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ENVIRONMENTAL LABORATORY PUBLIC MEETING

Proposed Cleanup Plans for Naval Reactors Facility and Argonne National Laboratory-West

FINAL

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ORIGINAL

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MR. SIMPSON: Welcome to tonight's meeting. I'm Erik Simpson, the INEEL Community Relations Coordinator. I would like to recognize the students of Professor Von Braun's class here tonight. True, you are getting extra credit, but thank you for coming.

We're here tonight to discuss the results of two Comprehensive Remedial Investigation/Feasibility Studies. The first involves the Naval Reactors Facility, which is managed by the DOE Naval Reactors branch. The second project involves the Comprehensive Remedial Investigation for Argonne National Laboratory-West, which is managed by DOE Chicago because of its ties to the University of Chicago.

As you'll see tonight from these presentations, both of these facilities have had an instrumental role in furthering our nation's nuclear reactor research and technology, and we're here tonight to discuss the resulting contamination problem and what steps the Department of Energy, Environmental Protection Agency and state of Idaho are recommending for cleanup.

This meeting represents the 16th time that we've taken a proposed plan out for public comment. The last time we were here in Moscow was the spring of 1997 when we discussed the comprehensive investigation for the Test Reactor Area. The agencies recently signed a Record of Decision on that project, and we have a copy of that here, and we also have copies of the INEEL Reporter, the Federal Facility Agreement and Consent Order, which is our cleanup agreement between DOE, EPA and the state. We've got our community relations plan and some other documents as well.

I'd like to go over the agenda with you as well. Following the introduction, Rick Nieslanik will give a brief overview of the Superfund process and how we conduct risk assessment. Then Margi English from the state of Idaho, representing the Naval Reactors Facility Project, will give some statements; and then Andy Richardson, Mark Hutchison and Bruce Olenick will talk about the Naval Reactors Facility Comprehensive Investigation/Proposed Plan.

After the presentation, we'll have a question-and-answer session and you can ask questions of the project managers, either orally or I can hand out some small cards and you can write questions on those.

After the question-and-answer session, we will have a public comment period where you can comment for the record. We have a court reporter who will report your comments verbatim. I'll talk a little bit more about that later on. We'll have about a ten-minute break between the presentations and then we will talk about the Argonne National Laboratory-West comprehensive investigation. And we have Daryl Koch, who's here representing the state of Idaho, and he'll give some statements as well, and Greg Bass, and Scott Lee are here from the Argonne Facility.

Once again, we'll have a question-and-answer session and then an official comment period. I'd also like to show you that on the back of the agenda we have a meeting evaluation form. If you would like to give us your impression of the meeting and hand them to me afterwards, I'd appreciate it. With each proposed plan, we have a comment form in the back, and if you don't want to give oral comments here tonight, you can always write down your comments and submit them to us before you leave, or you can just fold those forms and put them in the mail and we'll get those.

With that, I'd like to introduce Rick Nieslanik.

Rick Nieslanik has been part of the environmental program since the beginning, and he'll talk about the Superfund and the risk assessment process.

MR. NIESLANIK: I'd like to thank everybody for coming tonight. We're real glad to be here to review our projects with you, and if you have any questions, it really is a better format if you hold those until the end of each individual presentation. But please jot those down and at the end of each individual presentation and we'll take your questions and answers then.

AUDIENCE MEMBER: Since these mailings went out that described your proposed plan, this does not contain the maximum concentration level of contaminants of concern. Would you please, as you go through each operational unit, tell us what those concentrations are, so we don't have to interrupt you each time?

MR. NIESLANIK: This part of the presentation is to discuss an overview of the two projects. The first one is for the Naval Reactors Facility, which is located in the northwest part of the INEEL, and Argonne National Labs-West, which is also called WAG 9, and it's located in the southeast corner of the INEEL. As we talk about the two projects, you are going to see some things that are similar about the two projects and some things that are different about the two projects.

The differences come mostly from site-specific information that we found during the investigation. The similarities are in the process that we viewed to do the investigation and to do the risk assessment, and that's the portion I'd like to talk about first. So when we get to the individual projects, we can focus on those site-specific issues.

First of all, the investigation is done under the Comprehensive Environmental Response Compensation and Liability Act, CERCLA. It's a big mouthful. You'll also hear us refer to that as the Superfund process. Those are all terms that really relate back to that same regulation.

There are three agencies involved in the cleanup efforts at the INEEL: the Idaho Division of Environmental Quality, the U.S. EPA and the U.S. Department of Energy. Those three agencies got together and developed and signed an agreement which is called the Federal Facility Agreement and Consent Order. You'll hear that referred to as the FFA/CO and also the agreement.

What that agreement does is lays out, in a little more detail, the framework that the agencies use to assess, to gather the information, if you will, that we need to make a decision. The intent of this whole process is to decide what needs to be cleaned up, why, and to what levels. So this process that we've laid out in this agreement is how we go about gathering that information.

We have two scoping efforts that we did, scoping and just trying to see how big is the problem and what we need to know about it to proceed further.

The Track 1 process that we developed is to review all of the existing information. And a lot of the sites you go look at it and say, "Well, I have operational records that tell me what happened at this location; I have interviews of old employees; I have photographs back in the '50s and '60s, and we also have some past sampling data." So, first, we gathered up all that information, then we evaluated that and said, "Do I have enough information to proceed with an action or to proceed with no action, or do I need more information?"

If we need more information at that point, then we move to this Track 2 process. Then we decided how much limited sampling did we need to do in order to move to the next step. So we would develop a sampling plan, go collect a limited amount of sampling data, and then make the same decision again. Do I have enough data to proceed; do I need more data; can I move to an action right away and save the money of doing additional sampling?

Removal actions and interim actions were a result of the scoping process. If I knew I had contamination in the soil, I knew how much it was, I knew what I had to do to clean it up. Then we could proceed to that removal action. The difference between the removal action, and the interim action is simply the size of the project. If it's smaller, we can clean that up as a removal action; and if it's bigger, then we call it a interim action and need a little more paperwork in order to proceed with that. If, after going through the scoping process, we determined we needed more information, then we move to what's called a remedial investigation and feasibility study. That is a process where we gather a significant amount of sampling data and do a risk assessment to determine what actions are necessary.

The INEEL are divided into several different locations. Here we're talking about Waste Area Group 9 and Waste Area Group 8. Obviously, there is others, 1, 2, 3, 4, 5, 6, 7 and 10. Each one of those individual waste area groups is required to do a Comprehensive Remedial Investigation/Feasibility Study on each of these two waste area groups. And that's what we're here to talk about tonight. The difference between the comprehensive and this one, is that in the comprehensive we go back to all of these sites that we evaluated in the scoping process and we reevaluated our decision.

If we decided there is no further action necessary, we now need to go back and say the fact that I have looked at it as an individual site and now I have several sites adjacent to us, are there any additive or cumulative risks that I need to take into consideration? So we pull back in all these old decisions and come back to one final cleanup action for each of these waste area groups.

Risk assessment is the primary tool that we use to make a decision. As I talk about this risk process, I want you to keep in mind that it's a decision-making tool. The overall process is to identify the contaminants of concern, to assess the exposure routes of how those contaminants can get to a receptor, then to assess the toxicity of each of the contaminants we've identified in our sampling and then to take these two assessments and characterize the risk in a manner that we can use in our decision-making process.

In assessing the exposure, we look at the different pathways that contamination in the ground can get to a receptor. We look at both human health receptors, we look at ecological receptors and those ecological receptors being the plants and animals that are native to the INEEL. You have contamination to the soil that can migrate to the groundwater. The water is pumped to the surface, and then it's available for ingestion and inhalation and for people to shower in. They get it on their skin and you also drink that water. Dermal exposure: A person who is digging in that soil and gets that soil on their hands and skin. It absorbs through the skin, and there is an exposure.

Direct radiation: A lot of the contaminants that we're going to talk about tonight are going to be radiative contaminants. There is a certain amount of energy given off of those radioactive contaminants, and that exposure is an exposure pathway that we consider.

Inhalation, the contaminants in the air become airborne, either through dust or through volatilization, the vapors coming out, depending on the type of contaminant it is, and it's available then for someone to inhale.

Soil ingestion: each of us takes in a certain amount of soil ingestion during our daily life, so we estimate how much that ingestion is, what the contaminants are that have an ingestion pathway.

Finally, we looked at the ingestion of food crops. If someone were to grow crops in this contaminated soil, irrigate those crops with contaminated groundwater, how much would go into the plants and how much would a person eat? Then, again, we also did an assessment of the ecological receptors.

Once we've calculated the reasonable maximum exposure that a person could get, once we've calculated that value, we go over and look at the toxicity of each of those contaminants. There are two things to look at, carcinogenic toxicity and then the toxicity for noncarcinogens.

We use a value called the slope factor. The premise in using the slope factor is that any exposure has some risk associated with it. The greater the exposure, the greater the risk. So we use the exposure that we calculated for each of the individual contaminants. We use the slope factor to determine what the risk is for that level of exposure. Each of us has a different perception of what is an acceptable risk. Most of us think it is an acceptable risk to fly in an airplane. We all make risk decisions in how we drive. Seventy-five miles an hour is an acceptable risk to me, but not necessarily to somebody else.

When we're talking about making a risk decision for a cleanup effort, we need some guidelines on what's acceptable. That's published in the National Contingency Plan, the documents that grew out of the Superfund regulations we talked about earlier, and in there it defines an acceptable risk range as being one additional cancer case in one million to one additional cancer case in 10,000. That is the prescribed acceptable risk range in the regulation. So, when we go through our exposure estimate, we take into account the toxicity element and we come up with a value somewhere on this scale. It may be below one in one million and in this case, that's acceptable. If it's below one in one million and one in 10,000, that's an acceptable range that the decision makers can accept. When it gets above that, then they have to make a decision if that's acceptable, and typically the answer is no.

A lot of the calculations are based on site specifics, a lot are based on default values that we use if we don't have site-specific conditions. So we have to take into account all of those uncertainties when we make that decision of can we go above this line or accept something below it? So keep that in mind of what this acceptable risk range means.

