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DEPARTMENT OF ENERGY
PEIS SCOPING SESSION

Thursday, December 10, 1992
7:00 p.m.

Durango City Hall
949 East Second Street
Durango, Colorado

DISCLAIMER

CONTENTS

PROCEEDINGS

MR. CHERNOFF: We're going to get going. Some of you are new to this. And the rest of you have been here before. So I'm going to do it more informally and really speak to the issues that we're dealing with.

We're talking about cleaning up the ground water. We're talking about a programmatic environmental impact statement to do that.

There are 24 sites that we have in the country under the uranium mill tailings program that was funded by Congress. The chart over here shows where those sites are. And what we're here to talk about today is the one site that's up in Colorado at Durango. But we have sites at Rifle and Grand Junction and Gunnison. There are some in Arizona, New Mexico. There are some as far as Idaho and so forth. So I don't want to take a lot of time, because there's a smaller audience. And I'd really like to get into the dialogue of talking to you and getting your feel for what's going on and getting your thoughts.

We're here to solicit comments, but we're not here to talk about any projects other than the programmatic EIS on groundwater. We understand that there's some concerns about some other activities

planned for the site that we cleaned up, but that's not part of the discussions.

And so what I'd like to do is leave it more informal and have the folks talk about their specific parts. And we have tables back there where we entertain questions, but it seems like we've overwhelmed the folks who are here to listen. Please feel free -- since we're really not that formal, if you have a question or a thought, please just go ahead and interrupt us and ask us.

We ran it a little differently this afternoon because we had a lot more people. But we've got far fewer now who are here to listen. So we'll try to get more into telling you what's going on.

So with that, what I'd like to do is -- Russel Edge is the site manager for the surface program. He's got a few viewgraphs he can show you and talk to you about the surface program.

UMTRCA requires that we do this as part of our cleanup of the groundwater. We had a program where we cleaned up the surface. And we've done that at Durango. So now we're looking at the groundwater part of our program; not only as it reflects here, but all of the sites. So we're learning. We'd like to get your input. If you have any thoughts or suggestions

or anything you have to help us make it better, that's what we're here for.

So, Russel, why don't you go ahead and launch into your part?

MR. EDGE: Okay. Well, Al, I'm not sure you introduced yourself.

But this is Al Chernoff. And he's the project manager for the UMTRA program.

MR. CHERNOFF: To the point too fast, huh?

MR. EDGE: As Al said, my name is Russel Edge. And I'm the manager of the Durango UMTRA site and the person that's in charge of the surface program. And as you're aware, we've been out here. And we've removed the tailings and carried them back to Bodo Canyon and encapsulated them in a disposal cell back there. We started that job in May of 1987, is when we first started clearing out Bodo Canyon. And we completed the construction of the disposal cell in May of 1991.

We moved 2.6 million yards of contaminated material back there. As Al indicated, the UMTRCA Act, which is the public law that spawned our program, the surface -- the surface cleanup had this mission in mind. The law identified 24 inactive sites. And the idea with our program was to stabilize and control the

tailings in a safe and environmentally sound manner and minimize or eliminate the health hazards.

So how we chose to do that was to encapsulate those tailings in an earthen rock cover. And if any of you have been up County Road 211, you've seen that 66-acre pile of rock up there off to the north. And that's our disposal cell.

When we build these disposal cells, there's really three techniques that we use. We either stabilize them in place -- and the acrononym for that is SIP. And we have several of our UMTRA sites that will be stabilized or have been stabilized in place.

We stabilize them on site. And that means we still stay on the processing site, but we may move the disposal cell to one corner or the other, where from a geotechnical standpoint it might be a more stable or favorable place to locate the disposal cell. And we have a site in Green River, Utah, where we've done that.

We also relocate our tailings if the conditions aren't favorable where the former processing sites are at. And as you're aware, that's what we did here in Durango.

I'd like to just show basically a generic cross-section of one of our disposal cells. The basic

design with the radon barrier and rock erosion protection and design for probable maximum flood of a 1,000-year occurrence is pretty well standard across all the UMTRA sites.

The design of the disposal cell varies a little bit depending on the site-specific hydrogeologic conditions or locality. But basically what we do is we lay the tailings in there in lifts. We compact those tailings to a 9 percent standard proctor. We put a clay layer over the tailings, compact that. And then we put a frost-protection layer over that to account for freeze-thaw cycles in areas where we have that concern. And then we put a bedding layer on top of the radon barrier which acts as a buffer between our erosion protection and our radon barrier to keep our erosion protection, which is usually large-diameter rock, from getting mashed into our radon barrier when we place it.

At Bodo Canyon we've got a vegetative topsoil where we have a rock-soil matrix there. And we have seeded that with natural grasses and plants, shallow-rooted plants that you find in this area.

There is a process which we go through once we develop a remedial action plan. And the Nuclear Regulatory Commission and the state of Colorado work

with us. They review and comment on our remedial action plan. And the water remedial action plan basically outlines the way in which we are going to remove the tailings. And it's the design for the disposal cells.

Once we complete the encapsulation of the tailings and the contaminated material, we develop what's called a completion report. And basically all the completion report is is it has the verification data in there that shows that after we removed the tailings, we collected subpile soil samples, conducted radiological analysis on those. And it verifies that the former processing site is clean. And it also has the calculations and the final design drawings that shows that the disposal cell was built as designed. So, basically, it's the document that confirms that we did what we said we were going to do in the remedial action plan.

Once we get the completion report certified by the NRC, then we develop a long-term surveillance and monitoring plan. And that insures that over the long haul, the 200- to 1,000-year life span of the disposal cell, that the cell is performing as designed.

And the surveillance and maintenance plan has a groundwater monitoring component to it. It has an

inspection list of items that we go out and check on an annual basis to make sure that nothing has happened out there that's changed our idea of how the cell should perform.

So my job, now that we've got the disposal cell built, is to get final concurrence on the completion report and get the disposal site licensed. And this is site specific to Durango. This meeting is really to talk about a more generic, broader picture, the programmatic environmental impact statement; but I thought, while I had this opportunity, I could present sort of an update or status of where we are at with the Durango site.

