant in New Mexico.

MALE SPEAKER: Or shipped to Texas?

MR. DOWELL: Or Yucca, if Yucca ever opens, or something like Yucca if they find something in Texas or somewhere else. There is a lot of things the Blue Ribbon Council is looking at. So if it reaches the threshold of true, that's where it goes. It doesn't stay in the State of Washington unless it is interim until a repository is available. I can almost tell right now that once the waste treatment plant starts making glass, we are going to have to hold the waste here until we find a repository.

The material comes out of the ground that we find if it hits the threshold of true, it goes to WIPP. And the processing we are talking about is the separation process. It is not chemical. It is mechanical. We do it with a, you know, radiography, basically X-rays that look at the material, or we do it with sourdine. There is different mechanisms of sourdine material that comes out of the ground, and right now I don't know if any chemical process we are using. There is none that we know off.

MR. NILES: But in terms of treatment, there could be thermal treatment, if there is a

chemical. There could be grouting to solidify it. I mean there are other mechanisms.

MR. DOWELL: Right. What we do do is stabilize so it can go to burial. We can grout it. We can thermally treat it to extract some of the materials that will vapor, but, again, those are all controlled. It is not released in the environment. We are not creating more of a mess by cleaning up the mess. I guess that is the general gist of our strategy on that.

MR. NILES: Last question.

MALE SPEAKER: So the high-level waste that you are proposing bringing in, so you are just going to --

MR. DOWELL: He is going to answer that one.

MR. NILES: We are going to --

MALE SPEAKER: Let me just -- okay. Just because --

MR. NILES: You know, we can off in our discussion on all kinds of topics, and that's fine.

MALE SPEAKER: Appropriate disposal. That point was brought up.

MR. NILES: There was a proposal by the U.S. Department of Energy to look at Hanford as one

of several different sites for disposal of what is called class C waste, which generally highly radioactive waste. There was a public hearing in Portland two months or so ago about that. It drew a great crowd. There was about 190 people that came and spoke out against that.

That is not a decision that is going to be made by the folks in this room at the Hanford level.

MALE SPEAKER: But I was asking what you are proposing. What is the appropriate disposal method?

MR. NILES: They are not proposing to dispose any of that at the local level. That is a national decision to be made.

MALE SPEAKER: But there is a proposal to bring all this high-level nuclear waste to Hanford for appropriate disposal but there is not appropriate disposal method yet. The only appropriate disposal method is to send it to New Mexico, correct?

MR. NILES: There is a possibility that Hanford could be selected. There is not a proposal --

MALE SPEAKER: For appropriate disposal. I was asking: What is the appropriate disposal

method? Can we address that?

MR. NILES: I will tell you the disposal method they are proposing at Hanford is not the proper disposal. We don't support that. We oppose that.

MALE SPEAKER: What is appropriate for landfill?

MR. FALK: I am Dennis Falk from EPA.

The appropriate disposal for this waste stream, the majority of this waste stream, is to send it to the waste isolation pilot plant in New Mexico. There will be hundreds of shipments if we retrieve this material. So it will be traveling. That is the preferred place for this waste stream.

MALE SPEAKER: So send it to New Mexico?

MR. NILES: For geologic disposal.

MALE SPEAKER: Okay. I was just trying to clarify that, that there is no on-site Hanford appropriate waste disposal method. So DOE, who is represented here, is proposing bringing high-level nuclear waste to Hanford, and they have no appropriate disposal method.

Thank you for answering my question. Next question, please.

MR. NILES: Do we have more questions? I

know we had some hands.

FEMALE SPEAKER: Hi. I am Melissa Still. I live in Washington. My question is: There is a barrier layer beneath these tanks that was discussed earlier with DOE, and it was very educational. I appreciate your time.

My question is: Have there been core samples taken of that barrier and how it reacts to the waste itself and if it is a stable environment as far as that is concerned, and if there is ever an earthquake -- I mean we do live right next to Mt. Hood, and it is a very dynamic situation here -- and how that would affect the tanks at large?

MR. DOWELL: Okay. Let me peel back those questions one at a time.

The first one, and we are talking about, I think, something that was brought as common theme on the high-salt material and the extent and condition of that salt material. This is the area where we are taking two feet, and that was based on recommendations made earlier when we went public two years ago.

And when we talk about that material, if you look at the graph back there of the Z-9 area, the Z being the Z plant. It is the one far right

next to the trench area.

(Brief interruption)

MR. DOWELL: The plutonium has -- when that plutonium was processed, it was processed with carbon tetrachloride. It was in a form of aqueous and nonaqueous, very low PH, very acidic, and we know that when plutonium is in that form it is mobile, no argument, no argument when plutonium is in an acid base of about 2.4 to 2.6. The basic geology of ground PH in that area is about 8.

So we found that when that material was released and processed for decades, okay, it was in a perfect form for mobility at that time. And when I say that that material is stable, I am not saying it doesn't move. I am saying it is stable. The definition of stable is that by what we know today by the process of how we will model and what we sampled.

And what we continued to sample, that material is not moving and our assessment by modeling, and it goes to this extent and it doesn't go past it, is that for the central plateau the plutonium will not move from its current condition for 10,000 years, for at least 10,000 years.

That is what I mean by stable. That is

the state of the art modeling that we use. If you guys know something more, something better -- it is not our model. It P and L that is assisting us with this. It is an independent research group. I know t three studies right now that are looking at plutonium mobility. If we get new information on plutonium mobility that says we are wrong, guess what. We are going to revisit that decision, and we are going to have to go back to it say that the effectiveness of the decision we made is not as effective as it should be. If we have signs that plutonium is moving and getting into the water, we will go back and remediate that. That is the commitment we have by law. So that is all I can say about it. I mean it might not be the answer, and I don't know how far you want me to go on this because I can show the graph of where we think the plutonium is. We have some great slides, but we got a lot of questions.

MR. NILES: We are way, way behind.

MR. DOWELL: All right. So the second part of your question.

FEMALE SPEAKER: Earthquake. Did your model include seismic activity?

MR. DOWELL: Good question.

MR. FALK: No.

MR. DOWELL: It does not include -- yes, it does not. It does not include seismic activity and flood.

FEMALE SPEAKER: So then that is not a realistic model, in other words. It can't be because it doesn't include potential seismic activity.

MR. DOWELL: Well, the model that is based on the mobility of the plutonium, so --

FEMALE SPEAKER: But it is buried in a seismically active area.

MR. DOWELL: Okay. Well, this gets very complicated because I am very familiar with seismic activity in the Hanford site, and it gets very complicated very quickly because, you know, seismic activity in the Hanford site is not the seismic activity of the western side of the cascade corridor.

The seismic activity here in Hood River and across the plate leafing out through Seattle, that tectonic plate is much more active than ours is. We have a lot of micro earthquakes, a lot of activity there, but it is not the same kind of activity, much smaller. We are on a plate out

there.

So when we are talking about seismic stability, the bottom line is that model does not look at seismic stability. It looks like mobility of plutonium.