When we talk about noncarcinogenic hazardous materials and contaminants in the soil, we use a value called a reference dose. Now, the difference between a reference dose and the slope factor is that there is some level of exposure that has no observable adverse effect. I can receive a certain amount of these contaminants, and I wouldn't expect it to harm me at all. So what we do in comparing the risks for these types of contaminants, we compare our calculated exposure to this reference dose and we create a ratio. We call it a hazard quotient. If the hazard quotient is equal to one, that means our exposure is equal to that reference dose. If the hazard quotient is less than one that means the exposure is less than the reference dose.

If you notice, the reference dose typically is lower than the value we call the no observable adverse effect level. And that's because a lot of this research is not necessarily done on humans, it's done on laboratory animals, et cetera. So they use a safety factor or a modifying factor to take these adverse effect levels and calculate the reference dose. So, if we have a hazard quotient that's slightly greater than one, that doesn't mean there is an adverse effect. Numbers greater than one, hazard quotients greater than one are acceptable because even though it's greater than one, that doesn't necessarily mean there is an adverse effect.

The thing that I want you to keep in mind as we talk about risk -- because that is what we use to determine which sites need to be cleaned up -- is a decision-making tool. We're not trying to predict the number of cancer cases. We're strictly calculating the reasonable maximum exposure and comparing it to one in one million to one in 10,000 to use it to make our decision. Does anybody have any questions on this risk assessment process?

AUDIENCE MEMBER: I missed what you said. Who publishes what the acceptable risk is?

MR. NIESLANIK: The National Contingency Plan, and it's issued by the EPA.

AUDIENCE MEMBER: Is it connected to medical research?

MR. NIESLANIK: That risk range, one in 10,000 to one in one million, is based on the calculation procedure more than medical research.

AUDIENCE MEMBER: Is that also tied to actual tables?

MR. NIESLANIK: Again, we're not trying to predict the number of cancer cases. It's an established risk value. If you establish this risk value and say here is the risk, that's all based on this estimated reasonable maximum exposure that we calculate. It is an estimate. It's a calculated estimate based on the different exposure pathways and the information about the toxicity.

AUDIENCE MEMBER: The one in 10,000 is an industrial standard and the one in one million is an approximation standard. The two are distinct of how and where they would be applied.

MR. NIESLANIK: That's not the way the regulations are worded. Regulations just say that the acceptable range is one in one million to one in 10,000. It doesn't make any distinction between which is a residential and which is an occupational scenario. It's up to the risk managers to decide how it applies. We do a separate scenario for occupational and another set of calculations for residential, but they're both compared to the same standards. That range is one in one million to one in 10,000.

AUDIENCE MEMBER: They do identify the one in one million as the point of departure, but everything within the one in one million to one in 10,000 is an acceptable risk range for all decisions.

MR. SIMPSON: At this time I'd like to introduce Margi English. She is with the State of Idaho Department of Health and Welfare, Division of Environmental Quality, and she was the project manager for the Naval Reactors Facility Comprehensive Investigation.

MS. ENGLISH: I really am quite pleased that all of you came out tonight. It's great to have your interest. Like Rick was saying a little while ago, the way that the cleanups are done on the INEEL is with a tri-party agreement and the state is a part of that, and myself. I've worked with Rick and with EPA staff for the past five-and-a-half years addressing potential past contamination releases at the NRF, Nuclear Reactors Facility.

During that time we've investigated several sites. We've made several remedial decisions, and we have conducted a couple of removal actions and remedial actions for several landfills. We're very pleased that all of those actions have proceeded quite well. They have come in on schedule and within budget.

At this point in time, we are turning our attention to the rest of the sites at NRF that we had not looked at before, as well as looking at the accumulative aspects at all of the sites, including the ones we've already made decisions at.

The state has worked with NRF and EPA to develop the investigations to decide what data is needed and what samples are needed. When we got the data back, we've looked at developing the risk assessment. We have also participated in developing the list of potential remedial alternatives and screening those, and we've all worked together in preparing the proposed plan that you have right now.

We are at a point where we really would like to welcome your participation in the remedy selection process. We really encourage your comments at this time and I do want to emphasize that even though the proposed plan identifies a Preferred Alternative, the agencies have not selected a remedy to implement yet. So it's very important to us and I really want to encourage you to make comment on any of the alternatives, not just the Preferred Alternative, and any other potential remedial actions that you think we should be considering if they're not in there.

What we will do is use your input to help us when we go to select a remedy for the sites at NRF and then that selected remedy will be documented and finalized in a Record of Decision later this year. So, once again, I want to welcome you.

Unfortunately, my EPA colleague couldn't make it tonight, but I know he is very interested in your input and if you have any questions tonight, please don't hesitate to ask. We would be very happy to answer your questions about the site or about the remedy selection process. So with that, I will turn it back to you, Erik.

MR. SIMPSON: At this time I'd like to introduce Andy Richardson. He is going to talk about the Naval Reactors Facility investigation and a little bit about the facility background.

MR. RICHARDSON: I'm Andy Richardson. I'm with the Office of Naval Reactors Idaho Branch office out here at the Naval Reactors Facility. As a matter of fact, that's the building I work in.

The main thing I'm going to talk to you about tonight, and then some of my counterparts who work for Westinghouse are going to go into more details about this, I want to give you some background of the operation at the Naval Reactors Facility, what we did there historically, and why we now find ourselves in a position where we think we need to go clean some stuff up.

Back in the late 1940s, the Congress told the Navy who told Captain Rickover, we want you to build us a nuclear-powered submarine and do it efficiently and within cost and tell us when you're done. So Captain Rickover went off to do that. As part of that effort, they established the Naval Reactors Facility on what was then called the National Reactor Testing Station.

Since things moved along much more quickly in the early 1950s than they do in the 1990s, they established this site in 1951 and by 1953 this site, which was called the S1W prototype, became the first operational, with a really usable amount of power, nuclear reactor that had ever been built. It was the prototype reactor plant for the submarine Nautilus.

As part of the development of this prototype plant, the current thinking back in the early '50s was when you have radioactive water, processed water that's used in the operation of that reactor plant, the smart thing to do back then was to go ahead and send it out to what is called a tile drain field. The tile drain field is a pipe that runs ten feet underground and there is a section of pipe that has a bunch of holes in it. You send water out to this buried pipe and the water leaches into the soil about ten feet under the surface and the contaminants would be drained in the soil.

What our sampling has shown over the years was that was a pretty good guess, that's essentially what happened. The contaminants got drained into the soil.

Around 1953, the program decided, well, we need to expand that operation a little bit so we built what was called the S1W leaching pit. You take this radioactively contaminated water and send it out and let the water carry the contaminants down and the contaminants get absorbed in the soil, and that was your disposal method.

That was the standard mode of operation back in the early '50s. About 1955, Congress then came back to Captain Rickover and said, "Oh, by the way, we think this nuclear submarine works real well and we would like you to go ahead and build us a nuclear powered-aircraft carrier also." So Captain Rickover said, "Okay, I'll go build a prototype of one out in the Idaho desert and we'll call it the A1W prototype." And this was a prototype for the aircraft carrier Enterprise, which interestingly enough, is still in operation. This prototype had a similar discharge arrangement. It had its own leaching bed, which was out here to the west of the facility. So that was in the 1957, 1958 time frame.

About that same time frame we built what is called the expended core facility. It's another facility of the Naval Reactors Facility that's still in operation. Since we had, starting back in '53, some operational reactors, the program decided it was a smart thing to go off and take a look at some of the reactor fuel from those reactors and make sure that it was operating the way we expected it to. Metallurgically, chemically, from a corrosion standpoint, is the fuel doing what we designed it to do? So we built this facility to do these inspections on the fuel. We also inspect test specimens that we send down to the advanced test reactor to test specific materials for their corrosion properties in a reactor environment.

As part of the operation of this facility, some of that spent fuel is stored in water pools.

That water, by virtue of having the fuel in it, does have some low level radioactive contamination in it. Some of that water, through the operation of that facility, also was sent over here to these S1W leaching pits.

By the early 1960s, essentially you had two prototype reactor plants and the Expended Core Facility, which had some radioactive water that was being discharged to the environment. Around 1965 we built a third prototype reactor at the Naval Reactors Facility, the S5G prototype. It was fairly technologically advanced in both submarine quieting and the safe operation of the reactor.

What's unique about this plant is what's called natural circulation. The thermal driving, due to the differences of the temperature of the water, would actually move that coolant through the reactor core. It made submarines much quieter, and in certain regards, safer than they already were because you don't have to have pumps to move that coolant through the core to remove any heat.

Around the same time that we were developing the S5G plant in the mid-'60s, people came to the realization that taking this water and putting it out in the desert wasn't the best thing that we could be doing. So we started working in the late '60s and early '70's on a system that would take this radioactive water and recycle it within a closed system. The output of all that research was by 1979. All of the radioactive liquids at the Naval Reactors Facility were being recycled and nothing was being intentionally sent out into the desert.

So that brings us around, and again, this is a very broad overview of where we think the problems that most need addressing are, to where we are today. As Rick said earlier, we took a comprehensive look of this remedial investigation at the Naval Reactors Facility, not just at these radioactive discharge points but there was about 70-some points, 71 points of both radioactive, nonradioactive discharges, releases, bundled that all together and did a comprehensive look at it and a comprehensive risk assessment.

We came up with essentially these nine sites that are outlined on this picture. These the ones that we think we really need to go off and clean up. These are the ones that require us to go off and take some sort of action. There are others that we won't have to do anything with, others that we'll want to keep an eye on, but these are the sites of concern.

We'll go into some more details on these other sites, but this is sort of the big picture of how we got to the point today that we think we need to do something with these. At this point, I would like to turn it over to Mark Hutchison from Westinghouse who worked on putting it together and will go into more technical detail of what we did.

Are there any questions on any of this background?

AUDIENCE MEMBER: How big are most of the sites?

MR. RICHARDSON: For instance, the S1W leaching bed is about an acre to an acre and a half, about 175 feet for each one. This is the parking lot and you can see these are individual cars in the parking lot, and since this is a photograph, it's obviously to scale. So that will give you a little idea, about a half an acre to an acre. This is, I think, the largest single, individual site with the leaching pit.