As I said, we are trying to license it. This will be -- the site, once the final LTS&M -- the final long-term surveillance and maintenance plan is accepted by NRC, they'll grant us a license. They'll transfer the title over to the Department of Energy. Currently the state has the title to the land. And we'll have that in perpetuity for long-term custody and custodial maintenance.

So with licensing we have to have a completion report. We have a final site audit report. And then we send in -- we get a certification -- we submit a certification report and we get concurrence from NRC

on that.

There's a few remaining actions that we have to take care of out at Bodo Canyon which we in part have done. There was an issue regarding some fines and the riprap on the disposal cell. And we removed those. The issue was that the fines might clog up the pore spaces between the rock and keep the water from draining off as we designed it.

There are some steep side slopes on the banks surrounding the disposal cell where some sediment has washed down our drainage ditches. So we've gone in there -- we're planning on going in the spring and hydromulching that to try to get some vegetation established to stop the erosion of the soil.

We'll get the land transferred over to the Department of Energy. We'll put that proof of that land transfer in the final surveillance and maintenance plan. We'll submit it to NRC. They'll give us a license.

Our project is operated out of the Albuquerque project office. DOE also has an office in Grand Junction. And they will be charged with implementing the long-term surveillance and monitoring program. So we'll transfer the site over to GJPO.

I have some site-specific documents here. And

I'm more than willing to discuss with you all any issues or concerns you might have with the disposal cell up there. And so once Don talks about the PEIS, if you've got any questions or you want to talk about it, just pull me over to the side; and I'd be happy to discuss it with you.

Thank you.

So with that I'll introduce Don Metzler. He's the manager of our groundwater hydrology program on the project.

MR. METZLER: Okay. Thank you, Russel.

I think what I'm going to do this evening is try something a little different than this afternoon and be a little more informal. So I think if anyone has any questions as I get started, you can go ahead and raise your hand and just jump right in.

The purpose of the scoping meeting is really -- "scoping" is a term. It's a NEPA term. NEPA is National Environmental Policy Act. And any federal project with any potential for environmental impact is required to follow NEPA. So scoping is the collection of information and getting everyone involved and really making a team out of coming up with a proposed action.

So tonight's scoping here in Durango was one

of 13 scoping meetings that the UMTRA project is going to have. I think Al talked a little bit about the UMTRA program. We have 24 sites nationwide. And Al showed where some of these sites are. And each and every one of these sites have groundwater that we need to address for groundwater compliance. And that is really the second phase of the UMTRA project.

So the UMTRA project can be thought of as a two-phase project. One is surface; and the second, the groundwater. For instance, Russel talked about the surface and the disposal of the tailings. And that was completed here at Durango in May of 91. In fact, we have ten sites completed under surface of the 24. We have five more that started construction this year. Some that have already been in surface remedial action will be soon completed in the next few years. And the last few sites are in final design right now. But tonight we're starting our scoping here at Durango to talk about the groundwater program.

And so what we want to do -- we want to do two things tonight. Here is our goal. One is to be able to get you familiar with the groundwater program, familiar with the second phase of the UMTRA project; and then, so you know the issues that we're working with, talk about some site-specific characteristics or

site-specific issues here at Durango related to groundwater here at the UMTRA processing site.

And then, after we've had discussions and after you've heard a little bit about the issues that have been identified, and heard a little bit about what's involved in a programmatic EIS, then what we'd like to do is call for any comments.

And there's a number of ways. There's three ways that we can get any comments, because the Department of Energy would love to get your input. We don't want to start making decisions without the whole team. And the whole team involves the public, also.

So there's three ways to get comments. One of them is, after I'm done talking a little while, we're going to then -- we have a number of different tables here. In fact, we have four tables. And one of them is geology and hydrology. And another one is where human health and environment or risk-type assessment or health issues related to soils and groundwater can be discussed. We have another table on the programmatic EIS and then a fourth table on the surface.

So we have a number of specialists that are at each one of these tables. And they have flip charts. So if during maybe a discussion that you might have

you decide "Well, geez, I think I'm developing, you know, something that I consider a very important comment that I would like to give to the DOE," then we will record that on our flip chart.

Then we'll bring that up here, when we're done with our discussion. When we break our discussion, we'll bring that up. And we'll go over our comments. And maybe there are only a very few, but they're just as important as they were this afternoon or at any other scoping discussion.

And we have a meeting reporter right now that is going to transcribe those comments. And those comments will be then taken back to our project office. And we will address each and every comment in an implementation plan that's part of the NEPA process.

So I'm going to throw up a few overheads because I don't want to get too informal, where I leave out a really important component of tonight's message. Then if you didn't have a comment at the discussion group, you can then elect to have a five-minute period where we will -- where you stand at the podium and then give your comment. And then it will be transcribed officially. And then it will be addressed in the implementation plan.

Or else you have an opportunity -- and we have a little black tray up here where you can leave a written comment. Either this evening or even for the next few months we're still open for you to send written comments in. In fact, on our fact sheets here, which I will talk about in just a second here, we have an address. We have an 800 phone number, too.

So any time you might have a comment or a concern that comes up, then this 800 number is always there. And someone will respond to that.

So there are three different ways to get comments in. We have until March, the end of March, for the written comments to come in. We have a number of fact sheets here. I hope -- you might have already grabbed them as you've come in. If not, this is good background information. We have a number of different fact sheets: one on the Durango site specifically and one on the PEIS and one on cleanup technologies. And then we have one -- what we call the NOI, or notice of intent, that was published in the Federal Register just really a couple weeks ago that is a good background for the groundwater program. It talks about proposed action and alternatives and a little bit about the UMTRA project.

I'm going to throw a few of these overheads up just so we can go over some of the key points. And here I've already stated tonight that it's really -- there's two parts of the UMTRA project, surface and groundwater. And we're just now starting into the groundwater project. And we haven't made any decisions. We don't know what the groundwater compliance strategy is going to be here at Durango or at any of the other 23 sites. And we really won't know that until we complete the PEIS and we get the public's input and react to the public's input and then go through the NEPA process, which I'm going to show you in just a second what the NEPA process -- what's involved with that.

And we have monitored here at the Durango processing site for a number of years. In fact, even since the early 80s there's been groundwater studies at the processing site. We've had monitor wells there. And for the last five years we've actually been monitoring quarterly.