FEMALE SPEAKER: So what about the Rowena instability on the Rowena plateau?

MR. DOWELL: You are getting past the extent of my knowledge.

FEMALE SPEAKER: This is the crux of the matter that we have to get realistic about what you are modeling because if you are modeling something that is not based on the realities of our geographical area -- and I am not talking about Mt. Hood here -- then the models cannot model accurately.

MR. DOWELL: I will just say that please make the comment. We will look at it closely and see if we need to improve that model and assess the seismic risk or how we will remediate the site.

MR. NILES: A lot of questions here.

MR. POLLET: When I look at what you are talking about, like the inadvertent sort of ditch that occurred and the four sites clearly characterized by what waste was dumped in there

based on solely historic data, I am not seeing any presentation regarding sampling in the sites themselves for potential cross contaminates, yet I am seeing this great assumption about PH 8 and 9 soils being lopped on to historic data for what went into those sites.

Why am I not seeing sampling data, scientific chemical sampling data from those sites telling me what is in them by depth? Does that data not exist at all?

MR. DOWELL: Okay. Let me talk about -- again, we are going back to the high-salt waste group. I assume that is the focal point of the sampling discussion.

When we look at the Z-9 trench, which arguably is one of the worst areas, Z-9 is a Z-1A tile trench. Z-9 is the picture that Gerry showed you, that encapsulated area underneath, 100 feet long and nasty looking area.

We actually extracted 30 centimeters of that material in the '70s. That was based on extracting some of the material because of a perceived criticality risk. We realized that there is no criticality risk, but there is data that we have been using, and it is more resent than that. I

have got a quick summary, but it will give you an idea of what we have got.

The bore holes, and bore holes are basically wells that stop in the ground at a certain depth to basically determine what the soil column is contaminated with. Between 1992 and 2001 we had nine deep, deep bore holes with samples. We had two deep bore holes in 2005 to 2006 with samples. In down hole logs we had 44 simulation logs and 13 wells between 1959 and 1998 and 13 spectral GaMo logs from 10 wells in 1992 and 2006.

When I say logs, it just means we took the material out and we used a simulation detector to determine the condition of the radionuclides that existed in those samples.

So these sites -- I mean the only reason I can bring to you a preferred alternative is because we feel and are confident that we have enough information on these sites to make decisions. So we wouldn't be here unless we felt we could characterize them well enough.

MR. POLLET: Where is that data that you were just citing? We have been looking for it.

MALE SPEAKER: Why isn't that data here?

MR. DOWELL: It is public.

MALE SPEAKER: You are asking us to go along with your decision-making process, yet we don't see the basic chemical information with that data being posted here, but we see a bunch of diagrams.

I think for scientific decision we need that data. We need to come back and have another meeting with that data is what I am thinking.

MR. DOWELL: I appreciate the comment. We have got the data. It is publicly available.

FEMALE SPEAKER: Where can we find it?

MR. DOWELL: Well, I will tell you what --

MR. FALK: It is referenced in the RIFS.

MR. POLLET: Well, the RIFS, I want to point out, was not linked to your document that you sent to the public. And searching for it, as we have mentioned, took people who know the site's administrative record over a week to try to find it. So it is not -- publicly available is not the same as being available to the public.

MR. DOWELL: But, no, Gerry, both of you bring up a good point, and that point is that the data has to be accessible to the public. And when I say accessible it has to be logical and easy to find.

The link has been repaired. Paula is nodding her head saying the link is there.

I have got a summary table made for me between the last time we did this and this time, and I want to share information with you. I am not trying to hide anything. So I don't know if we can -- I only want to give you stuff that is valid. I am not sure I want to release this tonight.

But your point is well taken. The data should be available, and it should be clear. It should be transparent how we are making decisions. So I am with you on that. I will work on it. So please make the comment, and we will try and get that information out.

MR. POLLET: Well, let me just say, JD, and I appreciate that commitment, but it is really late in the comment period already. We have two law student interns and two expert volunteers who are hydrogeologists trying to look through this data and been unable to find it, and then if we get it this week we have got a week to the comment period.

It seems to me the obligation should be that you should have had it available, should have been clearly presented first off in the proposed plan, not in some other document.

And, secondly, you need to extend the comment period for people to actually access stuff for as long as it has been that we have not been able to access it.

MR. DOWELL: We will evaluate the comment.

The material and information was available in the remedial investigation feasibility study, and the link -- you know, we need to determine whether the link was broken and make an assessment of that.

But I hear what you are saying, Gerry. So we will look at it, and if it is fair we will make the right decision on that. The information is there.

But, again, when I think of accessibility, you know, I have been working on this for four months now, and I am getting it now. Okay. So I think we can make that easier. So, again, we will see what we can do.

Thank you.

MR. FALK: Gerry, one other thing, if you would make that a formal public comment about extending the formal comment period, I think we will be amenable to that.

MR. POLLET: Thank you very much.

MR. NILES: All right. So how many more

folks still have questions before we have comments?

We have got at least three.

MALE SPEAKER: I appreciate your talking about four months. I have been working on this for over 25 years. I have been trying to get a site visit. I think it is essential that members of the public who own this property, this mess, be there.

We can't get there because every time we get on the site visit the tours are filled up, and you have to put your name on a tour three, four months ahead of time. I don't know what I am doing that time.

And so I think all the agencies really have to work a lot better to allow citizens to get out there, first question or point.

Second one is: I would like to know what percentage this proposal is of all the underground stuff that's there like the solid waste in trenches. Is this the precursor of the next proposal about how contaminated solid waste would be handled? I would like to know what percentage is this of anything that is in trenches and buried out there.

MR. DOWELL: I can give you an example of the Z-1A trench, which is the high-salt area, to show you what we think is the footprint for that

material. It is a rough scale.

And let me just put that up. I think it will kind of give you an idea of what two feet is.

MR. NILES: I think what he is trying to say is: Of these 21 waste sites, what percentage of the whole Hanford mass. Is that --

MALE SPEAKER: Not the liquid stuff because we have been going on for that for a number of years.

MR. NILES: But the burial.

MALE SPEAKER: But the buried stuff, the other contaminated buried stuff, what percentage --

MR. DOWELL: The other sites.

MALE REPRESENTATIVE: These sites were selected as a priority because they contain the far majority of the plutonium that is not in the burial ground, and so you only have two very large plutonium sources at the Hanford site that have been released into the environment. That is solid waste, and that was disposed of as liquid waste, and these, because of public concern, have been elevated, and those are being done first.

When those two sets of decisions are made, that will disposition the far majority of the plutonium that has been released in the environment

at the Hanford site.

Do you agree with that, Dennis?

MR. FALK: Maybe I will just follow on this a little. Dennis Falk from the Environmental Protection Agency.

So, in general we think of these liquid waste disposal sites for plutonium, they contain about half of the plutonium that is disposed of in, I will call it, historic times. The other half of that is in the solid waste burial grounds which will be a decision we make in a few years.

The other major contaminate in the solid waste burial grounds that we are very concerned about is uranium. We have hundreds and hundreds kilograms of uranium out there.