AUDIENCE MEMBER: How deep is the water table and will you be able to see the downgrading of these sites?

MR. RICHARDSON: The aquifer is about 350 feet below the Naval Reactors Facility. We have topsoil that on the average is about 30 feet deep, then you get down to the basalt layer and then, again, 350 feet below surface is where you hit the aquifer. The sampling of the aquifer or the groundwater, although some contaminants have been found, there hasn't been any contaminants of concern found in the aquifer. There are four drinking water wells on the site and that's what we use.

MS. ENGLISH: No contaminants have been found in excess of drinking water standards on the site at this time.

AUDIENCE MEMBER: You said there is a basalt layer underneath. Is it possible that is this water perched upon the basalt layer?

MR. RICHARDSON: There are four sedimentary interbeds between NRF and the top of the aquifer. There are 160, 240, and then one right about at the top of the aquifer layer. Historically, there has been some perched water underneath NRF and the zones of perched water have changed, based on what the operations were. There were some perched water zones underneath these leaching beds but since we've stopped discharging to these beds in '79, the perched water beds essentially are gone.

AUDIENCE MEMBER: How often do you take

samples?

MR. RICHARDSON: U.S. Geologic Survey started taking groundwater samples back in the '50s when the testing station was initially established and that sampling program has continued since then. If you don't mind, I'll let Mark and Bruce, my Westinghouse counterparts, go into more detail on some of those sampling things. It goes back to the very first days of the facility.

MR. HUTCHISON: Good evening. I'm Mark Hutchison and I work with Westinghouse. I was the project administrator of the Comprehensive Remedial Investigation. I'd like to discuss a little bit of the CERCLA process at the Naval Reactors Facility. We have identified 71 sites at the Naval Reactors Facility that needed some kind of assessment, some kind of evaluation, for us to go and evaluate these sites.

Of these 71 sites, ten sites had a previous Record of Decision. Three of those sites had landfill covers placed over landfill areas. Forty-three additional sites, we went through a Track 1, Track 2, type of investigation and determined that no further investigation was required of those sites. That left us with 18 more individual site assessments to do as part of our Comprehensive Remedial Investigation/Feasibility Study, which I'll try to refer to as just "the study" from now on.

We've just completed our comprehensive study. It included these 18 individual site assessments. It includes what we call a cumulative assessment that evaluates all of the sites and the potential additive impacts. The result of that was nine sites of concern. Currently, we're at the public comment period where we get the public input. Beyond that, we'll issue a comprehensive Record of Decision where we'll have a Responsiveness Summary where we'll try to address the comments that we receive during the public comment period.

And then further down the road in the future, we have our remedial design, our remedial active phase, where we actually implement some of the remedial actions that we would like to propose. It will include some monitoring and then further down the road, we'll have a five-year review where we look at the effectiveness of some of the actions that we have taken. The comprehensive study has five primary tasks.

It included an individual assessment of 18 potentially radiological areas. It includes a cumulative assessment for all 71 sites that we've identified at the Naval Reactors Facility. It includes a development of what we call remedial action objectives. We developed and evaluated various remedial action alternatives and, finally, a selection of preferred alternatives.

The individual site assessments were 18 potentially radiological areas. We looked at these areas, we looked at the historical information that we could find, talked to previous site workers, gathered as much information about these sites as we could. Then we went into a sampling phase where we took surface and subsurface soil samples and took some groundwater samples from a groundwater monitoring well network that we have established around the perimeter of the site. We used all of that information as input into our human health risk assessment that we performed for each of the sites. The result of this human health risk assessment was we had nine sites of concern that Andy had shown on the map.

A cumulative assessment involved 71 sites and it evaluated them in a cumulative assessment, since all these sites might have an additive effect on the receptors. The result of our a cumulative assessment was, we did not have any additional sites of concern that were not already identified. In our individual site inspection, we also performed an ecological risk assessment to evaluate potential impact. The conclusion of our ecological risk assessment was that the ecological assessment was characterized as low and we didn't have any additional actions to perform to be protective above and beyond what we are going to do to protect human health. The third aspect was a hydrologic study to assess potential impacts to groundwater. The results of the study were used in our risk assessment to help evaluate groundwater ingestion.

The human health risk assessment included a residential scenario and an occupational scenario. For the residential scenario, we looked at a 30-year future resident and a 100-year future resident. The occupational scenario, we looked at a current worker and a 30-year future worker. We've highlighted the 100-year future resident. That was our primary area of concern. We've assumed that there will be a government facility or an institutional type presence out at the site for the next 100 years, and you're not going to have a residence established at that spot for at least the next 100 years.

The occupational scenario, we have controls in place, procedures in place, to prevent workers from being exposed to these contaminants, so that was not really a concern to us. The result of our human health risk assessment was nine contaminants of concern. Eight of them were radiological and one was inorganic lead. Cesium-137 and strontium-90 were by far the strongest risk drivers that we had. Lead, we had detected at one site above the EPA screening level. So those are the three primary contaminants of concern that we have at these nine sites.

This diagram shows the risk over here and these are the nine sites. As you can see, this is the one in 10,000 risk that Rick had talked about earlier. Seven of our nine sites are above this one in 10,000. We considered that to be unacceptable. It's an unacceptable risk. You'll notice two other sites here, an A1W radioactive line, which is an underground buried pipe. Although the risk assessment shows something below one in 10,000, there is an uncertainty with the data we have, a potential that there may be contaminants around this pipe that would cause this risk to be above this one in 10,000.

Another site is the S1W retention basin, which is a concrete basin. That has some historical evidence that it had leaked at one time and there are contaminants possibly under the basin that would require some cleanup. We did not sample that because of the difficulty and the expense that would have been incurred.

Fifty-two other sites had risks that were in or below this range. In these 52 sites, we're proposing as no additional action sites. Bruce, who will be coming up here next, will be explaining this. At this time, I'm going to turn it over to Bruce and he is the Westinghouse Program Area 8 Manager.

AUDIENCE MEMBER: In the administrative record in the 8-03, Unit 23, deep well sample data for Wells 1, 2 and 3, this is in the Remedial Investigation Feasibility Study of 1995. There are hits on the beta on all three cases that exceed the MCL's for gross beta.

MR. OLENICK: I can address that. That particular data wasn't based -- if you look at that, you're looking at two columns of numbers, looking at two different reference sources, are you not? And there is two beta columns there actually. One is based on strontium and the other is based on cesium.

AUDIENCE MEMBER: I wanted to get back to what Margi was saying because there seems to be some question about whether or not there is contaminants in excess of the MCL's.

MR. OLENICK: If you will hold on to that, we can address that here in a few minutes.

I want to get back to where we left off. I want to kind of briefly summarize where we're at. These nine sites of concern at the Naval Reactor Facility were deemed unacceptable risk, two of them being in the range where we had to make a risk management decision based on the data available. The other seven clearly are above the one in 10,000 range.

This is just to summarize real quickly that at those nine sites, six of them located various pipes and small drain fields and then two leaching beds on the outside of the facility. And then, finally, A1W on the west bed of the facility.

The next step you have to do in the process is come up with an action. What do we do now? We create remedial action objectives, the goals we create to initiate some type of response. Those remedial action objectives or goals address the type of things we're looking for that the responses will achieve. The first one, the desire under human health protection is to prevent direct exposure from the protection of food or soil from those individual soils for the future 100-year residential receptor. Also, another goal that we used to achieve for the preferred action is to prevent any type of soil exposure contaminated with lead that exceeds the 400 PPM screening level for lead cleanup established by the EPA.

On this site, the remediation goals for the primary contaminants of concern, again, cesium, strontium and lead, those two right there, 16.7, 45.6, if you can clean up to anything above that level would be deemed unacceptable and anything below that would be acceptable. So cleaning up to those levels today insures acceptable risk for a future 100-year scenario resident. Again, the lead recommended screening level at 400 PPM.

Okay. For protection of the environment: the goals established to prevent the erosion or intrusion of any plant or animal species into these areas of concern. Not only that, the goals are used to establish or prevent exposure from contaminants of concern to any ecological receptor. That brings us up to a proposed response action. We evaluated many, many response actions and we screened them out to these essential four.

The first one, being the baseline response action required by the EPA, is what is the effects if you do nothing? That's one proposed action that would include no controls in place and also no additional monitoring, that we do currently. There was a question earlier about the groundwater monitoring that we perform. We have six groundwater monitoring wells in addition to another seven U.S.G.S. wells that are sampled every quarter. We take quite a few samples continually throughout the year monitoring groundwater.

The next evaluated response action is limited action. Limited action consists of long-term monitoring and also placing some sort of institutional controls, whether it's fencing, barriers, to keep people away from these nine sites of concern.

Building on that, if you take two, again, you see long-term monitoring and institutional controls. Here, we have added on limited excavation and containment. What that essentially is proposing is to take six of those sites, of the smaller sites, excavate them, move the contaminated soil and place them into the S1W leaching bed with enough volume to hold the maximum volume calculated from those six sites. Essentially, what it is, is you're consolidating the soil into two essential sites at the reactor facility and then building two engineered caps over both of those areas to prevent intrusion and exposure to the receptor.

The fourth proposed action is a complete excavation and removal. Take all nine sites, excavate them, dig them up and ship them to an off-site facility whether it's on the INEEL or off the INEEL entirely. In this particular proposed action, no long-term monitoring or controls are necessary because all of the contamination is at another facility.

Given those four alternatives, we have to evaluate them against something. We have nine established EPA evaluation criteria, which gives us a guideline in how we rank those against one another. The first two, called threshold criteria, are the ones we look at first when we screen those individual proposed or evaluated actions. Protection of human health and the environment is of concern and also complying with any applicable laws.

Long-term effectiveness and short-term effectiveness is also looked at. Long-term effectiveness: meaning how good is it at removing the contamination from the facility over a long period of time. Short-term effectiveness: primarily dealing with what exposure do these individuals get while they're performing these actions.

Treatment is also another evaluation criteria. But if you noticed, our four preferred alternatives did not include treatment. So that was dropped out of the evaluation criteria. Ease of implementation as well as cost: we're concerned about doing this efficiently and also saving taxpayer dollars in the same sense.