And this information is -- all the results go through very, very stringent quality assurance, quality control. And that information is given to our partner in UMTRA here in Colorado, the Colorado Department of Health. And that information is public

information. And we can share that with the public at any time.

We will continue to monitor at the processing site -- maybe not on a quarterly basis, but on a determined basis -- until we get out there and do more characterization and until we then come up with the site-specific compliance strategy for Durango.

And then, again, I think you understand now that we really believe that the public is a part of this whole process and that tonight's really starting off the process: where we feel that the communities are part of the team, are going to help us define these problems at our sites, and help us come up with a solution.

Let me throw up a cross-section here, just a general hydrogeologic cross-section of the Durango processing site. Here is where we have -- first let me go to the plan view so we're all oriented. North, going up. Our two former tailings piles, X prime, cutting through the former tailings piles. Smelter Mountain would be here, assuming this map was a little bigger, and to the Animas River. So X to X prime. And here is where the old tailings piles sat. And they're now gone or in Bodo Canyon.

And over the years these tailings piles were

exposed to the environment. And so over the years, with precipitation, snow and rain that would fall on these tailings piles -- since they were exposed, after a period of time we noticed that our UMTRA sites -- or through our characterization it was determined that leaching has left the tailings and has actually moved down into the subsoils. And it oftentimes has moved down into the shallow groundwater at these sites.

Here at Durango we've just tried to represent how a contaminant particle has moved from the tailings, down through the subsurface here, and into the groundwater. And then these particles tend to move with groundwater, groundwater direction being heading in this direction towards the Animas River. Then these particles tend to move through potential -- here the groundwater table is sloping gradually this way to the Animas River. And these particles either are hung up in the soils matrix or the aquifer matrix or else they continue moving down to the Animas River to discharge into the river.

And here is where the recharge for this aquifer would be, up here on Smelter Mountain. This material here, by the way, is sand and gravels. Maybe you know the term "alluvium." And below this -- roughly, say, on the order of 50-, 60-feet thick -- is

a shale, the MANCOS shale, a very tight, low-permeability material that really is not an aquifer. It doesn't have the pore space to transmit water like the alluvium does.

Okay. Just real quickly, a time line. Congress started UMTRCA, the Uranium Mill Tailings Radiation Control Act, in 78. Work for the surface program got started in the early 80s, when EPA promulgated their cleanup standard and groundwater standard. And in 1988 UMTRCA was amended. And in this amendment, the amendment pushed out the surface program a few more years, to 1996. And it also authorizes the Department of Energy to conduct groundwater compliance or groundwater cleanup at all of its 24 UMTRA sites.

So the UMTRA groundwater program is getting started now. And, basically, it can go out until all 24 sites are in full compliance with the EPA groundwater standard.

Al talked about these 24 sites a little bit over the country. And each site has its own unique characteristics, its own unique geology and groundwater hydrology and climate, et cetera. Some are near rivers. And some are in very, very arid areas. And some are in areas that receive a

considerable amount of rainfall: here in Falls City, Texas, or in Canonsburg, Pennsylvania. So each site has specific characteristics we need to design for for surface and groundwater.

And we have a few processes, milling processes, that were used. And some of these milling processes were common to a lot of these sites. And what happens is, because of the milling process, because of the chemicals that were used -- whether it was an acid leach or a decantation, countercurrent decantation or solvent extraction -- these milling metallurgy processes created mixed chemicals with the ore to extract the uranium. And then when these tailings were left on the surface, they were exposed to the environment, they had oftentimes very low pHs.

And some of these contaminants that were in the tailings would move down out of the tailings and leak into the groundwater, like I talked about earlier.

Well, what are some of the common contaminants that are associated with these 24 UMTRA sites? Well, uranium is one. A lot of the heavy metals -- the arsenic, chromium, cadmium, vanadium, molybdenum, radium, and a number of metals and radionuclides --

are often detected above background at these UMTRA sites. In addition to that, some common parameters that are very common to groundwater are also detected above background levels. Some of these are chloride or sulfate or iron, magnesium.

So, basically, the contaminants of concern that we see at our UMTRA sites are oftentimes the same parameters that occur naturally in groundwater. But where we have leachate that has leaked into the shallow groundwater, then we see these parameters or these contaminants in higher concentrations than natural. And oftentimes, at some of these UMTRA sites, because the milling operation took place right where the ore bodies were mined, the uranium, the thorium, vanadium -- then the groundwater was naturally high in these constituents even before the milling operation started.

At Durango, we didn't have a situation where the milling was where the mines were. It was brought in. Here at Durango the two constituents of most concern that we see are uranium and selenium; that we see elevated above MCL, or maximum concentration limit. And we see those elevated levels just in the close proximity of where the former two tailings piles were.

Let me talk just real quickly on why the PEIS, a programmatic environmental impact statement. I think I said earlier that some type of a NEPA documentation is required for any federally funded project with a potential for any significant impact at all. I mean, even if you really don't think there's much of a potential, you're still obligated to go through the NEPA process. It's also a very good -- NEPA helps us plan, so that the issues are identified early. And so it's also a planning process; not just, really, you know, meeting a requirement set by the federal government.

So PEIS is more efficient for a 24-site project, like what we have here, where we have these sites with unique characteristics all over the country.

And one PEIS, or one programmatic environmental impact statement, and then site-specific environmental assessments, or EAs, is a lot more effective than having 24 EISs or 24 EAs or a combination of the two. And a little illustration of that -- at the project office we kind of think of it this way. If we did have a combination of EAs and EISs, we'd have a lot of redundancy; of course, each site being somewhat unique, but a lot of commonality.

In each of these EISs and EAs, we'd have a very voluminous stack of material. Oftentimes when you have something that big, the real meaning or purpose or very important points get buried with everything else. So this versus the road we're going down. And that's doing a programmatic EIS and then building off of that with site-specific environmental assessments for each one of our 24 sites. And in that EA, environmental assessment, it would have the specific groundwater compliance strategy at each one of these sites.

So let me quickly just show you what's involved with the PEIS process. Notice of intent, we talked about that earlier. We have copies of it here. It's published in the Federal Register.

15 days following that, then we are legally able to start our scoping process. And in the scoping process -- again, we talked a little bit about the purpose of that. Once we get the public's input on that and get the main points of the program out so everybody in the community understands what the PEIS is supposed to do, then we will address all those comments in an implementation plan. This draft implementation plan will be shared with the public.