So, again, in the scheme of things, it is about 50 percent of the historic plutonium we are talking about tonight. We will be talking a lot about the rest of the plutonium and, again, uranium in a future discussion.

MALE SPEAKER: Thank you. Can you get back to us on when we can visit the site? Can somebody from EPA or DOE? Not tonight.

FEMALE REPRESENTATIVE: I can talk to you after the meeting.

MALE SPEAKER: Well, but I think everybody should hear that.

FEMALE REPRESENTATIVE: There is a public tours program. It opens up every year on a reservation level.

MALE SPEAKER: But it is not working. My wife and I have been trying to do that for two years. We can't get there. It is not working.

FEMALE REPRESENTATIVE: I understand there is a huge demand. We are trying to increase the capacity. It is a balance between, you know, spending money on cleanup and spending money on public tours.

We have increased the capacity to provide 6,000 visits a year. So it has gone up from a few hundred to 6,000. It is going up slowly.

If I can get your name after the meeting, maybe I can give you tips on how to get on that.

MR. DOWELL: Paula, can you explain what they tour when they go out.

FEMALE REPRESENTATIVE: Well, the tour takes you around the entire site. So you see the old reactors. You see the cleanup as it is happening, and then you see the cleanup that has been completed. There is tour guides at each stop.

They talk about groundwater. They talk about building this demolition. They talk about long-term stewardship.

So it is a good look at what is going on, what has happened in the past and happening now. It also talks about the challenges because there is a lot of challenges we have out there.

MR. NILES: Okay. I think we have two remaining questions.

MALE REPRESENTATIVE: I was just going to address one of those questions.

So there is the Hanford advisory board which includes representatives from Oregon, activist organizations, local and federal officials and public interest groups. And they are seeded by different organizations so that those representatives go back and they tell their constituents about this information.

We have been involved in this feasibility study, and what we are really talking about are:

These are the two summary reports for the feasibility studies which says: Okay. We know there is a problem. What are the alternatives, and what are the best choices of those alternatives.

We had public workshops over the last two

years, and we have significantly revised the proposed plan. And, as Ken said, several of the proposals now the State of Oregon says "we fully endorse" or something similar to that.

But the remedial investigation information that came out, it came out five years ago. This information has been available, and they are very similar reports to this, and this is the text. The data is actually on a DVD in the back of the report. There is thousands and thousands of data points to discuss these different sites.

People ask: Why do wells cost so much or bore holes cost so much? I can go out to the private sector, and I can drill a well for $10,000. We drill a well, we have to make sure we don't introduce any mud, any liquids to this, and we basically take a cylinder that is sealed on one end, and most of the high-tech soil representative samples, you take this four-foot cylinder and you pound it into the ground, and you pull it back out and you collect a soil sample, and then you put that cylinder back into the ground.

And you can imagine that if you are trying to collect a sample from 250 feet down, you have to disassemble your drill stem every single four feet,

and you are collecting the soil sample. In these areas we had 65 contaminates of concern that we targeted specifically. So the analysis on each soil sample literally costs tens of thousands of dollars. And the Z-9 site in particular, we spent almost $2 particular sampling underneath that for one sick string of samples that went all the way down to groundwater.

These areas have been extensively sampled. The information has been out there. We started public workshops more than two years ago on this. We are bringing it back up because we have reevaluated our proposals, and we will continue until we get consensus with the tri-public -- or the tri-party agreement.

So don't take the misrepresentation or the misunderstanding that there is just a limited number of samples. There is literally thousands of samples related to these sites, and the process has been years in the making.

MR. NILES: Let's get these last couple questions if we can, and then we will go to public comment.

MALE SPEAKER: I was curious how far the groundwater is below some of those high-salt areas.

And also, secondly -- can I ask a follow-up on that?

MR. NILES: That sounds like about a three-word answer to that question.

MR. DOWELL: Well, the answer best is right behind you. You will see those graphs that have the actual scales on site.

But, first, the Z-1 area goes down 110 feet. It hits a thing called KA Leach layer, which is a compact, dense kind of clay layer, and then it is about another, I think, 225 feet.

MALE REPRESENTATIVE: Total of 250.

MR. DOWELL: 250. So it is another 150 feet.

That is representative of the central plateau. It is in the 250 to 300 foot range. When you get closer to the river, it slopes up when you get closer to the river. So you think of the water column constantly changing.

MALE SPEAKER: As a follow-up, I am kind of curious. There is some 1979 and 1959 samples referenced. It seems like over the span of like 10 or 15 years the plutonium that was immobile and will be there forever, it went down 120 feet in 10 or 15 years, and it has been 40 to 45 years since then.

So logically it seems if it kept going on at that rate even with that barrier or whatever, maybe that slowed it down a little bit, but it seems like it would have hit the water by now.

I am curious like why -- I mean that seems like a really big problem, and it seems like it should be alarming and that essentially if there is that stuff in the groundwater then it should not get in the river. And a lot of us here use the river, kite runners and windsurfers. We love this area, and I am curious, yeah, why you are not digging further down, I guess.

MR. DOWELL: Got it. I am a river user, too. So I am with you on that.

I talked about the samples that I just characterized, the ones for 2002 and 2006. That is the Z-9 area. That is an example where that area is very similar to other high-salt areas. We really characterized that very well, and we got the necessary information to indicate that that plume that is graphically represented on that chart back there characterizes where that plume is today. The motive force that drove it down to that level back in '50s and through processing time that it took no longer exist. That is why our modeling assesses

10,000 years and doesn't show that it is moving.

Now, that doesn't mean that plutonium is immobile. That is not what I am saying. I am saying that in the central plateau for the plutonium in these sites -- and that is the way we look at it because we look at these sites with each decision -- is stable.

And, you know, now you get into the thing are you going to be here in 10,000 years and a half life of 240,000 years. Those are all relevant points. It is just that is what we know, and we have to be here as long as that is a risk, and we have to protect human health and the environment.

MR. NILES: Thank you.

There was one or two last questions. Who hasn't had an opportunity? There you go.

MALE SPEAKER: Just a quick question. I am curious if there is any sampling that has been down lower in the Columbia, say, our area for some of these chemicals. I mean here we are down in this are, and we all use this area we are talking about way up there.

MR. NILES: Actually, I can answer part of that. Maybe I can answer part of that.

The Oregon State Health Department had a

monitoring program of the Columbia River in the early 1960s to the early 1990s. When the last single pass reactor in Hanford shut down in 1972 and Hanford was no longer dumping huge amounts of radioactivity into the river, the levels dropped dramatically, and from about 1972 on Oregon Health measured basically zeros in this part of the river. It took a little while to go down.

The sensitivity of the equipment is such that it has grown so sensitive, the equipment, that they can really detect to a great level, and you can never find nothing. You can always find a little something.

But Oregon Health stopped their environmental monitoring program for radioactive materials in the Columbia River in the 1990s just because they kept getting, in effect, zeros down here from Hanford.