And then, finally, the last two, state acceptance and public acceptance. Both related to this meeting tonight. State representatives here worked through the proposed plan as well as the entire study and are seeking your acceptance or input on those proposed alternatives.

Looking at these alternatives, once again, those six that we had left, if you notice here on your left the listing of those, this is a consumer reports crunched down version of looking at those alternatives-visually.

If you notice, protection of human health and compliance with all applicable laws, Alternatives 3 and 4, best meet those two criteria. Whereas doing limited action, fencing -- if you notice across the top, I gave kind of buzz words -- fencing and monitoring is the least effective for those two.

It doesn't mean it's ineffective, it just means it's less than the other two.

Long-term effectiveness. Obviously the total removal of contamination at the Naval Reactor Facility is the best long-term effective plan. Certainly doing little other than just monitoring and fencing is the least effective long term.

Short-term effectiveness, as far as implementing the different types of actions that we're proposing here, doing little reduces the exposure of individuals performing that action. Complete excavation, on the other hand, requires a lot of work. A lot of individuals digging up the actual site, so that would be the least acceptable in that category. Finally, implementability, much the same as short-term effectiveness, and then cost is rather self-explanatory.

Doing little is the cheapest, and complete excavation, about $19 million, is the estimated cost. Looking at that evaluation criteria, it was deemed that Alternative 3, the partial excavation and consolidating on the facility itself was the best plan. And we'll go over this again.

Again, I'd like to call that consolidate and monitor, keep that fresh in your memory. But, again, taking six smaller sites, excavating them and moving them to the S1W leaching bed, the S1W leaching bed has a volume of about 90,000 cubic feet. The maximum volume of soil we're talking about is 60,000 cubic feet, so we're using up about two thirds of the volume of that leaching bed with some contingency built in, in case we didn't quite estimate accurately enough. Although, again, we used maximum volume so that was the maximum amount of volume we expected to place in that leaching bed.

After that is done, we will place an engineered cap over that area and that, again, will prevent intrusion or exposure to any type of receptor. Notice that also on the west end of the facility, and I'll switch to that here briefly, there is another leaching bed in which a separate engineered cap will be placed. And then, finally, institutional control will be implemented, fencing and barriers, as well as long-term monitoring to insure that this remedy is effective for the long term.

This is a representative model of the type of caps we're considering for that particular action. Notice the rather large rip rap up on top of the engineered cap, as well as the layered design system to, once again, prevent any type of exposure from those contaminants.

So, in summary, we have nine sites of concern. What we'd like to do -- that have unacceptable human risk as far as our calculations go. The cumulative risk assessment, as Mark mentioned earlier, did not identify any additional risks associated with the cumulative effect of those nine sites. We also identified four remedial action alternatives, which in turn, we evaluated using those nine EPA evaluation criteria, selecting the third alternative, which is the Preferred Alternative, excavating and consolidation of soils at NRF. Engineered contaminant cap, and moving six sites and consolidating those into two individual areas at the facility and then constructing caps and then maintaining the long-term monitoring program.

In addition to that, as mentioned on an earlier slide, we have 52 additional sites, 11 of which require no further action, which means that those sites have a source present located far below ground that needs to be kept watch on in the future. In the five-year review process we will reinvestigate those to make sure the action is effective. And then the remaining 41 sites, rubble piles and those sorts of things with no source present, need no further action.

So where does that put us? The first thing is we need to understand public concern and answer any questions that you may have. We also encourage that you give us any type of oral or written response to any of these things we're proposing. The comment period carries through to February 10, 1998. Once we receive comments and assimilate all that information, we draft a Responsiveness Summary and a Record of Decision in the summer of 1998. And remedial action based on all that input, all the different scientific and public responses begin the Remedial Design Phase in the fall of 1998. So given that, I will hand it over to Andy Richardson once again to field your questions and concerns.

AUDIENCE MEMBER: The cost that you have in here, is that the cost of doing all of the sites at once with that action plan or is that just one site with that action plan?

MR. RICHARDSON: If I understand correctly, those costs are based on taking the different levels of action for the nine sites of concern. For example, the Alternative 3, which is about $9 million, that would entail digging up the six sites and consolidating them into two. For Alternative 4, the

$19 million, that would entail digging up all nine sites and then packaging up and sending off the soils and materials from the nine sites to someplace away from the Naval Reactors Facility.

AUDIENCE MEMBER: Has your sampling ever been quantified to discriminate between the nine sites selected and the remaining sites? What percentage of determination of toxicity risk assessment values, the confidence level, or error encompassed?

MR. RICHARDSON: I'll turn that over to you, Mark, and we'll see if we both understand it.

MR. HUTCHISON: I'll just briefly describe our sampling methods that we use. We had a sample approach where for some sites we knew that we had some contamination present and so the sampling was basically around the outside of the units. We had information from past discharge reports. We had a real good record of what was there, so we were primarily concerned of getting a grip of what kind of volume or what kind of extent of contamination we're talking about.

Typically we used the maximum amounts that we detected for each of the sites for our risk assessment. It wasn't an upper confidence level, it was a maximum concentration for each constituent. So if we took some samples, if we found four or five radionuclides or three or four metals, we took that maximum amount from all of the sampling in that area and used that in our risk assessment. It was a conservative approach and that is how we did that for each individual site.

AUDIENCE MEMBER: And that was the cutoff that determined whether or not that was a site that required attention or not?

MR. HUTCHISON: Right.

MR. OLENICK: If I could elaborate on that, and that's a good question too. When you determine risk, it doesn't have an error associated with it, the data you input into that model does -- when you calculate a mean for that data -- the risk itself doesn't. But what happens is when you input that data into that model, that model builds on parameters such as how often is a person exposed and you say, "Well, they're living there 30 years, 350 days a year, 24 hours a day, swimming in the soil." You build those conservative exposure estimates with that data so you try to build very conservative high end, you're always using the high end values, the maximum amount you can rather than some component interval. That way, you're always encompassing that interval. No matter where you set that interval, you're always building your model higher than what the interval is so the errors are merged in there and your model is built on very maximum conservative values. Does that help?

AUDIENCE MEMBER: Yes.

AUDIENCE MEMBER: As I understand, the risk assessment was formed to determine the risk of the people on the land surface and the different animals and plants and stuff associated with the contaminants on the surface. Part of the plan, I understand, is to put a cap over the top of it so it is inaccessible by humans and the environment. What I'm curious is how much attention has been paid to how the material will travel through into the groundwater and then once there, how far will it move?

MR. RICHARDSON: The groundwater model that was used throughout the risk assessment is called GW screen and it's pretty much a standard groundwater transport model for use on the INEEL. Very simply, the groundwater modeling shows that the transport of the contaminants to the groundwater is not a concern. You essentially don't have a method of transport that gets it there to where it becomes accessible. This is from a radionuclide standpoint in the time periods and scenarios that we're looking at.

MR. HUTCHISON: If you still had an active lagoon with the water source on top, you have a driving head that forces contamination down. In these instances, all these nine sites, none of them are near a discharge location of water or standing water, there is no driving head, so to speak. The cesium, which is locked up in the upper layer of soil, building a cap over the top of it is just further insurance of eliminating that driving head or any possibility that that could occur.

AUDIENCE MEMBER: But the cap doesn't have any kind of an impermeable layer. It is not going to keep out the precipitation that will provide that head and continue to drive the contamination down to the lower levels.

MR. OLENICK: That's correct. And the cap that I showed up there may or may not have that type of layer. In the design phase, which comes next, we will evaluate whether or not that cap needs that type of permeable or impermeable hard-capped layer that prevents that, similar to the landfill caps that we already built for different reasons, for the landfills we have now in existence there. Again, going back to what Andy said, again, we get very low precipitation out at the INEEL to begin with, so having a conservative effective long-term driving head isn't enough to drive that down by itself to the aquifer, based on the kind of concerns that we have in the model itself.

MR. RICHARDSON: I guess maybe something that at least someone showed makes that believable. The leaching beds that we used to discharge these contaminants to on an annual basis, we would routinely discharge literally millions of gallons of water into those leaching beds. The sampling that we have done to characterize the extent of those contaminants from those leaching beds shows that, for the most part, most of the contamination is still located within an area about from where the discharge piping was to about three feet below it. Almost everything is still there. That's after discharging millions of gallons of water through those leaching beds.

So getting back to what Bruce said, and this supports what the groundwater modeling shows, is that an annual precipitation of nine inches of precipitation a year, when you're concerned about contamination that's already ten feet below ground, the modeling just shows --

AUDIENCE MEMBER: Deep well-water samples do not support that conclusion. Neither does any of the other scenarios where you've had leach pits, or whatever. When you have major groundwater contamination, it is driven down. The sample data does not support what you just said nor does the U.S.G.S. studies, in terms of the precipitation impact on-surface or near-surface contamination and how it will drive it down into very lower levels. The same principle, precipitation generating something to transport contaminants down is going to be the same.

MR. BRADLEY: I think we need to be careful because there are cases at the INEEL that will not be discussed tonight that are important that you should be worried about.

AUDIENCE MEMBER: You're right. It's even worse at Argonne.

AUDIENCE MEMBER: Part of the difference is that there are places at INEEL where contaminants, for whatever reason, were deliberately pumped into the aquifer to dilute them. And I believe that when you go back and look at the data and sort out whether we're talking about some other place or NRF or Argonne, we're finding places where we're finding contamination found in the groundwater are places where contaminants might have been deliberately pumped in rather than spread on the surface and allowed to seep in.

AUDIENCE MEMBER: You're talking about two different things here. When it's in the region of the injection well and it's down at the 600 foot level, that was from the injection well. But when it's at 240 feet or 400 feet, you know, and it's nowhere near an injection well, that came from leach pits.

AUDIENCE MEMBER: I don't think we found any data in the NRF that --

AUDIENCE MEMBER: How deep are those three wells?

MS. ENGLISH: I'd like to take a look at the data that you're looking at.