Following the implementation plan, once that

goes final, we can begin drafting our PEIS. Again, that will be shared with the public as a draft.

We'll have a common comment period and a public hearing. So we make sure that this process that we're starting tonight continues on, that we're not walking away after we got our comments the first time. We're going to be continually asking for input to make sure that we're continually making the right decisions, going down the right road.

Then we'll have a final PEIS and another comment period on that and then a record of the decision: which basically says what the preferred alternative is for the PEIS and also talks about any mitigation of any environmental impacts, if any are identified in the PEIS, on how we would mitigate those.

The real core of the PEIS is its proposed action and the other alternatives with the proposed action. And, really, the proposed action can be thought of as an alternative, with other ones. And the proposed action and any other alternatives that are applicable have to be applicable to all 24 sites. It's a programmatic EIS.

So here's one alternative to implement the proposed action strategy. Probably right now that

doesn't mean much to you. In just a minute I'm going to talk about what is the proposed action. Right now, here's a couple other alternatives I'll talk about in a few minutes, briefly.

The no-action alternative. Here's an alternative based on current knowledge. Here's an alternative saying clean to background at all 24 sites regardless of the EPA groundwater standard, regardless of potential health risk, regardless of cost. And here's one, to provide clean water, which would be to ignore the contaminated aquifers, just walk away from that. If anyone ever in the future uses the contaminated aquifer, then the Department of Energy would go in and provide clean water. However, if it was being pumped out of the ground, it would be treated and then to drinking-water standards; or just provide an alternate water supply. There are different options in each one of these alternatives.

But before we can really understand our groundwater standard, I think we need to talk a little bit about the EPA's proposed groundwater standard. Before we can understand our proposed action, rather, we need to talk about a few of the different options, the provisions in the groundwater standard.

By the way, we have a copy of that here. So

you can take that with you tonight and read some of the details of the EPA's groundwater standard.

One of them is background. So background would mean that, again, in compliance with groundwater you would have to be at background. And that's the level -- the parameter levels for all the different constituents as if the milling operation never occurred. So either if you had a baseline before the milling operation years ago or else if you went upgradient and sufficiently far away from the milling operation and tested the water quality at that point, that would be considered background.

And here's one, supplemental standards. The supplemental standards is an option where, based on a limited-use aquifer, if it's greater than 10,000 total dissolved solids, it can't yield less than -- will not yield greater than 150 gallons per day; or if it's just naturally poor water quality and has wide-spread ambient contamination, then it would be a potential class 3 aquifer; and, therefore, it would fall under a category of supplemental standards.

A couple other provisions supplemental standards has is: Would it do more environmental harm to go in and clean up that groundwater than the benefits of doing it?

One other is: Is there technology available today that can be applied that would clean the groundwater? Sometimes these waters are naturally of such poor water quality that there's no real technology to go in there to clean them to drinking water. So those are some of the provisions that would be considered for supplemental standards.

At any time one of these decisions or one of these supplemental -- any time supplemental standards is invoked, it must be very -- it must be absolutely technically defensible. There must be a lot of documentation of that.

Another one is maximum concentration limits, which is based on, primarily, drinking-water standards for chromium or for lead, for copper, for zinc.

Another one is alternate concentration limits. And this is a level that is a concentration level that would be higher than an MCL; higher than, say, a primary drinking-water standard for a given constituent. But whatever that proposed concentration limit would be at a site for a given constituent, it would have to be fully protective of human health and the environment. And that would have to be documented. And so this one would have to be applied

only on a site-specific basis considering exposure scenarios and pathways, concentration limits, and site-specific characteristics.

What are some of the options we have to get to those provisions that I just showed: the background, the MCLs, the supplemental standards, or the ACLs?

Well, there's a number of different approaches. And we have one potential, maybe even more, UMTRA sites where there is no groundwater contamination. We know that through the characterization studies we've done during the surface project.

Another approach would be natural flushing. Now, the EPA groundwater standard gives the Department of Energy this provision: that is, if a contaminated aquifer would naturally flush within a 100-year period and where some type of institutional control mechanism could be applied to that site so as this aquifer flushes through passive restoration, Mother Nature moving from a recharge area to a discharge area moving the contaminants out maybe to a river, that it would -- the institutional controls would have to be fully permanent and protective for that period of time.

The EPA gives the DOE a 100-year period of

time for that process to occur. And how would we know that it's going to occur? Well, we would have to do a lot of predictive modeling. Then we would have to do a lot of monitoring to verify that the predictive modeling results are truly being met as natural flushing occurs.

Some aquifers just aren't typical candidates or good candidates for natural flushing. And in that case an engineered remediation might be the remedial action approach. What's an engineered remediation? Well, pump and treat were just one of many engineered methods where the contaminated groundwater would be extracted through wells, would be treated through some type of a treatment plant. And then it would be maybe reinjected into the aquifer or discharged to a surface body as drinking water, drinking-water quality.

UNIDENTIFIED AUDIENCE PARTICIPANT: Can you elaborate a little bit on institutional controls? I guess I'm not real clear on what constitutes institutional controls.

MR. METZLER: Well, we don't -- as a matter of fact, we're going to address the criteria for institutional controls in the PEIS. That will be a part. So we don't have all of that now. We're sort of looking for it. As we carry on the scoping

process, we're looking for, you know, communities to tell us what type of institutional controls make sense.

We're also going to be looking to work with our affected states and tribes, who are basically our partners in the UMTRA project, to tell us what type of institutional control mechanisms make sense.

We also need to go to our regulator, the Nuclear Regulatory Commission, and make sure any of these mechanisms that are identified are considered by them to be permanent and to be a good institutional control.

So let me just throw out a few examples that could be institutional controls. One would be zone restrictions, where zoning restrictions -- where an area above a contaminated aquifer is not being used now, no one is living over that, but it's private land. And eventually someone is probably going to want to buy that, move on it. There needs to be some zone restriction where there will be no access to put in a well and extract contaminated groundwater.

Another one might be annotated deed restrictions, where someone has -- already owns a property and lives there. And they would not be able to maybe put down a domestic well until the period of

natural flushing has taken place. Maybe it would be a five- or ten- or 20-year period.