There was a confirmatory sampling done about six years ago that was a joint effort between the states of Oregon and Washington and Department of Energy in which Oregon State University analyzed the samples that we took and confirmed again that there really isn't anything down here in terms of radioactive materials from Hanford in this part of

the river. It is not to say there is not still small amounts of stuff getting into the river today because there are.

MR. FALK: Just to follow on, the EPA has a very large program that is looking in the Columbia River called the Columbia River Toxics Program. There are reports out. If you are interested, let Emmy or myself know and we can get you that information. So it is an ongoing program. It shows you all the data that has been collected. Hanford data is included in that report.

MR. DOWELL: I would add that DOE also does an annual assessment of samples taken in and around the Richland area and Columbia River off-site. So that annually we are determining whether there is a source that gets down river.

MR. NILES: Does that take care of the Q and A?

We have this gentleman here.

MALE SPEAKER: We heard testimony tonight about how your plan isn't reliable because excavation would stop at two feet or 15 feet.

And why not dig as deep as necessary, 100 feet or whatever?

MR. DOWELL: Good question.

MR. NILES: JD has a little visual help here.

MR. DOWELL: I want to show you that graph that I was talking about earlier so you have a feel for what we are talking about.

Okay. To explain this graph, this is an example of what we think the displacement of plutonium is at various levels in the Z-1A tile field, which is comparable to Z-9. This is a high-salt field, and when you look at this field the bottom of the structure, which is the structure that was used to actually dump the waste, if you will. It is about 18 feet. Two feet takes us to 20 feet of extraction. At 20 feet extraction, we are at 51 percent right there (indicating. So 84 percent would be two more feet.

If we took 64 feet, it would be about 99 percent, and it goes down to about 110 feet before it hits the KA Leach layer and where we don't see any more plutonium and we don't model it and we are continuing to sample it in our groundwater.

So your comments, if you have a comment about this, this is what it is based on. You say: Well, why are you stopping at two feet? And the answer -- this gets into a complex concept because I

had to change the paradigm I thought about because we are not -- our original remedy, which was completely legal and protected human health and the environment, was to cap this area, put a cap -- take out the structure, put a cap over the remaining area. Call it good.

When we went out for public comment, very, very, vocal reply, and to get more material out. It doesn't specifically protect the public. Gerry showed you a slide about the concentration levels taken from Lawrence Livermore, I think it was, or some of the other sites, those are specifically to protect the public.

You have to believe that this is an industrial area. The public will not have free access to it because when you looked at his slide and you looked at the right-hand corner, we looked at those levels to protect the worker. We are protecting the worker from this area. I have to protect this area from someone going in with a backhoe and digging it out.

It doesn't change the solution or protect you anymore by me taking more material out of here, and I could have capped it. So if you think we should take more material out of it, make the

comment, but from the standpoint of specifically protecting human health and the environment, it doesn't protect the human health and the environment any more than a cap would.

I had to change my paradigm because it is always good to get the material out of the ground, right? Not if you understand the assumptions we have made, which is that the material is stable in the form it is in, and it is not moving, and by our modeling for the central plateau, 10,000 years right now, and that is the extent of our model.

So that is how we came to that decision. Good decision? That is why we are here to take your comments.

MR. NILES: Which we would like to get to shortly, but we keep getting more questions. So I guess we will keep going with the questions here.

MR. DOWELL: Tell you what, before I go into another question, can I show you one thing. This kind of gives you a perspective also.

Even though in this case when you look at the balance approach of how we made decisions and, you know, long-term and short-term effectiveness really don't factor into this. The reduction of toxicity does factor into it because you reduce the

amount of material in the ground. The implement ability factors into it because we are already there taking material out, so somewhat cost effective if you are already there, but then you look at the cost.

So really these three elements drive the balance of that decision in this case, and this kind of shows you a scale of what we are talking about, and it gets a little complicated, but if we went down and removed the structure the relative cost is about that. You take two more feet, which is option A -- make sure I get this right. So I don't cross these up. They are easy to cross up. It costs about 110 million dollars. When I go down about, I think it is 18 feet, it jumps to 600 million dollars.

So going back to the point I made at the start, if it is not adding value to protect human health and the environment by taking more of that material out because it is stable in the form that it is in, and you have to make that assumption, and we are the long-term custodians of that area, then it doesn't make sense to invest this money here when I can use it to mitigate more active sites in other areas and to use it to prioritize other work that I

think is just as important. I think we are talking about 22 sites tonight? How many sites?

MALE REPRESENTATIVE: 800.

MR. DOWELL: 800 sites.

Now, this is one of the worst sites. Let's go after the bad stuff first. If you think we should take more, make the comment.

MR. NILES: Other questions?

FEMALE SPEAKER: Yes. I have a question.

It is my understanding that what is called the Atomic Energy Commission had made a decision that it was unsafe to dispose of any high-level radioactive waste on the surface since the mid-70s. They were supposed to be putting in a deep geologic repository, and then I thought that I saw that they were putting in the trenches as late as 1994; is that correct? That is what I thought I just saw on something tonight.

MR. DOWELL: Yes. That was Gerry.

FEMALE SPEAKER: So I am just curious why would we not be putting it in the deep repository trenches from then onto the mid-70s if that is what they determined because it is a huge presumption to me. I can't imagine how any human being had the arrogance to assume they know what is safe for the

next 24,000 years for any of this material that is even being made anymore to have put it anywhere since the mid-70s because those were the standards that it was being set for, human and environmental safety by law.

So why would this ever be changed, and why would they ever care about how much it costs when the cost of cancer and all of this can't even be calculated.

MR. NILES: Somebody want to take a shot at answering that?

MALE REPRESENTATIVE: Well, the far majority of this waste was disposed of prior to 1970, and the most pertinent law that comes to my mind was the transferential (phonetic) haystack, which is a future-looking regulation or law, and it talks about future disposals.

We have a lot of environmental laws, and generally the environmental laws are: What DOE does in the future and how to deal with the past practices. So in the future, after that law in 1970 transferential waste was no longer disposed of in shallow burial unless it could be shown that it was the equivalent level of protection of a geological repository, and they have done that in some

locations.

Unfortunately, that law doesn't directly apply to this unless you exhume the waste or remove the waste from its place. The law doesn't apply to waste that was previously disposed, much like solid waste landfills. The landfill regulations for today and virtually every aspect of environmental law doesn't apply to retroactive except those laws such as CERCLA which says go back and evaluate what we have done in the past. Determine if it is a risk. Determine what corrective action needs to be taken.

And that is why there isn't a prescriptive thou shall dig this up and remove it to a geological repository because that just is not what the law says. If you are going to dispose today, you are absolutely correct. A lot of it has to go that way. So it couldn't be disposed as a liquid. So it would have to be put into a solid form before it go into a geologic depository.

So the laws say: Evaluate all your mistakes of the past or your past practices and determine the risk and take appropriate action.

MR. DOWELL: Yeah. We have a group, actually, not underneath Briant, that is actually recovering the true waste that was put in

temporarily storage in the ground, and that material is brought out and to say, to determine, whether it is true waste and it is shipped appropriately to WIPP.