MR. BRADLEY: We've got to make sure we're dealing with the real data. I appreciate the difficulty of dealing with this. There is just a whole lot of data and it's easy to become confused. I think we've talked about we want to understand what you're looking at. First of all, there are four wells and we only have data for three. We can look at that data you're looking at and help sort that out.

I'm not aware of any cases. You said Wells 1 through 3, in any appreciable time, have ever had data of contamination above drinking water levels. We can look at that and if there is a mistake in there, we want to fix it. If we have given people the wrong impression somehow, one way or the other, we want to get that straightened out. That's what this is all about. I personally have a great deal of difficulty getting through all of the data and making sense of it.

It's an important point and I don't want to trivialize it. But I do want to make sure, rather than take up everybody's time, that we get to the other questions as well. And then we and anybody else who wants to can go through what is it on this very specific thing. I think it influences your perception of how stuff dissipates through dirt.

MS. ENGLISH: I'd like to add a couple of things. I have been working with the site for a number of years. I think I'm fairly familiar and I do want to look at what you're talking about, but what I would like to convey is that, as part of the remedial action, we did look very extensively at the groundwater around NRF. We have developed as part of the remedial investigation and the remedial action of the landfills, which were covered a couple of years ago, we put in a rather thorough network which surrounds the site. We did sample that network very extensively over two different sampling rounds at different times of the year. The results of those sampling events, looking at the new wells, as well as the existing wells that we have and the production data, too, we did not find any exceedances of MCL's for drinking water standards in the groundwater right now.

I do know that historically, many years ago, in the 1960s, there were some limited sampling results in one production well that exceeded and was now an MCL cobalt. I'm also aware of an exceedance many years ago before they stopped using chromiums as a rust inhibitor. There was an exceedance in another production well with chromiums and I believe that was in the 1960s.

The numbers run together for me too. So I can't tell you exact dates. I'm not certain, but that data that you have in the RI may be going back to that point and that's why we need to look at it. But I can tell you that the data that was gathered around the site, which would have indicated any plumes emanating from the site because it's very well covered, there were no exceedances. We did find some slightly elevated levels that was still well below drinking water standards.

So tritium, of course, goes with the

groundwater. It's not very retarded. So the elevated tritium could indicate, and probably does indicate, that waters that were originally discharged into those perched units has reached the groundwater but those levels and, Mark, you might be able to help me out, are very low, well below drinking water standards.

I think that taking those actual sample data that we collected as part of the remedial investigation, together with taking the soil data and the models that we've run on the concentrations in the soils, gives us a pretty good understanding of the impacts that we have at the site right now.

MR. OLENICK: If I could just expand on that. You said 1995, and right away I thought, 1995. But that's a 1995 report, correct? It's actually 1963 data that you're looking at. It looked like we did have some perched water that migrated sideways and then down to Production Well No. 2 and that's the exceedance that Margi's talking about historically. And indeed, that's exactly why we put the data in there, is to show these types of cause and effect. That's actually a historic report contained in a 1995 report and you're exactly right. That gross data measurement was due to cobalt-60 migrating into that perched water that was below --

MS. ENGLISH: That was a reason why we look so carefully for the presence of any perched bed now, is because of the interpretation that that old data was from the migration of a former perching bed beneath those units back in the 1960s.

MR. RICHARDSON: Essentially, back in the '60s where he was saying we were using leaching beds, and earlier I got the question about perched water zone and interbed layer at about the 108 foot levels, I think that's about right, there is an interbed --

MR. OLENICK: It was higher than that, it was approximately 30 to 60 feet.

MR. RICHARDSON: Okay, that's right. The bottom line is, you ended up with a perched water zone because of the discharge to this leaching bed back in the '60s that we think extended out in this direction.

The No. 2 production well is right about here. Frankly, from going back through the historical records, what we think happened is when they drilled the No. 2 production well in the mid-60's, in preparation for building the S5G Prototype Plant, that they likely drilled through that perched zone and then some of the perched water was able to make its way down through the well casing. So they said this isn't right, so let's grout this well casing. And they tried to seal the thing. There is some evidence that the people doing the sealing didn't do a very good job.

We did find some cobalt-60 and we quit using that well. We periodically sampled that well over the years and that well has been back in service now since 1988. So it's been in operation again for the last ten years.

And getting back to what I was talking about earlier, what we did back in the '60s, we were pumping millions of gallons of water through these leaching beds. We haven't pumped any water through them since 1979 and, actually, very little since about 1972. And all of the sampling shows this perched water zone has dried up.

AUDIENCE MEMBER: I'm interested in knowing what exactly involves monitoring for this preferred plan of attack, what exactly is the technology involved, and what goes into monitoring?

MR. OLENICK: Essentially, long term monitoring at this facility -- two years ago we drilled six more wells around the facility. They were located in a semicircular arch and then additionally there is a U.S.G.S. well, as we have several operating wells, as well. But that arch helps us kind of triangulate and see if there is any particular source on the surface itself.

The groundwater monitoring consists of quarterly samples collected from each of those wells, including quality assurance samples for organics, inorganics, and radionuclides. And those radionuclide analyses include gross beta and trituim as well. So there is a bracket of wells around the facility and we're continuing monitoring those every three months to see if there is any impact at all.

AUDIENCE MEMBER: Are they being tested for a variety of contaminants?

MR. OLENICK: Well, we work in consortium with the U.S. Geological Survey. They are somewhat independent. It's a separate entity.

They've been out there doing it since 1949 and they do a great job for us. We work with them on the methodology and request certain analytes. They come on with the equipment and expertise to actually go off and do that. So we work together and they do the sampling for us. We dictate the type of quality assurance of what we would like to see in the data and what type of data and then they go off and use their laboratory, so it is somewhat independent. So, together, we work up this monitoring program that is quite extensive. It's very well thought out.

AUDIENCE MEMBER: How many years does that go into the future, as far as the budget is concerned?

MR. OLENICK: Thirty years is what we've projected for that long-term monitoring plan.

MS. ENGLISH: In answer to your question, Bruce has described what's being done now. But in direct answer to your question, the monitoring that would be done for a remedial action should Alternative 3 be chosen, that has not been agreed on yet. This is what they're doing now. The agencies have not reached any kind of consensus on what kind of monitoring will be done.

At this point, those analytes may be ones that we're monitoring for. It's also possible that we will be looking for specific data as well. We may be looking for cesium-137 specifically, and strontium-90 specifically as we did.

MR. OLENICK: Also, the monitoring we're doing is the result of two other record of decisions that were done for the landfills.

MR. BROSCOIUS: The Preferred Alternative to consolidate the contaminated soil from all of the various sites and put it together, with all due respect, it reminds me of a Arlo Guthrie song called Alice's Restaurant, where he collects all his garbage and he goes out looking for a place to dump it. He is driving along and he sees this pile of garbage along the side of the road and he says, "Well, instead of picking all of that up, I'll just throw mine down." And the sheriff came along and arrested him for littering. That's what this reminds me of.

And what's really scary about it, is that you're literally creating a radioactive waste dump there that would not comply with any current standards under the Resource Conservation Recovery Act for hazardous waste or radioactive waste dump. Why the state and the EPA regulators are allowing you to proceed, literally violating all of your applicable regulations in making this dump site, you know, that literally could not even pass municipal garbage landfill requirements, in this day and age is just awesome. I don't understand it. I don't see how you can allow them to get away with it.

MR. SIMPSON: I think you should save comments like this for the comment period.

AUDIENCE MEMBER: Oh, you'll get it then too.

MR. RICHARDSON: I think we just got it and I understand.

AUDIENCE MEMBER: The question is to Margi and Wayne. How can you allow them to get away with it, to literally violate RCRA requirements for dump sites like that?

MS. ENGLISH: First off, I think we're mixing things a little bit. I think the RCRA requirements and -- Daryl, I think you used to work on these.

MR. KOCH: This is not a RCRA facility in any way, shape, or form. I know you haven't had a lot of time to read this stuff, but I think when you do, you'll find that it does meet all of the RCRA requirements, and at that point, I think you'll stand up and say you're happy about it.

AUDIENCE MEMBER: You also have found lead, am I correct?

MR. OLENICK: But the lead exists in the leaching bed that's currently in place. It's already in the ground at that level. The EPA proposes that RCRA regulate, that's correct. Also, proposed to clean up to threshold standard, and we've met that.

MR. KOCH: I don't know how else to answer the question really, but the regulations that are in force have been applied. Not that we necessarily agree with EPA all of the time.

MR. OLENICK: You've got to be careful with comparing these RCRA levels of PPM with total metals analogy that CERCLA does a lot of work with. So those soils were not hazardous under RCRA but they were a "totals" problem under 400 PPM screening level. You have got to be really careful on how you separate all of those out. You have got to be really careful in calling something hazardous and something radiological in making sure that we're meeting all of the appropriate RCRA requirements.

AUDIENCE MEMBER: Do you know a model to see if the government is completing the survey, the model is just an American model or did you do some physical experience, physical simulation of this act?

MR. OLENICK: The model is actually developed for the INEEL. In fact, Argonne, one of their key people is one that developed that model based on the soil type at the INEEL, based on the default layer and the type of soil there. The model is very specific for the INEEL and the southeast Idaho area. It is numerical, but it has many variables to take into account. There is not a lot of qualitative guessing and subjectiveness to the model.

MR. RICHARDSON: Any other questions?
Thank you.

MR. SIMPSON: This is the portion of the meeting where you make public comments for the record. We have a court reporter who will report your comments verbatim. When you make the comment, please clearly speak your name and give your address so that when the agency responds to your comment in the Responsive Summary to the Record of Decision, we can send that document to you. If you can, limit your comments to five minutes.

Chuck, did you want to?

AUDIENCE MEMBER: Sure. My name is Chuck Broscious. I'm the executive director of the Environmental Defense Institute based out of Troy, Idaho. Environmental Defense is to receive the proposed plan on Friday, January 16th. Since Monday was a holiday, it meant that EDI received the plan one working day prior to the public meetings in Moscow, Wednesday, January 21st. The public meetings are the only opportunity the public has to get testimony into the public record. Inadequate preparation time literally translates to inadequate opportunity to be engaged to the decision-making process.