But some of these sites could be a 70-, 80-, 90-, you know, up to a 100-year period for natural flushing. So another one might be an alternate water supply or a permanent water supply would go in, where a municipal water supply would be installed. So if people did have domestic wells that had any potential at all in the future to be in contact with the contaminated -- with contaminated groundwater, then they would not have to put their domestic wells under jeopardy, that they would get an alternate or -- an alternate water supply, where they would have drinking water and bathing water, water to irrigate the yard.

So there are a number of different options. And we're going to be developing that. I really don't have all the answers for that now. And that's something we're going to develop in the PEIS. But whatever is developed, it needs to be a mechanism that's permanent, has permanence to it for however long the natural flushing period would go.

And it needs to be something that's agreed upon, has to be acceptable to the community, to the state, to the DOE, then to the regulator, the NRC. So there's a lot to that. And I think that will play out

more when we start getting input back from all the team members.

Let me talk for a second just about our proposed action as we have it now. And it's a strategy. It's a programmatic strategy applicable to all 24 sites that protects the human health and the environment and meets the EPA groundwater standards and is cost effective.

And this is a strategy that would be a framework -- a decision-making framework that would identify criteria that's fair and objective and consistent for all 24 sites. So when the PEIS is done, and assuming that this still stays, the proposed action becomes a preferred alternative. If that's the case, then once we tear off of the PEIS with these EAs that I talked about and start making site-specific decisions, they won't be capricious decisions. They will be decisions based on a programmatic framework and a criteria for making decisions that has been through the whole process. And everybody has bought into that and they agree that, yes, this is the right way to set up a framework for making site-specific decisions.

So let me just show you quickly -- and maybe I'm getting a little more formal here than I thought I

would when I first started out. But some of these points we consider very important. And we don't want to hit these lightly tonight.

How do we implement the proposed action that I just talked about? Well, here is sort of a flow diagram that maybe shows how the proposed action would work. First of all, at the UMTRA sites we would look at: Is there groundwater contamination? If "no," well, then, no further remediation would be required.

But, yes, there is groundwater contamination. There is some amount of groundwater that's elevated above background. Is the potential beneficial use of groundwater reduced? Well, no. If there is no beneficial use of groundwater and there is no future -- it looks like there is no future potential use of groundwater because it's naturally very poor water quality or some of those criteria I talked about, the supplemental standards could be a viable option for compliance.

But, yes, let's say there is even just limited beneficial use of an aquifer. Then we need to ask: Are there conditions protective of human health and environment? And it could be that, yes, there are.

We do have some contaminated groundwater, et cetera, slightly elevated above background. But

because of what a baseline risk assessment says as far as the pathways and the concentrations of the contaminants and the exposure scenarios, it could be an alternate concentration limit, you know, that's set above the limit, maybe above the MCL, would still be protective of human health and the environment. And we could technically document that. Then no further remediation would be required.

But if, no, it's not truly, completely, absolutely protective of human health and the environment for in the future, then we would ask if natural flushing or natural restoration is an option.

Again, we'd look at the contaminant's nature of the aquifer. How fast does the rate of groundwater move through the ground? Where is it discharging to? What is the concentration of contaminants we're dealing with?

And if natural flushing looks like a viable solution, again, it would have to occur within a 100-year period. And there could be no existing public water use of that aquifer; or there can be no future potential for public use of that aquifer.

Where it looks like a city or a town wants to go in and use that, then the natural flushing is a viable option. If not, if it just really doesn't have

the characteristics for that, then, again, we look at an engineered restoration, maybe a pump and treat or an in situ bioremediation method, a number of different technologies.

And we have a fact sheet on technologies that address engineered restoration. And as we get into the 90s, there's just going to be more and more technologies that are going to become available for addressing groundwater contaminant problems.

Well, we have another -- I talked a few minutes ago about a proposed action. We've identified a few other alternatives. But I think what I want to leave you with tonight is that those are just a few alternatives. I mean, it's -- there are many alternatives right now. And it could be that someone here tonight or someone in another scoping meeting, you know, comes up with a good alternative that they think makes a lot of sense. And if they let us know those, we will take those back and consider them.

Right now we've identified one alternative of the no-action. And that's required by federal law. And, really, the no-action alternative is a good measuring stick to see what other alternatives -- what kind of benefits they would really have as far as

eliminating environmental impact.

Another one would be to clean to background, to clean all these aquifers. No matter if it really had no beneficial use, because it was in a uranium ore deposit area and the water was just unfit for human or even livestock or irrigation use, still we would clean to background at all 24 sites regardless of cost, regardless of future potential use. That would be very expensive, but we would get back to the premilling conditions or at least attempt to.

Another one would be that we would go out -- instead of doing an additional characterization like we're going to do here at Durango, additional groundwater characterization, and know we have the uncertainties limited down to a very minimal extent, that we would go out to our 24 UMTRA sites and choose a groundwater compliance strategy based on our current knowledge.

And, really, at all of our sites we put in monitor wells. And we've sampled these monitor wells for a number of years. We've done a number of additional type of hydrology testing, et cetera, et cetera. And so we have a good general view of what's going on.

Do we have all the answers? Do we have all

the uncertainties limited down to zero? Well, no. We feel we need to go out and do some additional characterizations so we make the right decision the first time.

But that's an alternative, that we could go out there and get going at these sites and start picking strategies or compliance strategies and implementing some of these different approaches that I've shown you and cross our fingers that it's the right one.

Another one would be the clean water supply. And I think I talked a little bit about that, of providing clean water if the aquifer ever did come under some type of future use.

Well, that is our proposed action. Those are a few of the alternatives. Like I said, there could be more. We could get some input. We'd like to get some input tonight on some of those alternatives on our proposed action. We're really only dealing with the groundwater program.

Now, what we're going to do, if you'd like -- I know we don't have a big audience tonight, but we're still -- we're still just as enthusiastic as if we had 100 people. And we'd like to discuss this with you because we feel being interactive is the way to get a

good response and to get people involved.

So we have a number of tables. And we don't even maybe have to walk around to the tables. I think if you want to ask your questions now, that can be fine.

MS. ULLAND: I can write them down.

MR. METZLER: Okay.