So we have material today that we are recovering out of trenches that we will continue to recover at least through the end of this year that is going to WIPP on a realtime basis we made that commitment under that law to make sure the material went to the right repository long-term. It is the pre '77 I think this went through. MALE REPRESENTATIVE: '70.

MR. DOWELL: '70. 1970 waste where it doesn't come underneath that law. So we disposition it on a case-by-case basis on these types of decisions.

Now, the material that comes out of the two feet I think Dennis alluded to, that material will be assessed and will go to the appropriate burial, repository or ERDITH as it gets screened.

MR. NILES: In the back, you had a question as well?

FEMALE SPEAKER: Thank you. So based on, I think it is JD or --

MR. DOWELL: That's me.

FEMALE SPEAKER: Based on your acknowledgment that seismic activity was not included in the modeling, you are asking us to make comments and make decisions and make recommendations based on the inaccurate data that you presented because the data came from the modeling, I presume.

So my question is: Will new modeling be performed that does appropriately include accurate seismic activity that could impact the Hanford region?

And then we should be allowed to rehear the information based on the new and more accurate data because without the seismic activity being modeled, this is all bogus.

MR. DOWELL: The Department of Energy when it builds a facility has a robust process to ensure safety that looks at seismic and looks at national hazard phenomenon like you are talking about.

The remediation, we don't have that mechanism. So we have taken the comments, and we are committed to making sure we thoroughly invest and evaluate whether this decision has an impact based on seismic. And that means -- I can't commit to a model because I don't think -- the model that we used that monitors or models the movement of

these materials in the ground doesn't have the right components or configuration --

FEMALE SPEAKER: -- geological data that is available for us.

MR. DOWELL: Right. And that is what we are committed to doing with that comment, is looking at it. I just can't tell you the extent of what it is going to be. I think it is a great comment. We do it for buildings, and it is something we need to look at for this site. We are committed to doing that.

MR. NILES: All right. Folks, let me just -- you know, if you guys are all willing to stay here until 11:00 or midnight to give your formal comment, which we haven't even begun to do yet, that is fine. We will do that. I just don't want people to start leaving if they haven't had an opportunity to give a formal comment, and this question-and-answer period seems to keep going on and on and on with no end in sight.

So I really want to ask you guys because, you know, it is your comments that the tri-parties want to receive.

MALE REPRESENTATIVE: Ken, I am a little concerned if we don't get the comments soon, people

are going to start leaving.

MR. NILES: That is what I am concerned about as well.

So are there any compelling questions that can't be framed as part of your comment that anyone feels the need to ask?

Go ahead, and we will get the microphone to you.

FEMALE SPEAKER: JD, you were talking about true thresholds.

Can you tell us what true threshold is, please.

MR. DOWELL: My point is that when we bring material out of the ground, we have a threshold by which we monitor it. So if it goes across that threshold, we determine that it is classified as true waste, and it gets remediated in the repository long-term storage. You know, I don't have the --

MALE REPRESENTATIVE: 100 nanocuries per gram.

MR. DOWELL: 100 nanocuries per gram is the threshold. So it is a concentration as it comes out.

MR. NILES: Okay. Any other questions?

MS. LAIJA: I want to clarify, for people who provide comments tonight, just know that in the decision we make we will respond to your comments. So you will get an answer to the comments you make, and we will let you know how that impacts the decision we are going to make.

So keep that in mind when you are giving your comments that those will be responded to as well.

MR. FALK: In the form of the comment period.

MS. LAIJA: Yes. After he start the formal comment period at the misc in a just second here.

But don't think that you are going to miss out on hearing a response. We will provide you with the response in the actual decision document.

MR. NILES: So how about a show of hands of people who are expecting that they would like to make a comment? You know, if you change your mind and decide to add one later, that is fine.

So if folks want to start coming up to the mic, maybe a couple at a time.

MR. POLLET: Can I ask a question? Is there some reason why people can't just make the

comments and use the mic from their seats which is a lot more comfortable than standing up there and talking at the screen.

MR. NILES: What would people prefer to do? At your seat?

MR. POLLET: Make it more comfortable. Sorry, Sonya. We are going to run you around a little more. That is what people would like to do.

MR. NILES: All right. So let's see some hands again of people who would like to make a formal comment.

MALE SPEAKER: Jurgen Hess, 412 24th Street, Hood River.

I want to thank the turnout tonight, thank everybody for coming. It is wonderful. It is really neat to see so many interested people. It is great.

Just a day ago there was a big gasoline tanker that overturned east of Multnomah Falls. The state was required 100 percent cleanup even if they have to remove all the soil.

And I think we should apply that same principle to the cleanup here. Two years ago when DOE and EPA came to Hood River, that was the overwhelming comment, 100 percent cleanup, don't

leave anything.

I think there are too many unknowns, particularly with transference of plutonium. We just don't know enough about it yet, and I don't know my spirit will still be here 24,000 years from now, but I hope -- you know, we don't know enough about this stuff. It is too new. So I think be cautious. Take the low risk, and the low-risk approach here is to do the complete removal. You have a Hanford advisory board that recommended that. That is a cross-balanced group from all different interests.

I think that's the best thing to do. I strongly recommend you do that. I defer a lot to Ken and the State of Oregon about the cesium. I don't know enough about that, but I think certainly for the plutonium take the cautious approach. Excavate it all, bring it to the salt caves in New Mexico.

Thank you.

MR. NILES: You are welcome to give your name and your comments. If you don't want to, you don't have to.

MALE SPEAKER: Thanks for the time to do this. First of all, I mean as there is many

comments I want to make, and I will make them as brief as I can.

But regarding the sampling data, even though you have thousands of pages of data, there is only less than 300 elements in the periodic table last I looked. It would be fairly easy to present the data for these four sites based on ranges of, you know, a range of plutonium based on depth and a range for cesium based on depth and a range for carbon tet based on depth, you know, with statistical stuff like highs and lows.

I don't think that would be very difficult. I don't think we need to go through thousands of pages of data to see that. And that would make our understanding of the process a lot better.

Secondly, regarding the curve that you presented when Darrell asked the question about how you decided to go to two feet down. When I saw on that curve, and I may have misinterpreted that, but there was a lot of data points way down low but one or two data points where you made the two-foot decision. That doesn't seem like a sound way to make a decision if that is correct. So I wonder about that, and I wonder if there is not a better

way to present that data, too.

Thirdly, as far as the cleanup is concerned, I think that we should go to the California standard, at least, for the plutonium cleanup, and perhaps, you know, as far as any cleanup we should be looking at something like a 99 percent removal.

And I know that realistically and economically you are not going to probably end up going to some of these places, but if you don't go to those places, whatever is left in place should simply not just be kept. There should be monitoring wells surrounding the area. They should be guaranteed to monitor for an indefinite period of time because you don't know what is going to leach when.

And, thirdly, a cap isn't sufficient. With lateral movement of water, there should be trenched walls going down to stop the lateral movement of water in your engineering design.