Additionally, there are two comprehensive ways, area group plans, one for NRF and one for Argonne National West, covering a total of some 28 individual operating waste sites. Therefore, the public participation process is fatally flawed and unacceptable. At the very least, the public comment period must be extended to February 28th, the end of the month.

The plan assumes that the Department of Energy and the Naval Reactors proposed program and Argonne National Laboratory-West enjoy credibility on the public side. This is an invalid assumption. These agencies have broken the law and are being forced via a Federal Facility Agreement and Consent Order to correct their illegal activities. As illegal polluters, no credibility can be assumed and, therefore, full and complete disclosure is demanded in all plan publications. The plan does not provide the reader with full disclosure or provide the essential information the reader needs in order to evaluate the appropriateness of the preferred remedial alternative. For instance, maximum contaminate levels for all contaminants of concern must be stated for each Operational Unit as well as the effective standard for that contaminant, so that the reader can make up their own mind whether the cleanup actions or no actions are appropriate. Stating conclusions without providing definitive data to support the findings assumes credibility that the agencies do not have.

Another major assumption is that it extensively evoked in the plan is 100 years of DOE monitoring and institutional control of the contaminated sites. In real life, when entities have no credibility and are required to do major actions in the future, they are required to establish trust funds so that if they again decide to disregard the legal requirements, the funding will be there for the state or other regulatory agencies to do the job. The state of Idaho should therefore require DOE to establish such a monitoring and institutional control trust fund to cover those cost of INEEL.

Environmental Protection Agency is a division of environmental quality also incorrectly assuming credibility with the public. The presence of their logos on the plan, the review of their documents, and the endorsement of preferred alternatives make these agencies complicitous in a plan of inadequacies and flaws, as well as the history of INEEL plan of more cover-up than cleanup.

The plan states the Comprehensive Remedial

Investigation/Feasibility Studies, Waste Area Group 8, represents the last extensive comprehensive, this is CERCLA, investigation for the Naval Reactors Facility. This plan is not comprehensive because it excludes the retention basins, one of the most contaminated waste sites at the NRF from the CERCLA cleanup process. The retention basin is a concrete tank that temporarily holds liquid, radioactive, and chemical wastes prior to discharge of the various leach pits. The plan fails to state that the sludge in the basin contains cesium-137 in excess of 192,700 picocuries per gram. A long history of leaks from the basin. The plan's exclusion of the NRF expanding core facility leaks additionally demonstrates the incompleteness of the so-called quote and unquote comprehensive plans.

The ECF, built in 1958, does not meet current spent reactor fuel storage standards that require stainless steel liner, leak containment, and leak detection systems. The ECF should be shut down for exactly the same reason that the Chem Plant Building 603 underwater fuel storage facility was shut down. It was an unacceptable hazard and did not meet current standards. ECF has been leaking significantly greater than 62,000 gallons of radioactive water over the past decade. The soil contamination around and underneath the basin must be included in the CERCLA cleanup process. The plan offers no soil sampling data to substantiate exclusion of the ECF from CERCLA action.

The plan's exclusion of the sewage lagoons from its so-called, quote and unquote, comprehensive CERCLA cleanup, again, demonstrates the incompleteness of the plan. Contaminant levels of arsenic, mercury, and cesium-137 would normally require remedial action. NRF intends to continue the use of these unlikely leach ponds despite the fact that every gallon of waste water that flows into the pond leaches more of the contaminant pools toward the aquifer. NRF should be required to close the sewage lagoons, clean them up, and build new lined and permanent that would meet current regulations.

The Preferred Alternative 3 that DOE, the state, and EPA want the public to accept cannot be justifiably called a cleanup plan. The shell game cover up, yes, but not a cleanup plan. Alternative 3 is a rerun of the misguided actions at the INEEL Test Reactor Area warm waste pond. The plan calls for consolidation of the contaminant soil for numerous sites between -- into the bottom of one of the old leach ponds and then cap it with rocks and gravel. It's quick, dirty and comparatively cheap, and that's why DOE likes it.

The data show long-term waste mismanagement of cesium-137 and 310,000 picocuries per gram, and cobalt-60, 1,300,000 picocuries per gram. Moreover, this approach does not meet the applicable or relevant or appropriate requirements because it does not meet Subtitle C hazardous and radioactive waste disposal regulations. The proposed NRF remedial action would not even meet RCRA municipal garbage Subtitle D landfill requirements, which require impermeable cap and liner, leachate monitoring wells, location restrictions over sole-source aquifers. The NRF plan contains none of these essential features. The plan effectively shifts the risks, hazards, and cleanup cost of future generations.

There is more, but I'll stop.

MR. SIMPSON: Anyone else?

I would just like to clarify a few things. The comment period for these projects is open until February 10th. And also, based on his request to extend the comment period, that will be a decision that the agencies will have to make. And if granted, we will run ads in the newspapers and send out postcards to everyone and let everyone know, and I'll talk to Chuck about that as well. You can submit comments in writing and give those to us tonight or just put the comment form in the mail and we'll get them as well.

Because of the late time, I'd like to take about a five-minute break between the presentations. So let's try to make it back at about 8:45.

(Recess)

MR. SIMPSON: At this time we're going to discuss the Argonne National Laboratory-West Comprehensive Investigation. Daryl Koch is here representing the Division of Environmental Quality, and he's going to say a few statements.

MR. KOCH: I am Daryl Koch with the state of Idaho, working with the DOE and EPA on the RI/FS, and I'd like to say that this project is about a year ahead of schedule. I'd like to applaud the DOE, and I don't think the project has not suffered at all because of that aggressive schedule. I just wanted to talk about, briefly, before they go through the risk assessment, remember Rick's earlier premeeting risk assessment talk, he talked about the possible differences and similarities between WAG 8 and WAG 9, Argonne West, and I'll get into that in a second.

Before Scott and Greg talk about the sites, specific contaminants and where they are, I just want to give a little review and I want you to appreciate what you see here. And I hate to jump ahead to the preferred remedy, but I need to because the state of Idaho is very interested in this remedy. We asked for it to be heavily considered and that is phytoremediation, using plants or woody plants to uptake metals and radionuclides.

I just want you to think ahead about what the preferred remedy will be as I talk a little about the sites. This is an arid climate, a desert of eastern Idaho, the same as the previous WAG, NRF, both arid type sites. But, essentially, what ANL-West has done here over the years when they started doing their research with reactors, et cetera, is they added water. They needed water for cooling, they needed water for cleaning items, to have drainage, every facility has drainage. NRF, as you remember, in this part of the facility, they were putting liquid into a deeper pit.

At ANL-West, not the case. There is a deeper pit here that you'll hear about, but it's been cleaned up. But all of the other drainages, it was rather shallow, there are some deep ditches, but it is still surface drainage. You can see it goes out to industrial waste pond, there, of course, needed necessary sewage lagoons.

When ANL-West, adds water, and, as you know, if you add water out in the middle of the desert, even in Saudi Arabia, you can grow crops, you can do lots of things. At ANL-West they had no intention of growing crops but crops came, because, if you add water, birds bring seeds in, whatever -- it's been a mystery to me all my life, but all of a sudden, you'll find plants.

You can't see it from this photograph but in these various ditches, A, B, and C, blow down ditch, industrial waste. It's a really nice one here, okay? Because what ANL-West has done by adding water, is there is a mini ecosystem out there right now as we speak. There is water flowing in some of these ditches most of the time. The last time I was there, it's a great thing to see out in the middle of an arid desert. You have an ecosystem, you have cattails, reeds, other plants. I saw a very pretty yellow bird. I've never seen a yellow bird before. So hopefully, being innovative, which the state likes to be, we said -- and we know the contaminants, of course, are metals. I'll get into more detail on that in a minute, but we said, "Well, gee, why destroy this probably temporary ecosystem because the facility will not operate forever, as far as we know, but for several more decades, it does have a mission for several more decades, and water, again, will flow."

You've got to have sewage, you've got to have water, and the industrial waste, you must remember the releases are from past practices, '60s, '70s, no longer, but the contamination from those past practices went to the ditches, the soil sediments, becoming contaminated as metals.

So once you look at the whole picture, we've created this mini ecosystem, and in the preferred remedy, you'll see that we're trying to use the ecosystem itself to cleanse itself by bringing in nonnative species of plants or some of the native plants to remove the metals. And this phytoremediation, it's kind of a neat system. We're really behind it and we haven't selected it as the remedy, we don't have public input yet to the proposed plan, but the state of Idaho really encourages this type of innovative thinking, and it's a lot cheaper if you're a taxpayer. So as the preferred remedy, it really did come out on top as the proposed remedy.

MR. SIMPSON: Greg Bass will come up and

discuss the history of Argonne and a little bit about the investigation. Greg is with the Department of Energy, Chicago operations office.

MR. BASS: Thank you, Erik. As advertised, I am Greg Bass and I am the DOE Area 9 Waste Manager and have been since 1991 when the Federal Facility Agreement was signed. I want to talk about the history and purpose of Argonne National Laboratory-West. This is not a space colony, this is where I work, Argonne National Laboratory-West, located in the southeast corner of the INEEL located in southeastern Idaho, about 30 miles from Idaho Falls.

Briefly, I'll point out to you some of the research reactor facilities we've operated over the years. This one in the distance is the Transient Reactor Test Facility, a small research reactor. This is Experimental Breeder Reactor 2. This is the zero-power Physics Reactor. It's a small advanced reactor located under this mound. The only reactor currently fueled and currently operating is our neutron radiography reactor, a small university type reactor we have in the basement of this large rectangular building that we use to radiography nuclear fuel samples.

I'm going to go into the history of missions at Argonne National Laboratory-West. Over the years, since 1958, we've been primarily engaged in developing nuclear reactors that can essentially recycle their own spent nuclear fuel. This research has gone on for 30 years, from 1964 to 1994. They've also developed a reactor, the EBR-II that can shut itself down if it loses all mechanical cooling capabilities, so that's what we call a passively safe design.