UNIDENTIFIED AUDIENCE PARTICIPANT: I have a couple of quick questions. You said there are a number of heavy metals besides uranium that you're monitoring in these test wells?

MR. METZLER: Right. What we do when we go out -- what we're doing now, since we have been monitoring for a number of years at these sites, oftentimes quarterly, we often find out in a suite of parameters that we analyze for. And this suite is on the order of 40 to 50 parameters per well every time. And over the years we've noticed that, you know, it's below detection.

We're just seeing -- we're not seeing anything considerably below background. So eventually we will stop the monitoring for those, except for maybe once a year or once every other year, just to make sure something doesn't change.

And it's a dynamic thing. These aquifers may

change. So just because the past does something doesn't mean the future will. But we do monitor for a number of metals, all the metals and radionuclides that are listed in the EPA groundwater standards, and a number of other constituents; radionuclides and metals and other elements that are associated with uranium processing.

UNIDENTIFIED AUDIENCE PARTICIPANT: You're also monitoring the river?

MR. METZLER: Yes, we are. In fact, we monitor the river here in Durango in three locations: one upgradient from the processing site, one place right cross-gradient or adjacent to the processing site, and one place downgradient. In fact, what the results over the years have shown us is there's no significant difference -- no statistical difference at all, not even significant, no statistical difference upgradient, downgradient, and adjacent to the site. But we will continue to monitor the river and Lightner Creek, which is on the other side of the processing site.

UNIDENTIFIED AUDIENCE PARTICIPANT: Are the river analyses to date consistent with what you've monitored in the groundwater in situ?

MR. METZLER: Actually, I have some of that

information with me tonight; but I think as a general statement that the river water is on the same order of TDS as what we see in the groundwater that discharges to the river.

Let me just talk about that real briefly. TDS on the order of 1,500 to 6,000 milligrams per liter.

MR. CHERNOFF: Explain TDS.

MR. METZLER: TDS is total dissolved solids. And it's a common parameter that's almost always measured in the laboratory when you analyze a groundwater sample.

So the TDS would be everything summed up: the total of the solids, the calcium and the chlorides and the iron and the magnesium and even the trace metals, et cetera. So it's relatively high because the EPA doesn't have a primary drinking-water standard for TDS, but they do have a secondary drinking-water standard which is more for aesthetics. Does it stain your clothes or taste bad or smell bad? And it's 500 milligrams.

So, really, the groundwater at the processing site is really not the best. It's not pristine, drinking-water groundwater. But that doesn't mean that, you know, we ignore compliance with EPA groundwater standards.

UNIDENTIFIED AUDIENCE PARTICIPANT: What kind of TDS do you have on the Animas?

MR. METZLER: Do you know that?

MR. EDGE: I don't know that offhand. I think that, in general, you can make a general statement that the water quality in the Animas River is much better quality water than what we see in our wells at the processing site.

UNIDENTIFIED AUDIENCE PARTICIPANT: So there are two reasonable assumptions? One is that there is, in fact, no drift, that that water is not flowing out into the river or it hasn't happened yet?

MR. EDGE: I would put forth the hypothesis that the water is discharging into the river, but the dilution factor is so high there that you don't see any -- you see decreased concentration levels of various metals in the river water as opposed to the processing site water.

MR. METZLER: What we found is because there are seasonal fluctuations in the water table and the gradient, there is not as -- you know, it's a very small gradient. So at certain times of the year the groundwater at the processing site is discharged into the Animas River. Other times of the year, based on water levels on site, it could be that it's basically

almost stagnant; they're not really moving toward the river. Or it could even be that the water in the Animas River is moving out into the processing site. But that's a generalization basically; because we know where our recharge is and our discharge is, that the groundwater flow is to the river.

UNIDENTIFIED AUDIENCE PARTICIPANT: I have a question. There was a lead mine there before that, the tailings. The lead mine wasn't cleaned up. And how did you distinguish between the two sites and leaching since they're one on top of each other, the leaching between them?

MR. METZLER: Well, yeah. It was actually a lead smelter. So the mine wasn't there, but the smeltering process was. And it went on for a number of years. And, of course, lead would be the typical byproduct from a lead smelter.

And so we've always measured for lead in our monitor wells and, in addition to that, even the pore fluids or the moisture that's in the tailings themselves. We did this before we moved the tailings and, again, after when we moved the tailings. And we don't -- the tailings, the uranium mill tailings, don't have a lot of lead in it. And we just saw lead above the detection limit, the laboratory detection

limit; but we did not see lead in the tailings, pore fluids in high concentrations, nor did we see lead in the shallow groundwater beneath the former tailings piles in high concentrations either.

So lead is really not at the processing site. It's not a contaminant of concern. And one of the reasons is that lead is not a very mobile contaminant and is not a contaminant that has a high solubility, where it tends to go from the solid stage into the dissolved stage and then stay in the groundwater.

UNIDENTIFIED AUDIENCE PARTICIPANT: Yeah. I was just concerned about the metal.

MR. CHERNOFF: This question, Don, is: Why wasn't it cleaned up? And you may explain what UMTRCA requires us to do.

MR. METZLER: So, again, UMTRCA, in our scope, has two phases of the project, surface and groundwater. But, again, we are mandated by Congress to address uranium mill tailings and then any groundwater contaminant problems associated with uranium mill tailings. So we're not mandated to be able to look at things outside of that scope. And because the lead smelter had nothing to do with the uranium milling or uranium mill tailings, it's something that is not within our jurisdiction to

address.

UNIDENTIFIED AUDIENCE PARTICIPANT: But you can identify the differences on smelting processing through the materials?

MR. METZLER: Well, lead is one of the parameters at all of our UMTRA sites that we always routinely analyze for.

UNIDENTIFIED AUDIENCE PARTICIPANT: Okay. Second of all, they're looking at building a project on top of that site, a pumping project. And when -- with the water not moving, becoming stagnant, because they're going to take the water out. How much will that -- once it's pumped into the lake, which is their proposal, it will not be --

MR. METZLER: I understand what you mean by the water becoming stagnant.

UNIDENTIFIED AUDIENCE PARTICIPANT: It will build up concentrations of whatever is coming down, heavy metals concentrates in lakes.

MR. METZLER: Maybe I'm misunderstanding you. But basically -- and I don't want to be talking for the Bureau of Rec.