Let's see. Oh, yes. My name. I forgot. Dave Berger, Washington. I apologize.

And, perhaps, you know, once you get to the point that it seems like you are going to have to pull a lot of that stuff out regardless of what

that decision is, you know, this is also a great jobs program. Finally we are at same page with the people in tri cities. We are want them all working.

But in the meantime, when you decide what you are pulling out, we should have a second meeting to determine where it is going and what we see regarding the acceptability of that decision.

And, lastly, I will end with a joke. Okay? When I was in Tibet, the old saying was that the Tibetan monks around the monastery feed the dogs because they are afraid that bad monks will come back as dogs. It is sort of an insurance policy. Well, I sure as hell don't want to come back as an ant at Hanford.

MR. NILES: Thank you.

MALE SPEAKER: Maybe above two feet.

FEMALE SPEAKER: My name it Kathy Carlson. I am a resident here in Hood River. I have been coming to these meetings for more than 20 years, and I remember some stuff that was said at previous meetings.

One of the things that I recall pretty strongly was that the site would be left in a state -- the goal was for the site to be left in a condition where the public could use it. And then

they are talking about here today about putting stuff over other stuff, and it is going to be an industrial site and it is going to be maintained for 10,000 years. And then plutonium is like around for 24,000 and half life can go to 40,000 years. I don't even think anything we engineer is going to last for 10,000 years. It will probably last for, you know, the life of a car, 20 years or whatever, you know.

I think that -- and I heard a lot today about -- oh, the other thing the lady brought up about the seismic. Nothing was done to put into the thing about seismic conditions. I don't see anything about floods. They are having a flood in the Midwest. You know, Fort Calhoun is in great jeopardy because they didn't look at floods.

And so Hanford is on the river. I don't see why they would not look at floods as part of their conditioning to make -- I heard a lot of things saying: Our assumptions. We are assuming. We are assuming. "We felt. We feel. We are confident." And none of this stuff is backed up by scientific data.

And then the other things were, comments that I heard here from you folks was, oh, "We are

transparent. We want to be clear." Not. There is nothing here that is clear, and it is not transparent.

And then another term I heard here tonight was long-term stewardship. Again, we are going back to 24,000 to 240,000 to 10,000, even to a hundred years. I mean we are always going to maintain that site. It seems like there is enough plutonium in these -- in the ground if you left what you want to leave in there that they could still be build 35 nuclear bombs. Seems like a great terrorist site to me.

So, anyway, those are my comments. Thank you.

MR. NILES: Thank you.

Other public comments, folks?

A couple folks here in the middle.

MALE SPEAKER: My name is Hafiz Heartsun. I live here in Hood River.

I guess I will say in my own words something I have heard from other people, but I found your assumption that DOE will safeguard this area for some number of years, hundreds, thousands, tens of thousands of years, to be absurd. It breaks the strains of credulity. How many years ago was

the pyramids built? It was like 5,000 years ago, a mere half of that period. Where is the Pharaohs? Where are they guarding their pyramids? And where is any country that has been around for a thousand years? Is there a single country on the plant that has had a consistent government for 1,000 years? 500 years? No. It is just not in the historical record to believe that America, and let alone the DOE, will be around this long, is just absurd. It is ludicrous. It is arrogant beyond belief. I mean right now we are looking at, you know, the government may default next week.

What is the DOE going to do when nobody in this department has any money? Are you going to stand out there and guard it for the rest of your lives and set up camps so all of your generations forever will guard, never leave, because my ancestors 10,000 years ago were employed by DOE. It is our sacred mission to stay here. It is like, come on, guys. You really got to clean it up so it becomes the no-action alternative that you are thinking, that it requires no action because that it is the only realistic thing that you can sustain over the period of time necessary.

I mean sure, yeah, we love science, but

this is like science fiction crap. You just got to give -- I mean you have got to give us a believable story. You are not going to be here for 10,000 years. That is just absurd. It insults our intelligence, really. I am serious. This is not scientific. You have no scientific basis to say we will be here 10,000 years.

Thank you.

MALE SPEAKER: Joe Still, 404 Oak Street.

First I want to say thank you to the federal representatives, state representatives for coming. I appreciate it.

Of all the comments I have heard tonight, I would just like to focus on one, and it was a woman in the back -- I don't know who it was -- who mentioned about the seismic. And I know something about CERCLA SuperFund Model Toxics Control Act. I actually work in the tri cities. So I am somewhat familiar with that.

On May 18, 1980 I was hiking in a place called Randal, Washington and there was a little event that day if you remember. Mt. St. Helens lost half of itself, and I am standing here right now, and I remember watching rocks the size of cars fly horizontally through the air, and I hope that you go

through your decision-making processes, that you will reconsider and evaluate the seismic components of all these decisions.

We are in the ring of fire. All it takes is slight tectonic plate movement, and we could have a problem of gigantic proportions, and I hope that state and federal officials do not make a decision about considering seismic based on what judges, legislators and attorneys have decided is the right thing to do because there is no do-over. Thank you.

MR. NILES: Thank you.

Other people who would like to make a comment in the back there?

FEMALE SPEAKER: Hello. Corey Water, Moser, Oregon.

I understand everybody is working under a budget regime, but I consider it a waste -- okay. So more thorough options in cleaning up the plutonium specifically in these sites was rejected on the basis of being too expensive, but I consider it a waste of our money to only do two feet. So that is -- that is where the waste lies. Yeah, just talking budget here.

MR. NILES: Thank you.

FEMALE SPEAKER: I am Robbie. I live in

Hood River.

I have a little scar in my throat. I am able to talk. I have thyroid cancer. The only known cause of thyroid cancer is radiation.

Plutonium is not a friendly element in its form there, and saying we are going to go down two feet and get 50 percent of the plutonium is not cleaning up. I think it is like spelling. I used to get every letter right except one, and I still missed the word for knowing how to spell it.

Leaving 50 percent of the plutonium in the ground is not cleaning it up. I don't know a lot about running the operational. So it is an operational model. Instead we are going to do two feet, we are going to dig until it's, you know, only a certain percentage of what's come up would be much better. To go after 99 percent of it is just more realistic.

Covering something with 15 feet of soil, I presume that in Hanford they have winds, and there is water erosion. And 15 feet of soil for 10,000 years or for what is -- for -- anyway it is not enough. And it needs to be -- what needs to be required is to have it sent to New Mexico. That's my bottom line, and I am glad that we know a lot

more about radiation and it's gift and limitations.

I will say that in Japan all of the nuclear power plants had to be renegotiated with how safe they are because of the just upping the earthquake to a 9.0 earthquake. They had to be reevaluated. So I think evaluating this for seismic activity is an excellent idea to make it safer. Thank you.

MALE SPEAKER: I am Keith Harding. I live in the upper Hood River valley.

Hanford is our father's curse on us, and how we deal with it or don't deal with it is our curse on our kids and grand kids.