Some of our modern missions, the bottom two are radioactive waste characterization and support of opening the WIPP facility and getting the waste isolation pilot plant that is currently stored on the INEEL stored in the WIPP facility. We do that by opening selected drums and visually characterizing the contents. This fuel stabilization research and development is our core mission right now. We take spent nuclear fuel, which is highly radioactive, and we remove components in that spent nuclear fuel that we believe would be unacceptable for a national geological repository. We reformulate the spent fuel in an electrometalurgical process and we turn it into waste forms that we believe will be acceptable for geologic disposal. We believe that research is very important. It's very important to the people of

Idaho, and that's the core of our mission.

Briefly, I discussed we did a lot of spent fuel research over the years in this fuel cycle program. This involved analytical chemistry, which we conducted in the analytical lab here. These fuel samples in the '60s and '70s, to this day, were dissolved in an analytical laboratory by chemists, and the resolving radioactive liquids in the '50s was discharged through a pipeline into, essentially, a rock-bottomed septic tank we called the EBR-II leach pit. It had a concrete lid and concrete walls and it took all of our radioactive liquid waste in the '60s and all of our sanitary industrial liquid waste also. That's an old way of disposing of liquid waste. We don't do that anymore.

In 1993, we dismantled this leach pit, we took the concrete sides and concrete top and smashed it apart. We cleaned the sludge out of the bottom, we put a layer of clay on the bottom and then we backfilled clean soil. The EBR-II leach pit and the piping that fed it are no more. During the operation of the EBR-II leach pit in the late '60s, 1969, there was an inadvertent discharge or overflow of the pit which had a pipeline leading to this interceptor canal. This interceptor canal was constructed in the early '60s to divert natural storm water drainage around the Argonne West site. This EBR-II leach pit overflowed the radioactive liquid into the interceptor canal, contaminated most of the length of the canal, and it contaminated the sludges and sediments mentioned here or the mound in the bottom of the industrial waste pump. This is a mound of dredge material that was taken out of the bottom of the interceptor canal in order to manage the radiological concerns at that time, in 1976.

This interceptor canal and the pond and the mound are contaminated with cesium-137. These three areas constitute our only human health risk at Argonne National Laboratory-West from past operations. The rest of these sites you see, the sewage lagoons, industrial waste, this station discharge, main cooling blow down ditch, and these three ditches, which contribute to the waste pond, have been contaminated with various nonradioactive constituents. These are metals such as chromates used in EBR-II cooling water as a corrosion inhibiter. We used to use chromates in 1980. We also had some photographic processes that discharge silver, mercury, and other metal contaminants in low quantities, through the industrial waste discharge ditch.

The use of these corrosion inhibiting metals in these industrial waters is our primary source of metal contamination in all of these ditches. I want to emphasize the fact that all these contaminants are very shallow. They are primarily contained in the top one to three feet of soil in these ditch bottoms and in the pond bottom also, as well as the sewage lagoons.

I've gone over a little bit of our past history, what we have done to cause our problems. And I'm going to let Scott Lee, who works for the University of Chicago, who operates Argonne West come up and tell you about the process we use to define our problems and our alternatives for fixing the problems, including one fairly innovative one, the phytoremediation Preferred Alternative. Before I go on, are there any questions about Argonne's mission or history?

With that, I'll let Scott come up and take you through our Comprehensive Remedial Investigation/Feasibility Study Process.

MR. LEE: As Greg mentioned, I'm Scott Lee. I do not operate the Argonne National Lab, I just work for the University of Chicago, which operates the WAG 9 in the Federal Facility and Consent Order. In the FFA/CO we have 37 identified waste sites. For this investigation of those 37 sites this mound was not identified but this interceptor canal ditch was. It's one of those 37 sites. To assess the risks posed from this ditch and that mound, there are two different entities. This ditch received runoff water from approximately 14 square miles to the south of the facility, and so we have the potential to leach these contaminants. This mound area is on top of the burned area and does not receive that water and so we have to model those completely different.

Knowing that, of those 37 sites we have broken it down into 43 distinct units based on those properties of those sites. In addition to looking at the identified sites at Argonne Waste Area Group 9, we -- and to determine what each of those risks are individually, we have also conducted a Comprehensive Remedial Investigation/Feasibility Study to determine how one site is affected by the other site.

By that I mean, let's say an animal is living in this location and then he migrates over to this location. What are his effects of being exposed to different contaminants? That's why we're looking at the Comprehensive Remedial Investigation/Feasibility Study. We have the 43 distinct areas and two additional areas from Waste Area Group 10. One is a windblown contamination and the other is a stockpile located about a half mile away from our facility. To put the Comprehensive Remedial Investigation/Feasibility Study together, we've collected over 9,400 contaminant specific samples and we have the results of those in these comprehensive records.

This is a schematic similar to what you had seen for the Naval Reactors Facility. We start out with preliminary Track 1, Track 2 investigations. From there we make a determination, is there an unacceptable risk and should we take action right away? We had one site, the EBR-II leach pit, which Greg had talked about. This is where we had disposed of our contaminated liquids up until 1975. After 1975 we basically keep those liquids on site and we have an evaporator that we use to evaporate the liquids and we filter out the radionuclides. The removal action was conducted in 1993.

We have all of these other Track 1, Track 2, had a no further action determination at the time. We've taken all these sites and, again, assessed the comprehensive risks, and have we had known, are the assumptions we made correct, and we reevaluated all of these sites and that is included in our Comprehensive Remedial Investigation/Feasibility Study. We're currently at this stage, the public comment period. From here we go into the Record of Decision and then our cleanup alternatives.

Just to back up again, we have evaluated our exposure parameters and exposure assessments based on the National Contingency Plan. We have a current occupational scenario. That is somebody currently working at the facility and will continue to work at the facility for 25 years, that's a current occupational study. We have a future occupational scenario of somebody starting work 30 years from now and will continue working for 25 years. The residential scenario, we do not have any residents living out there, but potentially, in the future, we do not know.

We have what we call the 100-year potential future residential scenario. One hundred years from now having somebody live there, they'll live there for 30 years 350 days a year, so we have evaluated these exposure pathways. In addition to those, for the future residential scenario we have also looked at the ingestion of groundwater, the inhalation of ground water, the contamination one could get from showering, and we have assessed what if the future resident has a garden? What are their risks by using this groundwater to grow the crops?

For the human health risk assessment, from all of the 9,400 samples, we have determined that only one contaminant, cesium-137, poses a potentially unacceptable risk. I'll show you these sites. This is the three sites, the industrial waste pond, the interceptor canal and the sub unit. That is the dredged soils. The values in parenthesis under each of these individual areas are the current concentrations of cesium-137. We have 29.2 picocuries in the industrial waste pond. You can see the risks associated with that are greater than the one in 10,000 that we're using as the cutoff. You may ask, what is the currently acceptable level based on that one in 10,000, and that concentration would convert down to 23 picocuries per gram for the residential receptor scenario.

Those are the present-day future concentrations. Cesium is a really short, half-lived radionuclide. Those concentrations, you see, we decreased from 29.2 picocuries per gram to 23 picocuries per gram. You can see what this interceptor canal has for that future scenario, it is below that risk, and we won't have to clean it up if we looked at that. But we also looked at that for the current occupational, which poses an unacceptable risk.

The leach pit was here and it inadvertently released discharge to that intercepter canal. The surface water flows to the north to that ditch and the contaminants were placed on the mound. So we have three distinct areas we've evaluated that contain the cesium-137.

The ecological, how we've affected the plants and the animals. We have 12 inorganic contaminants. The radionuclides did not pose a problem. We have 12 inorganics that potentially cause unacceptable risk. We have ditches A, B and C. We could have broken that down separately but we kept them together. We have assessed these hazard quotients on a per animal exposure route, and by that I mean these are the hazard quotients to the most susceptible individual and ecological receptors.

If they feel a mouse living in one of those units, this is the hazard quotient associated with that, it's around 10,000. You can see this yellow line is the hazard quotient of ten, which we are using in our lineup. Any site with a hazard quotient greater than ten, we're going to clean that up. A hazard quotient of ten compared to a hazard quotient of 100 does not mean that it is 100 times greater. It just means there may be a problem. We have to look at that as the overall population, what is the overall effect of the mice on a whole.

The main cooling tower blowdown ditch, we have ditch A, B, C and, again, we have the interceptor canal. You will see later in our proposed plan that we are currently using the sewage lagoons and we will continue using those sewage lagoons. The exposure pathway to the ecological receptors, which are a small animal, is these sediments. We do not have any good burrowing animals in there currently, and we will not have until we stop using that facility and it dries up. So the cleanup of the sewage lagoons does not have to take place and will not until approximately 35 years.

We're using the same argument with the industrial waste pond. The exposure route is the sediments and the contaminants in the sediments. We are going to continue to use that industrial waste pond until approximately the year 2001, when all of the surface discharges will be stopped and that will be dry shortly thereafter.

We have shown you three sites. We have shown you the contaminants of concern, the sites of concern, and now we're going to go into how we're going to clean this up. We're using the National Contingency Plan, the EPA guidance of cleanup level, which is one in 10,000.

Assessing the various alternatives in cleaning up these sites, we have evaluated 28 different possible technologies or approaches of cleaning up the soils. We have decreased that list down into five retained remedial alternatives. The no action alternative, you have to assess the no action to see what the benefits are compared to doing nothing. Limited action, containment and institutional controls. Excavation and disposal and phytoremediation and disposal. The threshold criteria, the protection of human health and environment and compliance with the laws.

If your alternative does not meet the minimum threshold criteria, it is screened off. In our case, it does not meet the criteria. No action, if we did not do an action we would still have the unacceptable list. Alternative 1 and 2 have been eliminated. They do not meet the criteria of protecting human health and environment. In

Alternatives 2 and 3, a native soil cover and an engineered cover, the engineered cover did not meet the requirements, so we screened that off.

These middle five evaluation criteria are called balancing criteria, and we compare them with the modifying criteria to see which one is the best.

The last two, state acceptance and community acceptance. We are here to get your input, your opinions, so we can assess the community acceptance and, again, we have our state regulators and they are also listening to your comments and listening to what you have to say.

Of the alternatives, the containment with institutional controls, we have this Alternative 3a and 3b. This is 3a using an engineering cover. We're taking the contaminants, putting them in a central location, isolating from the exposed pathways, the animals, the humans, flora and fauna. The monitor would include air, soil and groundwater monitoring and we would make sure the cap and containment is adequate and that would be assessed every five years.