UNIDENTIFIED AUDIENCE PARTICIPANT: Right.

MR. METZLER: In fact, they're here tonight. And they might want to address these issues. These

are outside of our scoping meeting.

UNIDENTIFIED AUDIENCE PARTICIPANT: But that will be a future concern.

MR. METZLER: Well, they've done some hydrogeologic characterization of the processing site in relation to putting in an intake structure. And we've reviewed that material. Basically, the general conclusion is that an intake structure at that proposed location would be pulling river water and would not be pulling groundwater.

And the Bureau of Rec has really gone into a lot of detail to analyze that and to predict that. They've used groundwater computer models to see what the effects would be.

But those type of questions are, again, outside of our scope. And those would be better directed toward the Bureau of Rec. And there's a lot of technical representatives, you know, here tonight that could probably answer your questions.

UNIDENTIFIED AUDIENCE PARTICIPANT: I guess just one simple related question: Through your modeling, does the existing groundwater under the previous site, the clean site, ultimately become river water or not?

MR. METZLER: The clean site? I'm sorry?

UNIDENTIFIED AUDIENCE PARTICIPANT: The mill site.

MR. METZLER: The mill site. Well, let me tell a little bit how characterization takes place on a relocate that Russel talked about: is that we do characterize the processing site before we ever pick up the tailings or decide what to do with the disposal of the tailings. Once a decision was made that the processing site is not the ideal hydrogeologic area to place tailings for a long term in a disposal cell and the disposal cell for a relocate has been determined to be somewhere else, then, really, a lot of the additional characterization from that point -- we still continue monitoring the processing site, but then most of the emphasis is for the design and the long-term predictive protection of groundwater at the disposal site. And that takes all the energy. And so we haven't done a lot, if any, really, groundwater modeling at the processing site. But we will. We will be back to do additional characterizations.

One reason why we don't feel comfortable with making groundwater compliance strategy decisions now based on current knowledge is because we haven't gone out there and done the type of modeling that we know is necessary to be able to understand the system and

be able to predict how the system will react.

MR. EDGE: Could I jump in here and say something?

With respect to your question, yes, at times of the year there is water moving out of the alluvium, into the river. But what our analysis has shown is that there is no difference between the quality of the river water upstream of the site and the quality of the river water downstream of the site. So we can't see any appreciable influence that whatever is moving out of that alluvium, into the river -- we can't see that that's impacting the river.

We've worked with CDH. And the Bureau of Rec, as Don mentioned, has put together a hydrogeochemical characterization of that area where they plan on putting in the pumping plant. And our conclusion was that the dilution factor was so high there that -- and given the river water quality data upstream and downstream, that it wouldn't have an adverse impact on our ability to get back in there and comply with the second part of the program that Don has talked about here.

Our link to the Bureau of Reclamation on this project, on the site, is the fact that we want to make sure that whatever activities take place at that site

don't inhibit DOE from going in there and meeting their obligation under UMTRCA. And that's why we have worked with the state and reviewed the work and the data that the Bureau of Reclamation has produced in their characterization studies out there.

But the answer to your question is, yes, there is groundwater moving from the alluvium into the river.

UNIDENTIFIED AUDIENCE PARTICIPANT: But it sounds as if you're generically able to characterize it as background. If the river upstream or upgradient is roughly comparable to water downgradient, even with that outflow, then --

MR. EDGE: Right. Those are the same. Now, that's not to say there aren't metals and other elements in the river. But, I mean, you look at the drainage basin that the river drains up there. There's considerable mining activities and mineralized zones. So that's exactly right.

UNIDENTIFIED AUDIENCE PARTICIPANT: Yeah. I had a procedural question. You're going to be doing 24 EAs, anticipated?

MR. METZLER: Yes.

UNIDENTIFIED AUDIENCE PARTICIPANT: Will that be developed concurrently with the PEIS?

MR. METZLER: No. We will complete the PEIS. And then we will begin the tear-off after we do additional characterizations at these sites with an environmental assessment. In addition, there will be another parallel document that will be developed at the same time the EA is developed for a particular -- for any one of the sites. And that is a groundwater remedial action plan along the same -- it has the same format, really, except for groundwater, as what Russel described earlier as the remedial action plan for the surface program. We have one of those for each -- will have one of those for each of our 24 sites.

So first we'll do the PEIS. Then we'll do additional characterizations. Then we'll be doing a groundwater remedial action plan and an environmental impact statement at the 24 sites, unless there is -- unless we already addressed the groundwater issues under the surface program and found there was no groundwater contamination or where supplemental standards wasn't a viable groundwater compliance strategy under the surface program and isn't documented to be a viable groundwater strategy under the groundwater program.

UNIDENTIFIED AUDIENCE PARTICIPANT: I guess my question goes to the -- I can't say "characteristic

problem," but the problem is frequently encountered with EAs that while your PEIS process is very well designed from my perspective in terms of public input and public response and feedback and responding to all of that, EAs characteristically don't involve that kind of level of public scrutiny and public involvement. So I guess you -- if you would like to address that --

MR. METZLER: Let me address that by first saying that that is an excellent question. I mean that is a super question. That is not something that we haven't already been thinking about at the project office. And here is what -- here is the conclusion that we've come up with at this time.

Okay. You can tell from our presentation this evening that the PEIS is going to be a very open process. It's going to involve the public all the way through. And something that we've decided would be unacceptable is to complete that whole PEIS process and come up with a good document and have the input -- the public input with that the whole way through and then tear off with an EA and have really no public involvement at the real core of determining the site-specific strategy at an UMTRA site. And that really can't happen.

So what we are going to have to do is make sure that we're proactive and interactive and we keep the public involved through the EA process. And I know that NEPA doesn't have specific guidelines for doing that, but that does not mean that we cannot go out and work with the public as we develop these site-specific EAs. And we know that we have to do that if we want this complete groundwater program to be a success.

UNIDENTIFIED AUDIENCE PARTICIPANT: That's a very laudable approach. I just raised that comment by virtue of the apparent significant diversity of the sites involved. And, of course, identifying the unique characteristics and concerns of those will be done, I presume, at the EA level?