If you are a student of history, you will find a lot of stuff written down that passed generations of humans didn't care much about future generations. They said things like: What the hell did the future ever do for us? Or they will deal with it when they get here. And you will also find comments such as Thomas Jefferson in his first inaugural address of 1801 where he said: All their actions at that time should be -- the impact on the thousandth generation into the future should be considered. What they do in 1801 should be considered a thousand generations into the future,

and if that is 25 years per generation, that is 25,000 years.

I have been attending these meetings for over 20 years now, and nuclear science and chemical science is not my expertise at all. So I sit and listen and listen to the agency people, and the contractors speak, and a lot of the folks seem very sincere. JD, you sounded very sincere tonight. There has been some that did not sound so sincere. I do know that it is real easy, and I sit and think and listen. So I try to say something that might be a different twist on it that might be a way to get into the agency's mind.

And I do know there is a phenomenon of simply becoming a functionary in an agency -- I worked in government for 20 years. I know something about it -- to become a functionary and to pace yourself through it and get to the retirement. And we have seen several of the characters before you do exactly that, and now they are nicely retired with their benefits.

I want to really see it get drilled in, bolted and riveted into the agency because this agency and the AEC before DOE was the villain, and it still is. We need a real deep track record to

develop.

Over these past 20 years, we have heard reclassification from a higher level to lower level. We have heard redefinitions of terms, and I don't understand hardly any of this stuff, but I have a feel for it, and especially listening to you great people out in the audience. And I totally agree with Hafiz when he says it is bloody arrogant to think this civilization is going to be around. I mean I can see it collapsing a lot sooner than 200 years more. It is very important to get a deep mind set into the agency, into human beings to get reconnected with the earth that gives us life.

The nuclear program in 1944 was wrong then, and it is still wrong, and you need to really clean it up, get really committed to it. I have got lovely young children, and I work with preschool kids all the way down to diapers, and I have to think about them.

All right. So do your best and don't schmooze on it. Thanks.

MR. NILES: Thank you, Keith.

Before we go on, could I get a quick show of hands again how many folks would like to make comments?

I would like to check in with our court reporter and see if you need a break at all.

THE REPORTER: No. Go ahead.

MR. NILES: Okay. Thank you. She is stuck there more than any of us.

Go ahead, ma'am.

FEMALE SPEAKER: Chandra Radiance. I am a Hood River resident, and I, too, have been coming to these meetings for 20 years. Unfortunately, they go on and on.

I am going to keep my testimony brief, and I second the points made by Hearts of America. So I am just going to put them down here.

I demand a better approach than remove, treat and dispose. DOE's plan does not protect the public from long-term plutonium risks. Plutonium is one of the deadliest substances on the plant. Internal exposure to plutonium causes cancer.

The DOE plans to leave large quantities of plutonium in the soil in the waste sites it has identified for cleanup in the central plateau. This is unacceptable. Simply put, DOE should dig deeper, remove as much plutonium as possible and send this long-lived waste to a deep geologic repository at the waste isolation pilot project in New Mexico.

Two: Given the extremely long half lives of plutonium of 24,000 years and other contaminates, DOE and EPA cannot assume that leaving this contamination is protected. DOE's plan rests on the false assumption that plutonium in the soil will remain immobile for thousands of years. Given the highly dynamic geology of the Columbia River basin over tens and thousands of years, DOE should not make this assumption.

Additionally, DOE's own sampling shows that plutonium has migrated deep into the soil. Clearly plutonium poses a long-term risk to groundwater and the Columbia River.

Three: DOE should consider a broader range of alternatives for cleaning up these waste sites. DOE's proposed plan stops short of an adequate cleanup, leaving waste below two feet under the bottom of its liquid waste disposal sites in place.

DOE argues that other alternatives such as digging down 37 feet will be too expensive. At the very least DOE should aim to remove 90 percent of the plutonium as it proposed to do in other areas such as the low-salt waste sites. Or DOE should remove rather than cap cesium waste sites.

DOE rejected an alternative that would have involved digging down 15 feet into cesium-polluted and highly-radioactive areas in the 200 east area. Instead DOE proposes to add a soil cap over these areas. We urge DOE to reconsider the more protective alternative of digging up the cesium waste sites.

And, five, focus on remove, treat, dispose.

The public has long advocated for a process of cleanup of the Hanford site by removing, treating and disposing of radioactive and chemical wastes in a manner that protects the public. DOE's proposal falls short of this goal. The Hanford advisory board summarized its concern with the proposed plan in the following statement: "The board advises the U.S. Department of Energy to get as much plutonium out of these waste sites as possible."

Thank you very much.

MR. NILES: Thank you.

MALE SPEAKER: My name is Bob Ruder. I live in White Salmon, Washington.

And I am just really encouraged by the desire to take advantage of this opportunity to make

the Hanford site safe by everyone here, and I think that this is an unbelievable opportunity, and that we have come together at a time when we are making some real decisions about what is going to happen in realtime.

And I think that it is very difficult to take what we consider as realtime and try to make the leap to the dangers of plutonium over what is really unimaginable time as far as I am concerned, and that given those sets of constructs of what we think of as realtime and what we think of as unimaginable time, I think it really moves us to take advantage of this opportunity and to clean the site up completely because in the other imaginable period of time we don't know what will happen, you know.

People have highlighted many possibilities that would make the present proposal for cleanup completely a waste of time and energy and money and resources, and so to really clean the site up for all the future involves the complete removal and repository of the contaminated waste.

MR. NILES: Thank you.

Other folks who would like to make a comment?

Let me remind you if there is conversations you want to have with any of the agency people, they are willing to stick around and talk with you at the end of the meeting.

MALE SPEAKER: Can I make a second comment?

MR. NILES: Yes, you can, but let me see if there are others that haven't made one that want to make one. So let's go to them first. And, yes, you can make a second comment.

FEMALE SPEAKER: Karen Harding, Mt. Hood.

I vote that we clean it up 100 percent even if it takes a zillion dollars. The future deserves that from us.

MR. NILES: I think you had one other hand back there. Maybe not. Then bring it back up here, please. Thank you.

MALE SPEAKER: I would like to observe that in my lifetime nuclear power has gone from being too cheap to meter to too expensive to calculate.

These things you are talking about is all downstream costs of nuclear power, and you have been struggling with this problem with all of our scientific advancement. Apparently, you know, we

are just on top of the world. We can do anything, and yet still there is no -- what is it -- approved disposal method. And there appears to be no approved disposal method in the near future. Now DOE, our wonderful steward, is proposing to bring thousands of truckloads of highly-radioactive waste to Hanford with no idea what they are going to do once they get it there. This doesn't sound like thousands years of stewardship to me.

Given the long-term failures of Hanford's tri-party agreement to realistically clean up what has gone before or plan for what will go on in the future, it seems to me that DOE should be giving us a break and you, a government agency, need to be taking the lead to the rest of the government to get off of their crazy crackpot idea and stop nuclear power. It is not sustainable. It gets more expensive every year. It is insanely expensive, and there is no end in sight for this. And for you to sit around and do your own little one box job -- my job description. I am not going farther -- is irresponsible and, to me, inhuman.