Excavation and disposal. This is similar to Alternative 3 where we're excavating the soil, but instead of putting it in containment at the Argonne National Laboratory, that would be moved off the location, which is a repository -- I'm sorry, it is a private facility in Utah that are certified to accept these waste or, on the location is a facility similar to RWMC or potentially something that is proposed by another WAG. Alternative 4a involves assessing the INEEL location, on the INEEL location, and alternative 4b is off the INEEL facility.

Remedial alternatives. Phytoremediation and disposal. We would go in and harvest the plant stems. Depending on the type of plant selected, we could harvest the root. The whole plant matter is dried, baled and sent off-site to an incinerator. It may sound similar to the excavation and disposal until you think about how much does a plant weigh versus how much the soil weighs. The plants that we're actually moving in, in this case is approximately one percent of actually removing the soil. Once those plants would be incinerated, your volume is further reduced from that one percent. The incinerator ash would be sent to an offsite facility that can accept those wastes. Similar to what Bruce had mentioned to the Naval Reactors Facility, we have our alternatives along the top.

Alternative 3a was containment with an engineered cover and 4a was in INEEL for containment, 4b is off the INEEL facility, in Utah, and 5 is, you can see, overall human health in the environment. So they are all ranked as the best or good at meeting those requirements. We have evaluation of long term as being the best and slightly better than offsite removal. Since once you treat and remove these contaminants it is fairly permanent versus just moving the soil.

The short-term effectiveness is fairly similar. Reduction of toxicity, mobility, and volume for treatment, Alternative 5 is the only alternative that treats or actually reduces any of those, so it's ranked the best. The others are ranked the worst. Implementability, that means has this -- is the technology currently available to implement this criteria? We use the other three. We use heavy equipment all of the time to move soils and we have ranked phytoremediation as being good. We're doing a green-house study to see which plants have the affinity to remove the specific contaminants that we're looking at.

The last of the five modifying criteria is cost. We have put the cost in the bottom and they're fairly easy to rank against each other. If we contain the waste on site, it's 7.6 million for the soils we have. If we send the soils down the road to another INEEL facility, it's approximately 5.9 million. If we send the soils to Utah, it's approximately 13.1 million and phytoremediation is estimated at 2.8 million.

In summary, once again, we had the 3 subunits. We had 37 identified sites at Argonne West. We have included two additional WAG 10 sites so we have 39 identified sites. Thirty-four of those units have acceptable risk and would require no additional action. We have identified nine areas, three of which have potential unacceptable risk to human health and those were the interceptor canal, the mound, and the pond. We have eight areas with unacceptable ecological risks. We have identified remedial alternatives, evaluated those alternatives and selected phytoremediation as best for the criteria for the Argonne National Laboratory. Alternative 5 would be used to clean up both sites.

In summary, basically, we are asking for your comments and we will listen to those comments and we will respond to those comments. You can give those tonight or you can send them in on the back of the sheet. Your responses and the comments go in what is called the Responsiveness Summary. The Record of

Decision is scheduled to come out later this summer, once again, based on the public comment period starting January 12th, and runs through February 10th. We encourage you to submit your comments tonight or through the mail. And with that, I would ask that Greg Bass come up and we can answer or have clarifications on any questions you have.

AUDIENCE MEMBER: My name is Rick. I have two questions. First of all, when you were looking at your consumer report chart on the best versus good versus bad for phytoremediation and it delisted as best for protection of health and the environment, how was that decided, using the plants, the protection of human health and the environment?

Oh, I see. They're equal.

MR. LEE: The on-site containment was ranked lower than these other alternatives for one reason only. That is, if we assess the risks at the Argonne National Laboratory, we're looking at the risks at Argonne National Laboratory. As soon as they are removed, we treat the soil. It is no longer there. But if we leave the soils on site we need to leave that one lower.

MR. KOCH: We feel that using phytoremediation we will meet our remedial action objectives similar to those that we have to to remove the soil.

AUDIENCE MEMBER: So the overall protection of human health in the environment as listed, meaning at the end of all of this --

MR. LEE: Yes. For the current scenario would be 23 picocuries per gram. And if you meet that level, then you are protected, of human health in the environment.

AUDIENCE MEMBER: This phytoremediation has been tested some but not as much as digging something off and moving it. I read and heard that with federally funded programs, they pretty much want you to veer away from untested -- I just wondered, does the federal government say we don't want you to do certain things because they're not as tested as digging it off or removing it?

MR. LEE: Argonne National Laboratory-East, which is located in Argonne, Illinois, has been doing phytoremediation research since 1990, and had implemented it in the field in Ohio, in the Ukraine, near the Chernobyl accident. Phytoremediation works. What we are doing right now in our greenhouse back at Argonne National Laboratory-East in Chicago, is to make sure, before we go after these sites, that phytoremediation, that we have the right plant selected. That they uptake the contaminants fast enough for us and that they work on our soils and our contaminants.

The soils they're testing are soils we have got out of the units we just saw. We know phytoremediation can work on our contaminants. We want to make sure it works fast enough. We want to make sure the plants extract enough of it soon enough.

AUDIENCE MEMBER: So there is no hesitation on the part of whoever would be hesitating because eight years of research and the success that is found at Argonne East is sufficient to show that this is a viable option?

MR. LEE: Right.

AUDIENCE MEMBER: The state is probably not as interested in the time frame as ANL-West is because they would like to clean up the site and get it listed as a national priority site. It's not really new technology at all. It's innovative. I admit we're using it as somewhat of a test case here, to see if it does work, and I would think that probably some other facilities -- 2 million doesn't appear to be cheap, but in the grand scheme of things for this kind of site, it is very cheap and much cheaper at other sites. Particularly, mining sites in Idaho are looking at this. It's the same kind of plants that they have by finding plants or species that are more selective. We're really pushing this and hoping it works.

MR. LEE: Anybody else?

MR. SIMPSON: This is the portion of the meeting where you can offer comments. Once again, when you make a comment, clearly speak your name and give your address for the court reporter. Who would like to go?

AUDIENCE MEMBER: This is not a comprehensive plan and it should be. The radioactive scrap and waste facilities is not included in this and it should be. It has got, as of 1981, it had 81 cubic meters of waste containing 9,823,000 curies of waste in there, and what are you going to do about it? This is another problem area that should be addressed in a truly comprehensive plan and it's not. It should be part of the process. It just defies any kind of logical understanding why when you have these contaminated leach pits and lagoons that you're going to continue to use them as you're using them now and you want to use them into the future.

Every gallon of wastewater and storm water runoff that goes in there exacerbates the whole problem, in terms of the contaminants being leached down towards the aquifer. This is just totally unacceptable. And why the regulators allow you to get away with it, I don't understand.

The sewage lagoon has got to be in there. That's a contaminated site and it's got to be closed, cleaned up, and if you want to continue to work there, then you build a new one, lined, that meets all of the regulations.

You do acknowledge that it is going to take 130 years for the cesium to decay to levels that aren't going to be hazardous to anybody that comes in contact with them. Yet, this is only this very vague sort of thing out there of 100-year monitoring and institutional control. I have yet to come across any kind of legally binding stipulation that insures that some agency of the federal government, and clearly there probably won't be a Department of Energy in 100 years, but there is no stipulation that some agency of the federal government is actually going to be there in 100 years, doing the monitoring and making sure that people don't get on that site and hurt themselves.

Again, there should be a trust fund to make sure that if the federal government and its agencies, like Argonne West, continue to break the law, that at least another regulatory agency at the state level or the local level would be able to access that trust fund and be sure that the monitoring and the institution control will continue.

You know, it comes back to this consolidation of the waste into a single location. I'm still convinced that it does not meet the applicable regulations, in terms of it being able to be permitted and licensed as a radioactive and hazardous waste disposal site. The phytoremediation is so bizarre it doesn't deserve a response.

The bottom line, what we have been advocating for, for years and years, is for the Department of Energy to build facilities that would treat these contaminated soils and all other types of waste media into a stable, vitrified form, that it can be stored on site until such time that a permanent safe repository is built and it can be sent there. The very legal, minimum, bottom line is that licensed, permitted, Resource Conservation Recovery Act, radioactive waste and hazardous waste dump sites be used for sending this contaminated waste to it.

Nothing less than that is acceptable.

Part of that criteria is that you can't -- under those regulations, you can't establish one on top of a sole source, which eliminates it from being put on the ANL site up at the north end by the aquifer. If you go in there and build a permittable, licensable, Subtitle C dump site, fine, but these other short-cuts just don't make it. That's it.

MR. SIMPSON: Anyone else?

At this time I would just like to say that we will be in Moscow again next month to discuss the Test Area North Comprehensive Study, and then in late March or April we will be here again to discuss the Idaho Chemical Processing Plant.

AUDIENCE MEMBER: What are the dates of those meetings?

MR. SIMPSON: The 23rd, 24th and 26th of February.

AUDIENCE MEMBER: When up here?

MR. SIMPSON: The 26th up here. There are no set dates for the Idaho Chemical Processing Plant Proposed Plan.

(Meeting concluded.)

C E R T I F I C A T E

STATE OF IDAHO)
: Ss.
County of Latah)

I, SHEILA G. KNAPSTAD, CSR, Freelance Court Reporter and Notary Public for the state of Idaho, No. 179; and Washington, No. KNAPSSG334D2, residing in Moscow, Idaho, do hereby certify:

That I was duly authorized to and did report the hearing in the above-entitled cause;

That the reading and signing of the deposition by the witness have been waived;

That the foregoing pages of this deposition constitute a true and accurate transcription to the best of my ability of my stenotype notes of the testimony of said witness.

I further certify that I am not an attorney nor counsel of any of the parties nor a relative or employee of any attorney or counsel connected with the action nor financially interested in the action.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on this 7th day of July, 1998.

SHEILA G. KNAPSTAD, CSR
Freelance Court Reporter Notary
Public state of Washington and
Idaho, Residing in Moscow, Idaho
My Commissions expire:
Washington: 5/1/99
Idaho: 12/09/03