MR. METZLER: Right. All the characterization efforts will be detailed in the EA. Based on what those efforts tell us, then we will have, you know, a groundwater compliance strategy. But we know we cannot stop working with the public once the PEIS is completed. It would not work. The program would be a failure at that point. So we are going to do whatever we can to keep this process open and keep the public involved.

UNIDENTIFIED AUDIENCE PARTICIPANT: Do you

have a tentative deadline for the PEIS?

MR. METZLER: No, we don't have a tentative deadline. But I can throw out a rough -- a real rough time. And that is we think we can have this PEIS completed in 18 to 24 months. And it's a very -- you saw on the diagonal all the different documents involved and the public hearings. In addition to that, DOE headquarters has a number of different departments that need to concur on every stage along the way. And so sometimes those concurrences and reviews just don't come automatically. So it's -- we have an aggressive schedule of 18 to 24 months. But we think, if we are serious about this and stay with it, that we can attain that.

UNIDENTIFIED AUDIENCE PARTICIPANT: One other thing. It's a limited length of funding for this. And if you find that during compliance, your institutional controls -- it's not meeting your plan, getting additional funding may be difficult.

MR. METZLER: Well, that's a good question. And I probably don't have a good answer for that. But we do -- under the surface program, Russel talked about the long-term surveillance and maintenance. So once the surface program is completed, you know, it doesn't mean that everything stops with the surface.

This long-term surveillance and maintenance will be carried out. And this maintenance will go on for a very long time. And there will be provisions for that. And I think there will probably be budgets allocated for that. And with that thinking, I think we will have something similar with the groundwater program, maybe a long-term surveillance and maintenance or something similar to that, to insure that these institutional controls are doing what they're supposed to be doing, are truly permanent for the period of time that they're supposed to be.

If we cannot document that and go ahead and verify that, then I would doubt our regulator, the Nuclear Regulatory Commission, would give us the green light on institutional controls. So it's something we're going to start developing through the PEIS process. We'll be looking for input on that part of it from the public.

Is there any other -- we have a few other people here. I know I probably did a lot of talking. You know, we have some other people here; that if you have any site-specific or general questions on risk assessments, we have a toxicologist here. And we have another groundwater -- couple other groundwater hydrologists and geochemists.

There are a number of people here. You have an opportunity, if you have any other questions, that -- maybe I wouldn't really be the perfect person to answer it. If not, let me just make sure -- since we did get a little informal here, make sure that we did capture some comments. Are these comments now --

MS. ULLAND: Questions or issues?

UNIDENTIFIED AUDIENCE PARTICIPANT: I think this gentleman's last comment hasn't been written down, your comment.

UNIDENTIFIED AUDIENCE PARTICIPANT: About funding.

MS. ULLAND: I think so. If we can put that right here, because it related to institutional controls and the durability of institutional controls.

MR. CHERNOFF: Funding.

MR. METZLER: Funding, and verifying the permanence.

UNIDENTIFIED AUDIENCE PARTICIPANT: Do you have your documents over here, some of the data that you pulled out from the groundwater monitoring wells?

MR. METZLER: Yes.

UNIDENTIFIED AUDIENCE PARTICIPANT: And then, also, some indication of what those levels mean in comparison to public health standards?

MR. METZLER: Yes. I can share that with you.

(Brief pause.)

MR. CHERNOFF: Now you can talk.

MS. ULLAND: Do these two kind of capture what you were talking about?

UNIDENTIFIED AUDIENCE PARTICIPANT: Yeah.

MS. ULLAND: The funding for long-term surveillance and the durability of institutional controls?

UNIDENTIFIED AUDIENCE PARTICIPANT: Yeah.

MS. ULLAND: Okay.

MR. METZLER: Okay. Let me ask you -- let me respond a little more to your question there about looking at water quality data.

I talked a little bit earlier here that in Durango we've been sampling chlorine for a long time. And what we do is we validate all of our groundwater data. And we do that by going through very stringent procedures of quality assurance and quality control. And then what we do, nine weeks after we finish our field sampling, we send our validated sampling package to our partners here, UMTRA, Colorado Department of Health.

And they review the information. Sometimes

there might be a site where there's domestic wells. And they might send information off to their constituencies in their communities. But, basically, these data-validated packages or validated data packages are open for public review.

And so I think if you would contact CDH, contact Department of Energy, maybe we would refer you back to our counterparts at CDH. This information is available. And so if I make it -- if I don't answer all your questions tonight by showing you some of the little bit of data that I brought, this stuff -- we want to be able to share this information with the communities.

Well, with that, let me say that we do have -- we do have two evaluation forms here. And one is evaluating the fact sheets that we have. The other one is evaluating the meeting itself. And we look at this as sort of our report card. We always feel that we're trying to get input so we can try to do our jobs better. So any type of information you can give us in these evaluation sheets, we'd be very much -- we'd like to get that.

MR. CHERNOFF: Don, one point.

When we close this session, if you don't feel like making formal statements, why don't you stroll

along the tables and see if you have any other questions, as long as it's necessary, to make sure we've covered your thoughts?

Sometimes it's hard because -- the numbers aren't that hard, but the people at the table have information specific to the specific areas. So if you have a question, why don't you do that? And stay as long as you want so we make sure we address any questions you have.

UNIDENTIFIED AUDIENCE PARTICIPANT: The one thing you might answer: Is the formal close of the public hearing sometime next spring?

MR. METZLER: Right. So after tonight, if you feel you have a comment you would like to get to us, there is still an opportunity. And that is through a written comment. And the address is on the fact sheet. And you can send that in. I think you have roughly until the end of March to get that comment to us. It would be considered a formal comment.

MR. CHERNOFF: Thank you very much for coming. I really do appreciate it. We'll stay as long as necessary. Thank you.

(Formal proceedings concluded at 8:30 p.m.)

STATE OF NEW MEXICO :

: SS. REPORTER'S CERTIFICATE

COUNTY OF BERNALILLO :

I, the undersigned Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing proceedings were recorded by me by machine shorthand; that I later caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record, to the best of my ability, of said proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties involved in this matter and that I have no personal interest in the final disposition of this matter.

I FURTHER CERTIFY that the cost of the original of this transcript of proceedings is $_____.

DATED this 28th day of December, 1992.

LAUREEN BADAR, CSR #179

MY COMMISSION EXPIRES: August 31, 1994.

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