The bigger picture is nuclear power is insane, and you with your expertise and your experience need to take a political stand and

explain this to the political do-dos and those people who have fat pockets who are getting lined with more nuclear power plants and make it a no-go option. This is not a sustainable or scientifically -- not scientifically sustainable way to boil water and make electricity. It must stop.

There are much simpler, cheaper ways, and to continue on this path, just have our little meeting saying, "What should we do with this? What should we do with that," I mean you are just nickel-and-diming us death. You guys have the information to have the big picture.

Take it. Run with it. You are our employees. That is what I am challenging you to do.

MR. NILES: Gerry, looks likes you are the last floor here.

MR. POLLET: I want to thank everyone for coming and sticking with us this evening.

Remember, the Energy Department wouldn't have even stopped dumping liquid waste into the soil trenches without treatment if it wasn't for some of you here coming to meetings 20 years ago and sticking with it. You really make a difference.

And one of my comments tonight is the fact that we had far less than 45 days to provide public

notice of this. We were supposed to have 45 days under the Hanford cleanup publically involved in the plan called the new relations plan. And without 45 days, River Keeper and Hearts of America Northwest cannot do a mailing to you and everyone else who wanted to be here tonight.

And I know that many of you helped out making phone calls and forwarding E-mails and Facebook announcements. Thank you for doing that because we would have had an empty room otherwise, and it is totally wrong for the agencies to put out a proposal, and say we will not give you 45 days of advanced notice for public meetings. The agencies didn't really want to have public meetings. So public involvement, advisory board and other people pushed hard, and they agreed to do public meetings, but they didn't really want you here. So they didn't give us 45 the days.

It is really important that we have 45 days so we can do mailings, and it is really important later this year they are going to come out with a proposed revision to public involvement plan. I hope to see you all here with a lot of other people saying: If you don't give us 45 days, you don't get to go forward with your plan.

Secondly, if you don't give us access to the documents, public comment period doesn't start, and in this case if you look -- there was a proposed plan that is, frankly, a piece of garbage that was distributed if you went beyond the agencies' fact sheet, and then you wanted to see where was that real data, and you had a broken link to the administrative record. If you knew where the administrative record was, you received back a search query of 640 documents and versions like A through G of the feasibility study, and you are supposed to try to figure out which one was used.

I appreciate Dennis Falk's and the EPA's commitment that if we ask for it there will be an extension of the comment period, and we asked for it because, first off, you need to establish the principle that if the documents aren't available the comment period keeps going until you have had plenty of time to review them.

Secondly, in this case, for real, people trying to review these documents were reading the wrong damn documents because you didn't provide the right access to them. What did the documents say? Let's get to this.

MR. NILES: Gerry, we actually do have

somebody else that would like to comment.

MR. POLLET: I am just going to wrap up then.

If the Energy Department had obeyed the law after 1970, it would have stopped dumping liquid waste and untreated liquid waste into trenches, right? And it would have treated it and pulled out the plutonium, and the plutonium would have gone to WIPP eventually. Instead it is in the soil, and now the Energy Department should not be rewarded for having broken the law for 25 years by continuing to discharge it and then say, "We don't want to dig it up."

The Energy Department's proposed plan in a calculation we think is a gross underestimate says: Here is the lifetime cancer risk from these supposedly safe cesium sites that they are going to put 15 feet of dirt over or the Z-9 trench, which will only dig up two feet. If instead of an industrial worker, the area has subsistence farming, and the cancer risk from the Z-9 trench is 1.4 in 10 lifetime cancer risk. 14 percent of the people exposed, instead of the industrial worker, if it is farmed 14 percent die of cancer.

If we look at the cesium trenches where we

are only going to put 15 feet of dirt on top, if we have made a mistake the cancer risk is -- get this -- 65 percent. Now, do you think we should dig it up?

Thank you.

FEMALE SPEAKER: My name it Jody Frank, and I live in Hood River.

And there has been some call for studies on seismic and floods and that sort of thing, but we live in the middle of the results of the Mazola floods. I think we kind of know what those studies are going to say. Could we just spend the money on digging the stuff up on getting rid of it, please.

Thank you.

FEMALE SPEAKER: I implore the Oregon DOE to not just rubber stamp the data provided by the federal DOE. Just know that for you to rubber stamp and agree to decision to, you know, take care of two feet is just based on very poor data, and you need to look a little deeper.

MR. NILES: We are in a Q and A, but it is not what I said.

FEMALE SPEAKER: That is how I heard it. So I am commenting how I heard it.

MR. NILES: Thank you. We did not agree

to that.

FEMALE SPEAKER: Unless I took incorrect notes, it said that you agree that the cesium can stay there.

MR. NILES: Yes.

FEMALE SPEAKER: And that the cesium does not move.

MR. NILES: Yes.

FEMALE SPEAKER: It does not move based on what data?

MR. NILES: Based on the chemical constituency of the soil.

FEMALE SPEAKER: Have you looked at the seismic?

MR. NILES: That wouldn't have an impact on the chemical.

FEMALE SPEAKER: So it wouldn't move? So cesium would not move even though there would be a 5, 6, 7, 8.0 earthquake it wouldn't, just move stay right in its place forever and ever?

MR. NILES: It only needs about 300 years. We are get into a dialogue that we don't want to get into.

FEMALE SPEAKER: We want it 100 percent cleaned up now. We are not going to be here in a

hundred years, but our children and our children's will be. We want it cleaned up 100 percent.

MR. NILES: That's fine. We have got your comment.

Other comments?

FEMALE SPEAKER: Jade Sherrer, and I live here in Hood River, and I hearing the words protection and service a lot tonight, and I would just like to be a voice for the other-than-human world, for the more-than-human world, that also shares the environment and this planet and beg all of us to come to our senses to do everything, everything, everything possible to clean up this disaster now.

Thank you.

MR. NILES: Thank you.

And I think we have one comment here.

FEMALE SPEAKER: Thank you. Chandra Radiance, Hood River.

I just wanted to make a second comment requesting that you would clean up the plutonium up to at least the standards that has been set by the Lawrence Livermore Lab in California which is a thousand times more protective level of plutonium than what Hanford is currently allowing. I don't

remember the exact numbers, but I think you have knowledge of the 2.5 picocuries per gram instead of, whatever, 29,000 -- 2900.

MR. NILES: All right. Thank you again. We do appreciate it. Some really great comments, and people sticking this out on a really nice night.

So thank you again. We will see you again at some point.

(At 9:30 p.m. the foregoing proceedings concluded.)

CERTIFICATE

I, Michele J. Lucas, do hereby certify that the Rules of Civil Procedure, the witness named herein appeared before me at the time and place set forth in the caption herein; that at the said time and place, I reported in stenotype all testimony adduced and other oral proceedings had in the foregoing matter; and that the foregoing transcript pages constitute a full, true and correct record of such testimony adduced and oral had and of the whole thereof.

IN WITNESS HEREOF, I have hereunto set my hand this 29th day of July , 2011.

/Signed August 2013

Michele J. Lucas Commission Expiration

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